

Refrigeration & Air Conditioning CHAPTERWISE Solved Papers

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Syllabus for the Trade of "RAC" Under Craftsman. Training Scheme

Semester : I

Syllabus for TT and TP

Weak No.	THEORY
1.	<u>INTRODUCTION TO TRADE, GENERAL SAFETY</u> Precautions and first aids, history of Refrigeration and Air conditioning Function, working, uses, specifications of refrigeration tools, instruments and equipment.
2.	<u>FITTING</u> Study the different types of Fitting hand tools, power tools, precision measuring instruments & their uses. Equipments used in fittings like drilling machines, grinding machines, types, specifications and care and maintenance.
3.	<u>FITTING-</u> Study the function, construction, working of fitting hand tools, precision measuring instruments & their use. Specification & their application.
4.	<u>SHEETMETAL</u> Study the function, construction , working, use, and application, specification of Sheet metal tools, instruments and equipment. Care and maintenance of tools. Types of sheet metal joints and their use. Rivet & riveting-their types and use.
5.	<u>ELECTRICAL</u> Electrical terms such as AC and DC supply, Voltage, Current, Resistance, Power, Energy, Frequency etc. Safety precautions to be observed while working on electricity. Conductors and Insulators, Materials used as conductors. Measuring Instruments such as voltmeter, ammeter, ohm meter, watt meter, energy meter and frequency meter. Earthing and its importance. Earth resistance. Insulation and continuity test.
6.	<u>INDUCTORS AND CAPACITORS</u> Effects of inductor and capacitors in an AC circuit. Inductive reactance, capacitive reactance, Impedance and power factor. Lagging and leading power factors. Single phase and Three phase supply system. Star and Delta connection and their comparison. Line voltage, Line current, Phase voltage and Phase current. Methods of improving power factor.
7.	<u>AC MOTORS AND THEIR TYPES.</u> Advantages of AC motor over DC motor. Revolving field theory. Phase splitting theory. Capacitor method and inductor method used to split the single phase. Torque-starting torque and running torque. Split phase induction motors, working principle and construction. Starting winding and running current. Method of changing the direction of rotation (DOR). Capacitor starts induction run motor, working principle and construction. Centrifugal switch and its function. Starter and its necessity DOL starter and the safety devices incorporated in it.
8.	Capacitor starts capacitor run motor working principle and construction. Starting capacitor and running capacitor Shaded pole motors, working principle and construction. Torque comparison among various single phase AC motors. Common faults, cause and remedies in motors.
9.	<u>ELECTRONICS</u> Introduction to Electronics. Basic Principles of semiconductors, Principles and application of Diodes.
10.	<u>RECTIFICATION, ZENER DIODE AS VOLTAGE REGULATOR</u> Transistors parameters- CB, CE, CC, configuration, amplification. SCR
11.	Photo diodes, photo transistors, multi-vibrator, CR & LR circuit, SCRs, UJTs, ICs.
12.	<u>WELDING</u> Introduction to basic principles of commonly used Welding processes, Arc welding, oxy fuel gas welding/ cutting, brazing & soldering.
13.	<u>WELDING TOOLS AND EQUIPMENT TYPE</u> Specification and use. Safety method in welding. Method of gas welding, gas used and flames adjustment, Difference between soldering and Brazing in terms of temperatures materials, joint strengths and application. Use of Oxy Acetylene, Oxy LPG and Air LPG for brazing/soldering

14.	<u>BASIC REFRIGERATION</u> Study the function, working, use, specifications of refrigeration tools, instruments and equipment, Fundamentals of Refrigeration, units and measurements, Pressure & its Measurements, Thermodynamics law.
15.	Science related to refrigeration, work, power, energy, force, Heat and Temperature, Different temperature scales, Thermometers, Units of heat, sensible heat, latent heat, super heating and sub-cooling, saturation temperature, pressure, types, units.
16.	Types of Refrigeration systems, Ton of Refrigeration, Study the constructions and working of vapor compression cycle, low side & high side of vapour compression system. Applications of vapour compression cycle.
17.	Construction and working of V.C. Cycle, fundamental operations, sub cooling and super heating.
18.	<u>REFRIGERATORS (Single Door)</u> Function, construction, working for single door refrigerator, specifications, trouble shooting, care and maintenance.
19.	<u>REFRIGERATOR (SINGLE DOOR)</u> Study the construction & working of single door Refrigerator, Study the electrical components of refrigerator, Study the mechanical components of refrigerator and their types. Study the heat exchanger, door gaskets, Heat Insulation materials. Care and maintenance of refrigerator.
20.	importance of flushing in evaporator and condenser, necessity of replacing capillary and drier. Evacuation, leak testing, gas charging method in refrigerator, Refrigerants used in Refrigerators and its properties.
21.	<u>FROST FREE REFRIGERATOR</u> Study the construction and working of Frost Free (2 or 3 door) Refrigerator parts particularly, the forced draft cooling, Air Duct circuit, temperature control in Freezer & cabinet of Refrigerator, the automatic defrost system, Study of Electrical accessories & their functions (Timer, Heater, BiMetal, Relay, OLP, T/S etc.) Refrigerator cabinet volume calculation.
22.	Study the construction and its working of two and three door frost free refrigerator. Care and maintenance, installation method

Trade : MECHANIC REFRIGERATION AND AIRCONDITIONING

Semester : II

Weak No.	Trade Theory
1.	<u>COMPRESSOR</u> Function, construction, working, application of compressor like, Reciprocating, rotary, scroll type.
2.	Study the construction & working of centrifugal compressor, wobble & smash plate compressor, Compressor efficiency factors, wet compression, oil, properties, lubrication methods.
3.	<u>MOTORS</u> Motors used in refrigeration And Air conditioning system, types, construction, working & their starting methods, Function of Starting relay, Capacitors, OLP's
4.	Production of rotating magnetic field by three phase AC supply. Working principle of three phase induction motor. Terms such as torque, slip, rotor frequency and their relation, Construction of squirrel cage induction motor, Importance of phase sequence, Construction of slip ring induction motor Comparison between SCIM and SRIM. Three phase motor starters such as DOL starter, Star-Delta starter, Auto transformer starter and Rotor resistance starter Common faults, causes and remedies in three phase AC motors.
5.	<u>CONDENSER</u> Function of condenser, types, Construction of air cooled condenser. Effect of choked condenser. Advantages, de scaling of air cooled condenser.

6.	Types of Air cooled condenser, application and advantages, Liquid receiver, pump down, application , types, function and working.
7.	<u>DRIER</u> Function of drier, types, application and its advantage.
8.	<u>EXPANSION VALVE</u> Expansion valve used in domestic refrigeration and air conditioning systems, Capillaries, Automatic and Thermostatic Ex valves.
9.	<u>EVAPORATOR</u> Working principle, Function, types of evaporators used in refrigerator, water coolers, bottle collers, window and split A.C. Super heating in evaporators, Function of accumulator and types, Methods of defrosting, heat exchanger.
10.	<u>REFRIGERANT</u> Classification of refrigerants, Properties, Chemical name and formulas, HFC, CFC, Ozone rule, substitute of CFC, Montreal protocol & India's CFC/HCFC phase out schedules. Ozone rules 2000.
11.	Refrigerant leak detection methods, Substitute refrigerants in lieu of CFC ARE their properties & comparison with CFCs, HFCs and HCs.
12.	<u>RETROFITTING</u> Changes of components & practices while retrofitting CFC appliances with HC refrigerants, Properties of HCs.
13.	<u>THERMAL INSULATION</u> Function, types, thermodynamic properties of heat insulation materials used it refrigeration and Air Conditioning systems.
14.	<u>WINDOW AIR CONDITIONER</u> Their types, applications, Construction and working, care and maintenance.
15.	<u>WINDOW AIR CONDITIONER</u> Study the construction and working of window A.C. Care and Routine maintenance, installation procedure.
16.	<u>SPLIT A.C.</u> Construction and working principle, types trouble shouting & care and maintenance.
17.	<u>SPLIT A.C. (Wall Mounted)</u> Construction and working principle, types, trouble shouting, Description of electrical components used in split A.C. Study the wiring circuit.
18.	<u>SPLIT A.C. (Floor & Ceiling mounted)</u> Construction and working principle, types, trouble shooting, Description of electrical components used in split A.C. Study the wiring circuit.
19.	<u>SPLIT A.C. (Duct)</u> Study of the Duct able split AC, its Construction and working principle, types, trouble shooting. Description of electrical components used in split A.C. Study the wiring circuit
20.	<u>MULTI SPLIT A.C.</u> Study the construction and working various components, electrical circuits, testing components, fault detection, leak testing, evacuation, gas charging, Installation, trouble shooting.
21.	<u>CAR AIR CONDITIONING</u> Study various components, electrical circuits, testing components, fault detection, leak testing, evacuation, gas charging, Installation, trouble shooting, Magnetic clutch operation free wheeling.
22.	<u>CAR AIR CONDITIONING</u> Study various components, electrical circuits, testing components, fault detection, leak testing, evacuation, gas charging, Installations, trouble shooting, Magnetic clutch operation, freewheeling, care and maintenance.

Trade: MECHANIC REFRIGERATION AND AIRCONDITIONING

Semester : III

Weak No.	Trade Theory
1.	<u>COMMERCIAL COMPRESSOR</u> Function, types, Construction & working, applications of compressors used in commercial refrigeration. Volumetric efficiency, Capacity control, factor influencing volumetric efficiency.
2.	Compressor oil, types, properties, types of lubrication methods such as splash, forced feed.
3.	Study the Construction and working principle of Centrifugal and Screw compressor.
4.	<u>WATER COOLED CONDENSER</u> Study the water cooled Condenser, its type and capacity, construction and working, de scaling , application.
5.	Evaporative condenser-their function, construction and application, Liquid receiver, function, Drier, types and application.
6.	<u>COOLING TOWER</u> Cooling tower, types, Construction, capacity, advantage & disadvantages of different type of cooling tower. Efficiency, approach and Cooling tower range.
7.	<u>WATER TREATMENT</u> Water treatment necessary, Causes of water contamination control of scale deposit corrosion, Slime and algae, Water softening
8.	<u>EXPANSION VALVE</u> Expansion valve types and function, construction, working principle, & their advantage & disadvantages, TXV, AXV, Float valves, fixed and modulating orifice controls & electronic Ex. Valves
9.	Selection of Ex. valves, and capillaries for various Refrigeration and Air Conditioning applications.
10.	<u>EVAPORATOR</u> Function, types, plate & Tube forced air DX evaporators. Types of Defrost system. Water Brine chillers. Types of brine used as secondary refrigerant, Accumulator, its function.
11.	Suction-liquid Heat-exchanger, their function, construction application & advantages
12.	<u>WATER COOLER</u> Study the refrigeration cycle of water cooler, types, construction & working, Capacity & applications. Study the electrical and mechanical components of storage type water cooler. Insulation material used in water cooler, refrigerant used in the system.
13.	<u>VISIBLE COOLER AND BOTTLE COOLER</u> Visible cooler & bottle coolers. Description, Construction & working, Substituting R-12 with R- 134 a or Hydrocarbon, care and maintenance, testing electric components.
14.	<u>DEEP FREEZER</u> Deep freezer description, Construction, working, specifications, function, care and maintenance, faults and remedies.
15.	<u>ICE CUBE MACHINE</u> Ice cube machine description, Construction, working, reverse cycle functioning & Circuit diagram, installation method.
16.	<u>ICE CANDY PLANT</u> Function, construction, working principle, Circuit diagram, capacity & types of compressor used. Brine composition to maintain required temperature. Operation maintenance.
17.	<u>ICE CREAM PLANT</u> Details about components of Ice plant their functioning, working principle, Circuit diagram, capacity & types of compressor used, temperature maintaining.
18.	<u>WALK IN COOLER & REACH IN CABINET</u> Details about components, their functioning working principle, Circuit diagram, capacity & types. Care and maintenance.
19.	<u>COLD STORAGE</u> Study of cold storage plant, parts, Construction, applications, controls & electrical diagram used in cold storage plant Food preservation spoiling agents-controlling of spoiling agents, preservation by refrigeration system, maintaining temperature in different places. Types of cold storage and its details.
20.	<u>Cold Storage</u> Type construction, capacity and specification. Use of vibration eliminator and shock absorber, Study the lay out and electric wiring of the storage plant. Mobile refrigeration in transport vehicles.
21.	Method of pressure testing, evacuation & charging to the system and testing efficiency. Cold storage plant operation, its common trouble & remedies. Deep freezing, Freezing tunnel blast freezer its function and working, its applications.

Trade: MECHANIC REFRIGERATION AND AIRCONDITIONING

Semester : IV

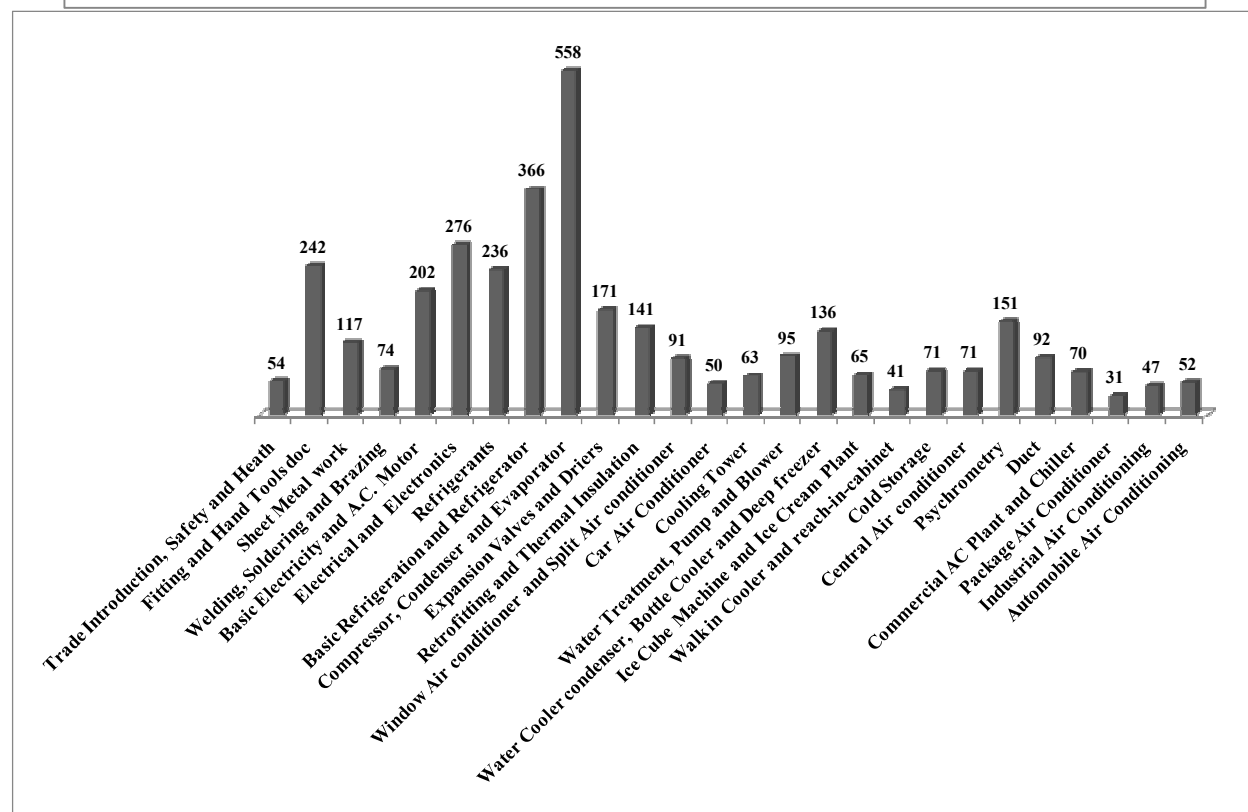
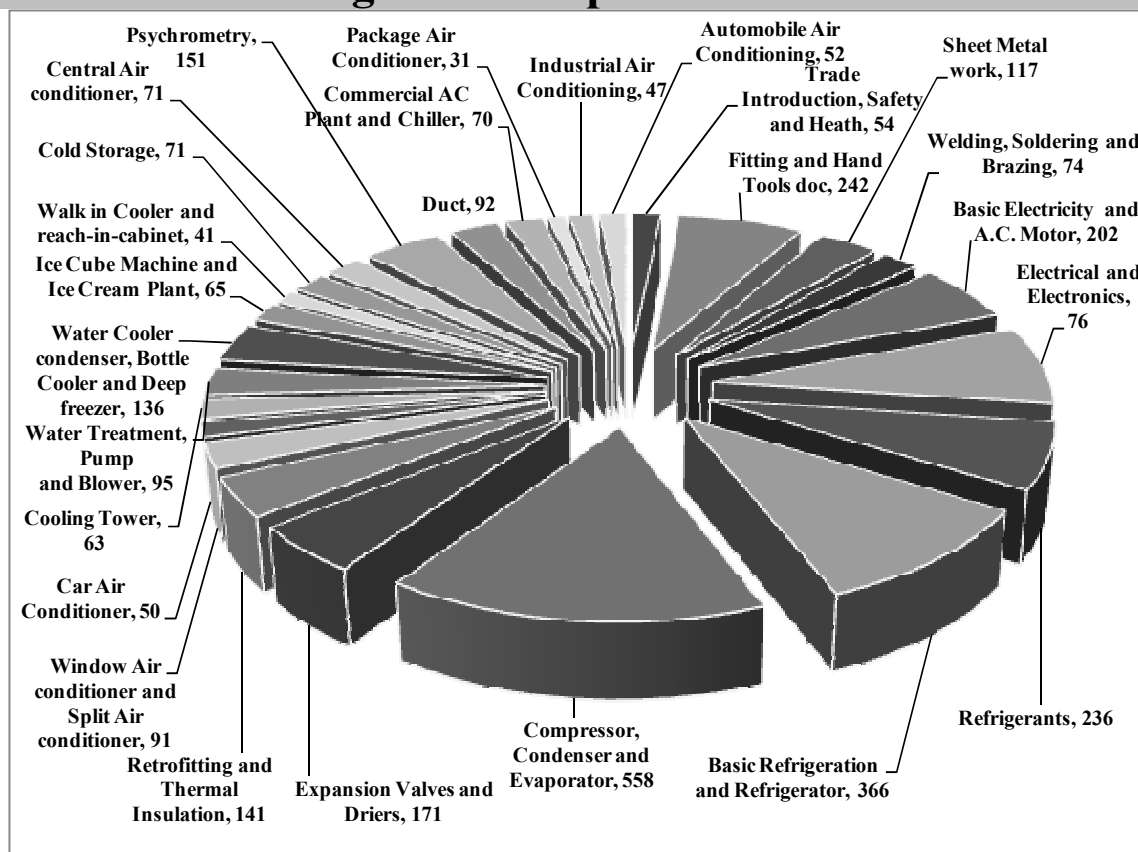
Weak No.	Trade Theory
1.	Fundamentals of Central Air conditioning, requirements of comfort A.C. study of psychometric terms, DBT, WBT, RH, enthalpy, dew point, and specific humidity.
2.	Types of Central air conditioning (Direct and indirect system) Construction, working, Components, faults, care and maintenance,
3.	Description of blowers & fans, function and types, static and velocity pressure measurements.
4.	<u>DUCT</u> Function, types, materials, duct designing, duct insulation, air distribution methods, air flow, AHU, fan, blower.
5.	<u>AIR FILTERS</u> Function of air filters, types, construction, maintenance, effect of choked Air filter.
6.	<u>SPLIT A.C. (Duct)</u> Study the duct able split AC, its Construction and working principle, types trouble shooting,
7.	<u>MULTI SPLIT A.C. (Duct)</u> Study various mechanical and electrical components construction and working, electrical circuits, testing components, fault detection, trouble shooting,
8.	<u>PACKAGE A.C.</u> Study Package AC, types, construction and working principle, trouble shooting, and various application Duct system, AHU.
9.	Care and maintenance, installation method, capacity calculation.
10.	<u>SPLIT PACKAGE</u> Construction and working principle, types, Study various electrical and mechanical components, trouble shooting.
11.	<u>CENTRALISED/INDUSTRIAL AIRCONDITIONING.</u> Construction and working principle, types, maintenance of Industrial Air-conditioning plant. Humidification and dehumidification methods. AHU
12.	Temperature and pressure controls used in AC plant, Its construction, working, safety devices, cooling towers, chilled piping lines,
13.	<u>DIRECT EX. SYSTEM</u> Understanding Direct expansion system. Operation & Preventive Maintenance Schedule of central AC Plant.
14.	Details of VRF system.
15.	<u>INDIRECT/CHILLER SYSTEM</u> Understanding central station AHU and FCU, air washers used in chilled water system, understanding lay out, modulating valves for temperature control, Expansion tanks.
16.	Study of Humidification & De-humidification, And Humidifier's & De-humidifier's
17.	Construction and study of commercial A.C. Plant, package chiller, screw chiller, reciprocating chiller.
18.	Controls used in AC system, Electromechanical, pneumatic and electronic.
19.	Introduction to heat load calculation in AC building. Sensible & latent heat load. Basic of HVAC and its applications.
20.	<u>AUTOMOBILE AC</u> Study the refrigeration cycle in automobile AC, Magnetic clutch operation, freewheeling
21.	Construction & working of car AC, Magnetic clutch operation, freewheeling. Effects of speed of engine, Trouble shooting in Car A.C.
22.	Planning for Preventive maintenance

Previous Year Question Chart

S.L.	Exam NAME	EXAM DATE/TIME	No. of Questions
RAILWAY RECRUITMENT BOARD ALP/Technician			
1.	Assistant Loco pilot (ALP) RAC	23.01.2019 (I-Shift)	75
2.	R.R.B. Ajmer Asst. Loco Pilot	10.10.2004	18
3.	R.R.B. Ajmer Asst. Loco Pilot	23.05.2004	22
4.	R.R.B. Allahabad Asst. Loco Pilot	03.08.2008	20
5.	R.R.B. Allahabad Asst. Loco Pilot	09.12.2007	21
6.	R.R.B. Bangalore Asst. Loco Pilot	25.01.2004	25
7.	R.R.B. Bangalore Asst. Loco Pilot	08.07.2007	26
8.	R.R.B. Bangalore Asst. Loco Pilot	15.07.2012	23
9.	R.R.B. Bhopal Asst. Loco Pilot	06.06.2010	24
10.	R.R.B. Bhubneswar Asst. Loco Pilot	14.06.2009	20
11.	R.R.B. Bhubneswar Asst. Loco Pilot	15.07.2012	22
12.	R.R.B. Bilaspur Asst. Loco Pilot	15.07.2012	24
13.	R.R.B. Chandigarh Asst. Loco Pilot	14.09.2008	20
14.	R.R.B. Chandigarh Asst. Loco Pilot	15.07.2012	21
15.	R.R.B. Chandigarh Asst. Loco Pilot	25.05.2003	25
16.	R.R.B. Chennai Asst. Loco Pilot	06.06.2010	24
17.	R.R.B. Chennai/Bangalore Asst. Loco Pilot	27.10.2002	23
18.	R.R.B. Gorakhpur Asst. Loco Pilot	08.10.2006	22
19.	R.R.B. Gorakhpur Asst. Loco Pilot	11.10.2009	20
20.	R.R.B. Gorakhpur Asst. Loco Pilot	12.10.2003	20
21.	R.R.B. Gorakhpur Asst. Loco Pilot	14.04.2002	18
22.	R.R.B. Gorakhpur Asst. Loco Pilot	21.10.2001	15
23.	R.R.B. Guwahati Asst. Loco Pilot	22.01.2006	17
24.	R.R.B. Jammu-Kashmir Asst. Loco Pilot	06.06.2010	18
25.	R.R.B. Kolkata Asst. Loco Pilot	02.11.2008	20
26.	R.R.B. Kolkata Asst. Loco Pilot	06.02.2005	14
27.	R.R.B. Kolkata Asst. Loco Pilot	16.07.2006	15
28.	R.R.B. Kolkata Asst. Loco Pilot	2014	16
29.	R.R.B. Kolkata Asst. Loco Pilot	29.09.2002	18
30.	R.R.B. Malda Asst. Loco Pilot	16.07.2006	20
31.	R.R.B. Mumbai Asst. Loco Pilot	03.06.2001	22
32.	R.R.B. Mumbai Asst. Loco Pilot	05.06.2005	16
33.	R.R.B. Mumbai Asst. Loco Pilot	14.06.2009	21
34.	R.R.B. Mumbai Asst. Loco Pilot	15.07.2012	25
35.	R.R.B. Mumbai Asst. Loco Pilot	16.07.2006	21
36.	R.R.B. Mumbai/Bhopal Asst. Loco Pilot	05.01.2003	20
37.	R.R.B. Muzaffarpur Asst. Loco Pilot	15.02.2009	15
38.	R.R.B. Patna Asst. Loco Pilot	04.02.2007	18
39.	R.R.B. Patna Asst. Loco Pilot	11.11.2001	17
40.	R.R.B. Patna Asst. Loco Pilot	2014	19
41.	R.R.B. Ranchi Asst. Loco Pilot	04.09.2005	20
42.	R.R.B. Ranchi Asst. Loco Pilot	08.07.2007	22
43.	R.R.B. Ranchi Asst. Loco Pilot	19.01.2003	25
44.	R.R.B. Ranchi Asst. Loco Pilot	2014	21
45.	R.R.B. Ranchi Asst. Loco Pilot	21.09.2003	23
46.	R.R.B. Secunderabad Asst. Loco Pilot	06.06.2010	24
47.	R.R.B. Secunderabad Asst. Loco Pilot	11.11.2001	25
48.	R.R.B. Secunderabad Asst. Loco Pilot	29.06.2008	20
49.	R.R.B. Siliguri Asst. Loco Pilot	2014	15
50.	R.R.B. Trivandrum Asst. Loco Pilot	20.06.2004	18
51.	R.R.B. Ahamadabad Asst. Loco Pilot	2014	17

52.	R.R.B. Ahamadabad Asst. Loco Pilot	17.10.2004	16
53.	R.R.B. Ajmer Asst. Loco Pilot	05.06.2005	22
ISRO			
54.	ISRO Technician-B (RAC)	28.08.2016	60
55.	ISRO Technician-B (RAC)	06.11.2016	80
56.	ISRO Technician-B (RAC)	02.06.2019	80
57.	ISRO Technician-B (RAC)	24.03.2019	80
58.	ISRO Technician-B (RAC)	22.04.2018	80
59.	ISRO Technician-B (Banglore RAC)	27.11.2016	60
60.	ISRO Technician-B Diesel Mechanic	27.11.2016	10
61.	ISRO Technician-B Fitter	20.11.2016	7
62.	ISRO Technician-B Motor Mechanic	27.11.2016	15
Delhi Metro Rail Corporation (Maintainer)			
63.	DMRC Maintainer (Fitter)	15.02.2017 (I-Shift)	7
64.	DMRC Maintainer (Fitter)	15.02.2017 (II-Shift)	5
65.	DMRC Maintainer (Fitter)	20.07.2014	6
66.	DMRC Maintainer (Fitter)	24.12.2006	5
67.	NMRC Maintainer (Fitter)	2017	6
68.	LMRC Maintainer (Fitter)	16.03.2016	5
69.	BMRC Maintainer (Fitter)	2016	4
INDIAN ORDNANCE FACTORY (IOF)			
70.	Indian Ordnance Factory	10.09.2017	15
71.	Indian Ordnance Factory	08.05.2016	15
72.	Indian Ordnance Factory	2013	10
73.	Indian Ordnance Factory	2012	10
DRDO			
74.	DRDO Machinist	2016	10
75.	DRDO Mechanic Motor Vehicle	2016	17
76.	DRDO Mechanic Diesel	2016	8
HPSSC/HSSC			
77.	HPSSC Technician (RAC)	24.09.2020	120
78.	HSSC Technician (RAC)	23.02.2020 Shift-I	40
79.	HSSC Technician (RAC)	23.02.2020 Shift-II	40
Kerala PSC			
80.	Kerala PSC Instructor (RAC)	2022	100
81.	Kerala PSC TG-2 (RAC)	31-08-2022	100
82.	Kerala PSC (RAC)	12-09-2020	100
83.	Kerala PSC Instructor (RAC)	2018	100
84.	Kerala PSC Instructor (RAC)	2016	100
Other State & PSU's Examinations			
85.	DSSSB Craft Instructor (RAC)	2019	100
86.	GSSSB Supervisor Instructor (RAC)	07-07-2019	150
87.	RSMSSB Instructor (RAC)	24-12-2019	100
88.	CRPF Constable Tradesman	2016	15
89.	SAIL Bokaro Steel Plant	2016	8
90.	HAL Fitter	2015	20
91.	VIZAG Steel Fitter	2015	10
92.	MES Fitter (Tradesman)	2015	10
93.	NTPC Fitter	2014	10
94.	BHEL Hyderabad Fitter	2014	18
95.	SAIL Durgapur Steel Plant	2014	12
96.	COAL India Fitter	2013	25
97.	Mazagon Dock Shipbuilders Ltd. Fitter	2013	20
98.	NCVT	2016, 2017, 2018, 2019	600
Total			3521

Trend Analysis of Previous Year RAC/Others Exams Papers Through Bar Graph and Pie Chart



1.

TRADE INTRODUCTION, SAFETY AND HEALTH

1. The minimum capacity (water) of recovery cylinder is
 (a) 10.9 kg (b) 11.9 kg
 (c) 12.9 kg (d) None of these

RRB ALP (RAC) 23.01.2019 (Shift-I)

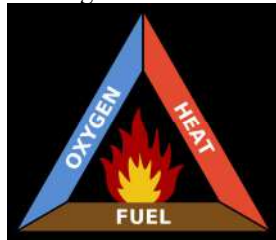
Ans. (b) : The minimum capacity (water) of recovery cylinder is 11.9 kg.

2. Fuel, heat and must be present in combination for the fire to continue to burn.
 (a) Hydrogen (b) Oxygen
 (c) Water (d) Nitrogen

RRB ALP (RAC) 23.01.2019 (Shift-I)

Ans. (b) : Fuel, heat and oxygen must be present in combination for the fire to continue to burn.

- These three elements are known as the fire triangle. The three sides of the triangle represent the independent ingredients needed for fire.
- If you take away one of these elements, or sides, you would not have a triangle. The same holds true of fires.



3. Dry powder extinguishers are used on type of fire.
 (a) Class A (b) Class B
 (c) Class C (d) Class D

RRB ALP Bangalore 08.07.2007

Ans. (d) : Dry powder extinguishers are used on class D type of fire.

- Fire caused due to metal or electricity is class D type fire.
- Carbon dioxide (CO₂), dry powder, CTC extinguisher are used to extinguish this type of fire.

4. extinguishers may be filled with carbon-tetrachloride and bromochlorodifluoromethane (BCF).
 (a) Halon (b) Foam
 (c) Water (d) CO₂

ISRO Tech.-B (RAC) 28.08.2016

Ans. (a): Halon extinguishers may be filled with carbon tetrachloride and bromochlorodifluoromethane (BCF).

- This equipment is used to extinguish fire caused due to electricity.
- Cylinder made of brass is filled with a liquid substance of carbon tetra chloride and (BCF).

5. Which tube is kept in the first aid box for healing injury?
 (a) Soframycin (b) Boroline
 (c) Betadine (d) Penicillin

RRB ALP Bhopal 06.06.2010

Ans. (c) : Betadine tube is kept in the first aid box for healing injury.

6. Which of the following is artificial respiration method?
 (a) Schafers method (b) Sylvester method
 (c) Labored method (d) All of these

RRB ALP Bhubneswar 14.06.2009

Ans. (d) : Schafers method, sylvester method and labored method are artificial respiration methods.

- According to the theory of artificial respiration for some reason, the victim stop breathing, cannot perform spontaneous inhalation and exhalation by himself, then if the first responder artificial respiration will help significant support for the victim's respiratory process.

7. First aid includes–
 (a) dettol (b) cotton
 (c) safety pin (d) all of these

RRB ALP Bhubneswar 15.07.2012

Ans. (d) : First aid includes following facilities and medicines for first aid treatment.

- Tincture of iodine
- Cotton
- Tincture benzoin
- Safety pin
- Dettol
- Raw plaster
- Burnol
- Wooden splinters
- Pain killers
- Netted cloth
- Bandage.

8. Which of the following is not a personal safety equipment for legs?

- (a) Barrier
 (b) Asbestos safety boot
 (c) Anti-static footwear
 (d) Bump camp

RRB ALP Bilaspur 15.07.2012

Ans. (d) : Barrier, asbestos safety boot and anti static foot wear are personal safety equipment but bump camp is not personal safety equipment for legs.

9. The shape of warning signs is–
 (a) Circular (b) Square
 (c) Triangular (d) None of these

ISRO Tech.-B (RAC) 06.11.2016

Ans. (c) : The shape of warning signs is triangular.

- These signs are used to give warnings related to any danger such as electric shock fear of fire etc.
- Their surface area is yellow and safety sign and border is coloured black.



10. The shape of prohibitive signs is–

- (a) Circular (b) Square
(c) Triangular (d) None of these

RRB ALP Chandigarh 15.07.2012

Ans. (a) : Prohibitive signs is circular in shape.

- These signs are used for prohibiting any harmful practices.
- They have a border and red coloured cross.
- They have a white surface area and the safety sign is printed above it with black colour.



11. The shape of mandatory signs is–

- (a) Circular (b) Square
(c) Triangular (d) None of these

RRB ALP Chandigarh 25.05.2003

Ans. (a) : Mandatory signs is circular or round in shape.

- These signs are used for giving instructions before and after the completion of work.
- Their surface area is blue and white coloured safety sign is printed on it.
- The signs insist on wearing gloves cap, goggles, shoes, mask, safety belt etc.



12. The background colour of the informative signs is–

- (a) White (b) Green
(c) Red (d) Yellow

RRB ALP Chennai 06.06.2010

Ans. (b) : The background colour of the informative signs is green.

- These sign surface area is green and the safety sign in white is colour.
- As for example, first aid kit, drinking water.

13. The background colour of warning signs is–

- (a) White (b) Green
(c) Red (d) Yellow

ISRO Tech.-B (RAC) 02.06.2019

Ans. (d) : Background colour of warning sign is yellow and the safety sign and border is coloured black.

14. The function of compound gauge is–

- (a) to measure the pressure
(b) to measure the vacuum
(c) to measure the temperature
(d) both (a) and (b)

RRB ALP Gorakhpur 08.10.2006

Ans. (d) : The function of compound gauge is to measure the pressure and vacuum.

15. What will be the effect of providing higher capacity OLP?

- (a) Current drawn will be high
(b) Motor winding will not be protected from damage
(c) Compressor will be cooled
(d) There will be unnecessary tripping

RRB ALP Gorakhpur 11.10.2009

Ans. (b) : The effect of providing higher capacity OLP the motor winding will not be protected from damage.

16. If a worker has suffered from electric shock, he should be.....

- (a) Given an alcoholic drink
(b) Given a cold drink
(c) Made a walk
(d) Kept warm and covered

RRB ALP Gorakhpur 12.10.2003

Ans. (d) : If a worker has suffered from electric shock he should be kept warm and covered.

17. Which one of the following is not the cost due to an accident?

- (a) Cost due to damage to machines, tools, material and property
(b) Cost of lost time of the injured person
(c) Cost of compensation and medical aid
(d) Cost due to increase in production

RRB ALP Gorakhpur 14.04.2002

Ans. (d) : The cost due to an accident is not the cost due to increase in production.

18. How long a rescue breath needs to be?

- (a) Delivered over 2 seconds
(b) Delivered over 1 seconds
(c) Long enough to make the chest rise
(d) A small puff of air

RRB ALP Gorakhpur 21.10.2001

Ans. (c): A rescue breath needs to be long enough to make the chest rise.

19. There is an accident–

- (a) Unplanned event
- (b) Uncontrollable event
- (c) Undesirable event
- (d) All of the above

Indian Ordnance Factory Fitter, 10.09.2017

Ans. (d) : Such incidents which are unfortunate, unknowingly, uncontrollably, undesirable, unplanned occurrences are called accidents.

• In the other word we can say that an unpleasant event that happens unexpectedly and causes damage, injury or death or called accident.

20. Which of the following is not an expense incurred due to an accident?

- (a) Expenses due to wear and tear of machinery, tools, materials and property
- (b) Loss of time of the injured person
- (c) The cost of compensation and medical
- (d) Expenses due to increase in production

Indian Ordnance Factory (Itarsi), 08.05.2016

Ans. (d) : Expenses due to increase in production is not an expense incurred due to an accident.

Here are some expenses due to accident are–

1. Damage of machine tools, materials and property
2. Loss of time of the injured person
3. Expenses incurred for compensation and medicals.

21. There is a safe way of doing things–

- (a) An effective and correct way of doing
- (b) An old method of doing
- (c) Quick method of working
- (d) Normal way of working

Indian Ordnance Factory, 2013

Ans. (a) : A safe way of doing work is to do it correctly and effectively. The chances of accident occurring with the workers doing such work are very less.

22. The best way to avoid accident is–

- (a) To work in the old method
- (b) To act in one's own method
- (c) Related to job, machine and place of work
- (d) Use of safety equipment

Indian Ordnance Factory, 2012

Ans. (c) : Method of avoid accidents are–

- (i) Self safety
- (ii) Safety of machines
- (iii) Safety of workplace
- (iv) Be aware of electrical hazards
- (v) Promote fire safety etc.

23. In case of an accident, the victim should–

- (a) Be asked to rest
- (b) Inquiry about the accident
- (c) Provide first aid immediately
- (d) Should be left on its own without treatment

DMRC (Maintainer) Fitter (Evening), 15.02.2017

Ans. (c): In case of any accident, first aid should be provided to the victim.

First Aid:-First aid is the provision of initial care in case of any type of injury.

• It is done by a person who is not skilled but is educated in taking care of a sick or injured person until he is stable.

24. What should be used to clean an oily floor?

- (a) Cotton waste
- (b) Adding water
- (c) By adding saw dust
- (d) By spraying CO₂ or sand

DMRC (Maintainer) Fitter (Morning), 15.02.2017

Ans. (c) : An oily floor should be cleaned by putting sawdust or sand, which helps to avoid slippage.

• Use a dedicated wet mop for the first layer of cleaning and finish off with a dry mop.

25. Fire is a mixture of–

- (a) Fuel, light and oxygen
- (b) Fuel, heat and oxygen
- (c) Fuel, heat and CO₂
- (d) Fuel, light and N₂

DMRC (Maintainer) Fitter, 20.07.2014

Ans. (b) : Fire is a mixture of fuel, heat and oxygen.

• Fire is usually caused by a chemical reaction between oxygen in the atmosphere and some source of fuel (gas or petrol or other).

26. How long should the relief breath last?

- (a) Should be given for 2 seconds
- (b) Should be given for 1 second
- (c) Should be given till the chest rises
- (d) A small puff of air should be given

DMRC (Maintainer) Fitter, 24.12.2006

Ans. (c) : Relief breaths should be given till the worker rises above the chest.

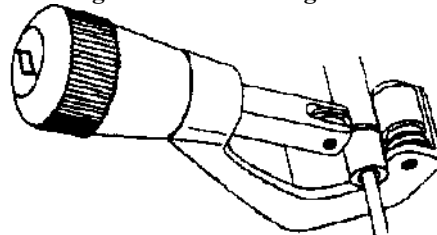
27. What should never be put on a burn?

- (a) Aloe vera
- (b) Water
- (c) Cocoa butter
- (d) Dry sterile dressing

BMRC Maintainer Fitter, 2016

Ans. (c) : If a worker is suffering from burn, then to get immediate relief from the pain, try to keep it away from the air by covering it with aloe vera water, dry sterile dressing on the burn site.

28. Shown figure of tool which given below is?



- (a) Flaring tool
- (b) Tube cutter
- (c) Swaging tool
- (d) Pitching tool

ISRO Technician-B (Benglore RAC), 27.11.2016

Ans. (b): The given figure which given below is a tube.
 • Tube cutter is used for small diameter annealed copper.
 • It consists of a V block on which the tube is supported and an adjustable circular carbon steel blade that cuts the tube.

29. Which of the following causes food at room temperature get spoiled?

- (a) Spices
- (b) Due to micro-organism
- (c) Due to air contact
- (d) None of these

ISRO Technician-B Diesel Mechanic, 27.11.2016

Ans. (b) : To keep food safe for a long time, a cool environment is required.

- At normal temperature, food gets spoiled due to micro-organism because microbes remain more active in normal environment.
- The process of preserving food by mechanical means is called refrigeration.
- Refrigeration refers to removing heat from an enclosed space or substance for the purpose of lowering the temperature.

30. Which of the following is accomplished in the process of refrigeration is done?

- (a) The temperature can be increase or decrease
- (b) The temperature can be controlled
- (c) Both (a) and (b)
- (d) None of the above

ISRO Technician-B Fitter, 20.11.2016

Ans. (c) : Refrigeration is the process in which the temperature can be increased or decrease by controlling it as per the requirement.

- Refrigeration was invented with the aim of protecting food from contamination.

31. For safety purpose where is the approximate place to store food items?

- (a) In cold environment
- (b) In normal environment
- (c) In hot environment
- (d) None of the above

ISRO Technician-B Motor Mechanic, 27.11.2016

Ans. (a) : Cold environment is considered suitable for keeping food items safe for a long time.

- Because micro-organism remain more active in normal environment by which food deteriorates quickly at room temperature.

32. Which of the following can be done by the process of refrigeration?

- (a) Control of cooling temperature
- (b) Reduce the temperature
- (c) Increase the temperature
- (d) All of these

DRDO Machinist, 2016

Ans. (b) : The temperature is reduced by the process of refrigeration.

- Refrigeration can be considered an artificial or human made cooling method.

- Refrigeration refers to the process by which energy in the form of heat is removed from a low temperature transferred to a high temperature medium.

33. How can a technician in the RAC trade remain accident free and happy throughout life?

- (a) By adopting safety rules
- (b) By making use of safety tools a habit
- (c) Both (a) and (b)
- (d) None of the above

DRDO Mechanic Diesel, 2016

Ans. (c) : Perfect skill in refrigeration and air conditioning trade after receiving the technician following the safety rules.

- Lifelong accident free by making use of safety tools in daily habits.
- One person can be happy by being accident free till life and security.

34. Cooling of an internal environment means–

- (a) lowering the temperature of that region
- (b) raising the temperature of that region
- (c) neglecting the temperature of that region
- (d) None of these

SAIL Durgapur Steel Plant, 05.09.2014

Ans. (a) : Cooling any internal environment means reducing the temperature of that area to a comfortable state.

35. If a fire on electric wires is to be extinguished, then–

- (a) What should be poured it
- (b) pouring sand or soil
- (c) CTC fire extinguisher
- (d) None of the above

BHEL Hyderabad, 2014

Ans. (c) : To extinguish fire on electric wires, CTC (Carbon Tetra Chloride) fire extinguisher is used.

- This device can be used to extinguish all type of fire is done.
- Carbon dioxide type fire extinguisher are also used to extinguish fire in electrical wiring.

36. What can be the result of a machine in the absence of complete information?

- (a) Refinement
- (b) Accident
- (c) Don't know
- (d) None of these

COAL India (Motor Mechanic), 2013

Ans. (b) : In the absence of complete information, a machine may result in an accident.

- Slight carelessness can cause an accident. The main reason for the accident are as follows– Carelessness, disinterest, haste, ignorance, eagerness, unsafe had tools, unsafe layout etc.

37. Which of the following events is not an accident?

- (a) Leaving the hammer from the hand and hitting the person standing in front.
- (b) Injuries to fingers due to sudden break of hacksaw blades

- (c) Cutting off your finger to earn money from insurance company
- (d) Fracture of arm due to slipping on oil on the floor

CRPF Constable Tradesman, 2016

Ans. (c) : The accident of chopping off your finger to earn money from the insurance company is not an accident because it is done voluntarily.

- Accident means that all the parts of a human being have to be damaged suddenly due to ignorance.

38. Which of the following is not the cause of the accident?

- (a) lack of interest in work
- (b) over active
- (c) over eager
- (d) undisciplined

HAL, 2015

Ans. (b) : Being more agile is not the cause of accident.

- Accidents are caused by unsafe hand tools, applied method of working carelessness, disinterest, lack of energy, improper arrangement etc.

39. Which of the following equipment is not the cause of accident?

- (a) Mushroom head chisel
- (b) Wide mouth spanner
- (c) Worn vernier calipers
- (d) Blend of tight saws

Mazagon Dock Shipbuilders Ltd., 2013

Ans. (c) : Worn vernier calipers is not the cause of accident because worn vernier caliper cannot cause any kind of accident.

- Vernier calipers are measuring instruments.
- The least count of vernier caliper is 0.02 mm.

40. The main cause of industrial accident is–

- (a) Carelessness
- (b) Unsafe hand tools
- (c) Unprotected layout
- (d) All of these

MES Automobile Tradesman, 2015

Ans. (d) : Most of the accidents in factories are due to carelessness. While working, the worker should take care of himself and others also.

- There are many reasons of accident some of them are like unsafe hand tool, lack of cleanliness, ignorance etc.

41. What comes under unsafe clothing in the workshop?

- (a) Loose cloths
- (b) Tie
- (c) Muffler
- (d) All of these

R.R.B. Ahmedabad Asst. Loco Pilot, 2014

Ans. (d) : Unsafe clothing in the workshop like loose clothes use of tie, muffler etc. is prohibited.

- In the workshop, the worker should wear safe clothes according to the workshop.
- Apart from this, long hair of the worker can also cause of accident by tightening it in the machine.

42. The best way to avoid accident is–

- (a) Wearing safety equipment
- (b) Precaution related to job machine and work area obey
- (c) Doing things in his own way
- (d) By working like a skilled worker

R.R.B. Ahmedabad Asst. Loco Pilot, 17.10.2004

Ans. (b) : Following precautions related to job, machine and workplace is the best way to avoid accident.

- Cutting tools should not be kept with measuring tools in the workshop.
- There should be a suitable fixed place for flammable materials in the workshop.

43. Technical students must be practice during their studies–

- (a) Protective measures
- (b) Hand tools
- (c) To work on machines
- (d) All of these

R.R.B. Ajmer Asst. Loco Pilot, 05.06.2005

Ans. (a) : Technical students should practice protective measure during their study period safety.

- Always wearing boots during walk in workshop because there is a fear of getting injured due to the iron shavings coming out of the machines.
- Technical students should never work in the workshop by wearing loose clothes, tie, muffler etc.

44. To extinguish fire in electrical workshops–

- (a) Fire extinguishers should be available
- (b) Buckets filled with sand should be available
- (c) There should be an over tank filled with water for the provision of water
- (d) All the above three items should be available

R.R.B. Ajmer Asst. Loco Pilot, 10.10.2004

Ans. (d) : Fire extinguishers for extinguishing fire in electrical workshops, buckets filled with sand, water filled for water arrangement in electrical workshops.

- A fire extinguisher is a device by which liquid, gas or powder is sprayed on burning objects and fire can be extinguished by stopping the supply of oxygen to the burning object.

45. Which liquid, air pressure in CTC fire extinguisher is filled with?

- (a) Carbon tetrachloride (CCl₄)
- (b) Carbon dioxide (CO₂)
- (c) Bromochloro-di-fluoro methane (CBrClF₂)
- (d) None of these

R.R.B. Ajmer Asst. Loco Pilot, 23.05.2004

Ans. (a) : CTC (Carbon tetrachloride) type fire extinguisher is filled with air pressure.

- This device is generally used to extinguish all types of fire.
- The liquid covers the burning object and immediately extinguish the fire by cutting off its oxygen supply gives.

46. To extinguish a fire caused by petrol is used for–

- (a) Foam type fire extinguishers
- (b) Sand bucket
- (c) Bucket of water
- (d) Dry powder fire extinguishers

R.R.B. Allahabad Asst. Loco Pilot, 03.08.2008

Ans. (a) : Foam type fire extinguishers is used to extinguish a fire caused by petrol.

• This type of extinguisher produces foam along with water jet. In order to make this, substance like mineral oil soap etc. are mixed with air pressure and filled with water.

47. Which is generally used to extinguished the fire caused by electricity?

- (a) Of water
- (b) Oil
- (c) RRB
- (d) None of these

R.R.B. Allahabad Asst. Loco Pilot, 09.12.2007

Ans. (d) : (sand buckets) are used to extinguish electrical fires.

• They are placed outside from the workshop in buckets painted with red colour.

• These buckets are symbolically written fire.

48. Which of the following fire extinguishers can be used to extinguish all types of fires?

- (a) CTC fire extinguisher
- (b) CO₂ fire extinguisher
- (c) Dry powder fire extinguisher
- (d) All of these

R.R.B. Bangalore Asst. Loco Pilot, 25.01.2004

Ans. (a) : In this type of apparatus, a liquid called carbon tetrachloride (CCL) or boromochloro dichloromethane (BFC) is filled with air pressure.

• This device is generally used to extinguish all types of fires.

• This liquid covers the burning object and its supply of oxygen immediately extinguishers the fire.

49. Consider the following statements–

Statement I : Carbon dioxide gas helps in combustion it occurs.

Statement II : Oxygen gas does not help in burning.

Which of the above statement is/are correct?

- (a) Statement I is correct
- (b) Statement II is correct
- (c) Both statements I and II are correct
- (d) Both statements I and II are incorrect

R.R.B. Bangalore Asst. Loco Pilot, 08.07.2007

Ans. (d) : Both statements I and II are incorrect because carbon dioxide gas does not support combustion while oxygen gas does.

• This type of device is filled with sodium bicarbonate (NaHCO₃) solution.

50. In which of the following, cold water shower is used for extinguish the fire?

- (a) Kerosene oil
- (b) Paper
- (c) LPG gas
- (d) Electric wire

R.R.B. Bangalore Asst. Loco Pilot, 15.07.2012

Ans. (b): Cold water shower is used for extinguisher the paper wood and cloth etc. fire.

• In this type of fire extinguisher water is filled with air pressure.

51. The simplest method of artificial respiration is

- (a) Sylvester method
- (b) Shaffer's method
- (c) Mouth to mouth respiration
- (d) None of these

R.R.B. Bhopal Asst. Loco Pilot, 06.06.2010

Ans. (c) : Under artificial respiration, the victim is given breath through various artificial procedures when there is no breath.

• There are four main method of artificial respiration–

1. Sylvester method
2. Schafer method
3. Mouth to mouth respiration
4. Inhalation

• In this method, respiration is completed by filling air directly in the mouth of the victim.

52. First aid box should be keep well prepared and

- (a) On important place
- (b) In the field of machining
- (c) On place of easy accessible
- (d) In right position

ISRO Tech.-B (RAC) 24.03.2019

Ans. (c) : First aid box should be keep well prepared and on place of easy accessible.

• Inside the workshop for an accident victim first aid box should be arranged in advance.

• The following materials should be available for first aid–

Example- Tincture iodine, tincture benzene, dettol, burnol, pain reliever, anesthetic, bandage, gauze, cloth, cotton, safety pin etc.

53. If a patient does not respond will to mouth to mouth resuscitation, a first aid should–

- (a) Seek medical help immediately
- (b) Seeking broken bones
- (c) Keeping the body warm with a blanket
- (d) Checking the pulse and eyes

R.R.B. Bhubneswar Asst. Loco Pilot, 15.07.2012

Ans. (a) : If a patient does not respond will to mouth to mouth resuscitation, then a first aider should be seek medical helps immediately.

54. What are the causes of fire?

- (a) Oxygen
- (b) Fuel and carbon dioxide
- (c) Heat and carbon dioxide
- (d) Fuel, Heat and oxygen

ISRO Tech.-B (RAC) 22.04.2018

Ans : (d) Fire occurs by chemical reaction between oxygen in the atmosphere and any source of fuel (such as wood or petrol).

• Because there is oxygen around wood or petrol.

• The fuel needs to be noted to a sufficient temperature for the reaction to take place.

2.

FITTING AND HAND TOOLS

1. Snips are used for _____.
 (a) Measuring tool (b) Marking tool
 (c) Cutting tool (d) Supporting tool
RRB ALP Guwahati 22.01.2006

Ans. (c) : Snips also known as hand shear are used for cutting fool.

■ Snips are used to cut sheet metal up to 1.2 mm thickness.

2. Where should be the level of datum surface zero setting of the vernier calliper, while using a straight scriber?
 (a) Above (b) Blow
 (c) Behind (d) In front of
RRB ALP Jammu-Kashmir 06.06.2010

Ans. (a) : While using a straight scriber, the zero setting of the vernier calliper is at a level above the datum surface.

■ The offset scriber permits zero setting of the instrument from the datum surface.

3. A substance used in between two metallic surfaces or joints to make them leakproof is called—
 (a) Gasket (b) Seal
 (c) Stopper (d) Shim
RRB ALP Kolkata 02.11.2008

Ans. (a) : A substance used in between two metallic surface or joints to make them leak proof is called 'Gasket'

■ A gasket is put in between the components that are joined to solve leakage problems. This increased the efficiency and life of components.

■ Gaskets are made of different materials such as - copper, aluminium, asbestos, paper, cork fiber and synthetic rubber.

4. At which pressure the gauge indicates as zero—
 (a) Vacuum pressure
 (b) Critical pressure
 (c) Absolute pressure
 (d) Atmospheric pressure
RRB ALP (RAC) 23.01.2019 (Shift-I)

Ans. (d) : The pressure is measured in two different systems. In the first system, it is measured above the absolute zero or zero vacuum which is termed as absolute pressure.

In the second system pressure is measured above the atmospheric pressure, it is known as Gauge Pressure. Gauge Pressure is measured after taking atmospheric pressure as a datum, thus it can be concluded that on the pressure scale atmospheric pressure is marked as zero.

Absolute Pressure = Atmospheric + Gauge Pressure

5. Which tool is used for extracting nails from the wood?
 (a) Pincer (b) Hand drill
 (c) Bradawl (d) Poker
RRB ALP Kolkata 16.07.2006

Ans. (a) : Pincer is used for extracting nails from the wood.

■ It has arms of forged steel hinged crosswise.

■ The two jaws have their outer faces plane and inner faces are beveled to obtain on edge.

6. is used for cutting copper and aluminium wires of smaller diameter (less than 4 mm).
 (a) Flat nose pliers (b) Long nose pliers
 (c) Round nose pliers (d) Side cutting pliers
RRB ALP Kolkata 2014

Ans. (d) : Side cutting pliers are used for cutting copper aluminium, brass, iron or steel wires of small diameter (less than 4mm)

■ Side cutting pliers are also known as Diagonal pliers.

■ Needle-nose pliers also known as point-nose pliers are both cutting and holding pliers used by artisans, jewelry designers, electricians network engineers and other tradesmen to bend, reposition and snip wire.

7. Angle sheet, c-clamp, stake and mallets are type of
 (a) Measuring tools (b) Fire extinguishers
 (c) Folding tools (d) Hammers
RRB ALP Kolkata 29.09.2002

Ans. (c) : Angle sheet, C-clamp, stake and mallets are type of folding tools.

Folding Tools : The tools commonly used in the folding of sheet metal are –

- (i) Angle sheet (ii) Folding bar
 (iii) C-clamp (iv) Stakes
 (v) Mallet

8. is a machining operation for producing flat seat for bolt head, washer or nut at the opening of drilled hole.
 (a) Counterboring (b) Spot facing
 (c) Drilling (d) Milling
Kerala PSC Inst. (RAC) 2018

Ans. (b) : Spot facing : It is a machining operation for producing a flat seat for a bolt head, washer or nut at the opening of a drilled hole.

■ It is similar to counter boring, except that it can be used for spot facing as well.

■ Spot facing also done by Fly cutters by end cutting action.

■ A vertical milling machine is used for spot - facing.

9. Peen is a part of

- (a) Face (b) Cheek
(c) Eyehole (d) Hammer head

RRB ALP Mumbai 03.06.2001

Ans. (d) : Peen is a part of Hammer Head.

Some other parts of Hammer –

- (a) Eye hole
(b) Cheek
(c) Face
(d) Handle

10. What is the weight of engineer's hammer used for marking purpose?

- (a) 125 gm (b) 250 gm
(c) 1 kg (d) 1.5 kg

Kerala PSC Inst. (RAC) 31.08.2022

Ans. (b) : An engineers hammers are specified by their weight and the shape of the peen.

■ The weight of an engineers hammer used for marking purpose is 250 gm.

11. Which file is used for ordinary filing purpose?

- (a) Rough file (b) Bastard file
(c) Second cut file (d) Smooth file

RRB ALP Mumbai 14.06.2009

Ans. (b) : Bastard File is used for ordinary filing purpose.

■ Bastard files are used for cutting large amount of materials.

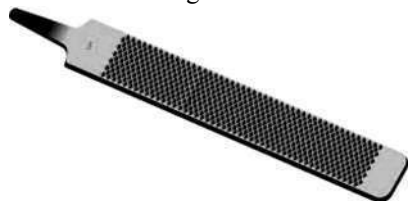
12. has individual, sharp and pointed teeth in line and is useful for filing wood.

- (a) Double cut (b) Single cut
(c) Curved cut (d) Rasp cut

RRB ALP Mumbai 15.07.2012

Ans. (d) : Rasp cut file : It is available in semi-circular shape. It has different sharp and pointed teeth made in a single row.

■ It is useful in wood filing.



13. Which file is used for internal curved surface?

- (a) Knife-edge cut (b) Triangular cut
(c) Half round cut (d) Square cut

RRB ALP Mumbai 16.07.2006

Ans. (c) : Half round cut file is used for internal curved surfaces.

■ Half round file is in the shape of a segment of a circle.



14. The size of a vice is stated by the..... of the jaws.

- (a) Width (b) Length
(c) Height (d) Depth

RRB ALP Mumbai 05.01.2003

Ans. (a) : The size of a vice is stated by the width of the jaws.

■ Vice is made of cast iron or cast steel and used to hold the workpiece for filing, sawing threading and other hand operations.

15. Universal surface gauge is used for–

- (a) Setting jobs on machines parallel to datum surface
(b) Protect the work surface from damage
(c) Hold work for sawing
(d) Filing internal curved surface

RRB ALP Muzaffarpur 15.02.2009

Ans. (a) : Universal surface is mostly used for

- (a) Setting jobs on machines parallel to datum surface.
(b) Scribing lines parallel to a datum surface.
(c) Setting jobs concentric to the machine spindle.

Types of surface gauge –

1. Fixed type surface gauge
2. Universal type surface gauge

16. are used to support the job and to provide a vertical/angular plane for marking.

- (a) Rocker arm (b) Scriber
(c) Spindle (d) Angle plate

RRB ALP Patna 04.02.2007

Ans. (d) : Angle plates are used to support the job and to provide a vertical/angular plane for marking.

■ Angle plates are made of steel or cast iron.

Types of Angle plate.

- (1) Box Angle Plate
(2) Solid Angle Plate
(3) Adjustable Angle plate

17. What is the angle of prick punch?

- (a) 10° to 30° (b) 30° to 60°
(c) 60° to 90° (d) 90° to 120°

RRB ALP (RAC) 23.01.2019 (Shift-I)

Ans. (b) : The angle of prick punch is 30° to 60° prick punch is used for marking light punch marks needed to positive dividers. For the current location and seating of the divider point prick punch marks of 30° are used.

Note - Punches are made up of high carbon steel hardened & ground.

18. is a spring loaded lever which helps to set the vernier slab in any position on the beam scale.

- (a) Vernier slide (b) Movable jaws
(c) Depth bar (d) Thumb lever

RRB ALP Patna 2014

Ans. (d) : The thumb lever is a spring - loaded lever which helps to set the vernier slab in any position on the beam scale.

19. is used for cutting keyways, grooves and slots.

- (a) Flat chisel
(b) Cross-cut chisel
(c) Half round nose chisel
(d) Diamond point chisel

RRB ALP Ranchi 04.09.2005

Ans. (b): Cross cut chisel is used for cutting keyways grooves and slots.

Chisel : Chisel is a type of cutting tool which is used by a fitter for chipping and cutting operation.

■ Chisel is made of high carbon steel and chrome/vanadium steel.

Types of chisel –

- (1) Flat Chisel
- (2) Cross-Cut chisel
- (3) Diamond Point chisel
- (4) Web chisel
- (5) Half Round chisel.

20. Metal bar used to tighten nuts having allen keys wrenches and pliers are made up of

- (a) Octagonal metal bar
- (b) Square metal bar
- (c) Hexagonal metal bar
- (d) Round metal bar

RRB ALP Ranchi 08.07.2007

Ans. (c) : Metal bar used to tighten nuts having allen keys wrenches and pliers are made UP of Hexagonal metal bar of tool steel shaped into the form of 'L'.

21. Internal threads are cut using

- (a) Welding
- (b) Taps
- (c) Drilling
- (d) Sheet metal

RRB ALP Ranchi 19.01.2003

Ans. (b) : Internal threads are cut using a cutting tool known as Tap. The operation of cutting an interval thread is known as Tapping.

■ When tapping by hand, straight - flute hand taps are used. These are made from hardened high speed steel.

22. A hand vice is used for

- (a) Small jobs
- (b) Medium jobs
- (c) Large jobs
- (d) None of these

RRB ALP Ranchi 2014

Ans. (a) : Vice : A vice is a device used for holding a work or job in a workshop. Different operations such as – Filing, chipping reaming, tapping, swainging and banding etc. are completed by tying a job in the vice.

■ Size of vice is selected according to the width of its Jaw.

Hand Vice: Hand vice is used for holding small objects such as – screw, rivet keys etc. These objects can not be comfortably held by a bench or other big vices.

23. Centre Punch is

- (a) Cutting tool
- (b) Marking tool
- (c) Measuring tool
- (d) None of these

RRB ALP Ranchi 21.09.2003

Ans. (b) : Centre punch is a marking tool.

After drawing marking lines on a job by scribe, different kind of punches are used to make these marking permanent.

Type of Punch and their angle –

Punch	Angle
Centre Punch	90°
Dot Punch	60°
Prick Punch	30°

24. Taps are used for

- (a) Cutting external threads
- (b) Drilling a hole
- (c) Producing internal threads
- (d) Measuring internal diameter of a hole

RRB ALP Secunderabad 06.06.2010

Ans. (c) : Taps are used for producing internal thread.

The operation of cutting internal thread is known as 'Tapping' which uses a cutting tool called 'Tap'

■ When tapping by hand - straight - Flute hand taps are used. These are made from hardened high speed steel.

25. Grinding is mainly used for

- (a) Rough finishing
- (b) Semi rough finishing
- (c) Fine finishing
- (d) None of these

Kerala PSC Inst. (RAC) 2022

Ans. (c) : Grinding : It is a metal cutting operation in which the work is carried similar to a cutting tool using, a rotational grinding wheel. However, grinding is often used as a finishing operation in which metal of 0.25 mm to 0.50 mm thickness can be removed from a job. So we can say that Grinding is mainly used for fine finishing.

■ For grinding hard material a soft wheel and for grinding soft material, a hard wheel is selected.

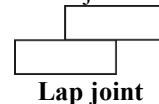
26. In a lap joint

- (a) The plates are joined at the edges
- (b) The plates are kept one over other
- (c) One plate is kept horizontally
- (d) Other is vertical

RRB ALP Secunderabad 29.06.2008

Ans. (a) : In a Lap joint the plates are joined at the edges. In this joint the members overlap.

■ Lap joints can be used to join wood, plastic, or metal.



Lap joint

27. Which of the following is velocity measuring instrument?

- (a) Psychrometer
- (b) Thermometer
- (c) Anemometer
- (d) Micrometer

RRB ALP Siliguri 2014

Ans. (c) : Anemometer is a velocity measuring device.

■ Anemometer has a spinning wheel. The stronger the wind blows, the faster the wheel rotates. It counts the number of rotation, which is used to calculate wind speed.

Some other instruments and their uses –

Instrument	Use
Altimeter	Measuring altitude
Barometer	Measuring atmospheric pressure
Hydrometer	Measuring the density of liquid
Hygrometer	Measuring the Humidity in atmosphere.

Lactometer	Measuring the purity of milk.
Sphygmo manometer	Measuring blood pressure
Pitot tube	The velocity of flow in rivers or open channel flow velocity measurement, Electricity.
Thermo meter	Measuring Temperature

28. The rotor and stator interval of small hermetic unit is checked.

- (a) by sheet gauge (b) by screw gauge
(c) by feeler gauge (d) by radius gauge

RRB ALP Trivandrum 20.06.2004

Ans. (c) : The rotor and stator interval of small hermetic unit is checked by feeler gauge.

Hermetic compressor : A hermetic or sealed compressor is one in which both compressor and motor are confined in a single outer welded steel shell.

■ Hermetic compressors are ideal for small refrigeration system, where continuous maintenance can not be ensured.

29. Which of the following micrometer has thimble and sleeve graduations in opposite directions as compared to outside micrometer?

- (a) Inside micrometer (b) Depth micrometer
(c) Tube micrometer (d) Flange micrometer

RRB ALP Ahamadabad 2014

Ans. (b) : Depth micrometer has thimble and sleeve graduations in opposite directions as compared to outside micrometer.

30. Depth micrometer is used to check the size of higher ranges, the reason for this is—

- (a) it has many extension rods with it
(b) it has long spindle
(c) it has long sleeve
(d) it has adjustable base

RRB ALP Ahamadabad 17.10.2004

Ans. (a) : Depth micrometer is used to check the size of higher ranges because it has many extension rods with it.

Depth Micrometer : This is used to measure the depth of bores, counter bores, slots, internal slots and holes with accuracy. In this, the graduation is read similar to a standard micrometer.

31. Marking the datum line is marked on the external micrometer at the—

- (a) frame (b) thimble
(c) spindle (d) barrel

RRB ALP Ajmer 05.06.2005

Ans. (d) : Marking the datum line is marked on the external micrometer at the barrel.

■ On the barrel or sleeve a 25 mm long datum line is marked. This line is further graduate to millimeters and half millimeters i.e. - 1 mm or 0.5 mm.

32. Which of the following is not a type of micrometer?

- (a) Vernier micrometer
(b) Inside micrometer
(c) Sheet micrometer
(d) Flat edge micrometer

RRB ALP Ajmer 10.10.2004

Ans. (d): Flat edge micrometer is not a type of micrometer.

Special types of micrometers -

1. Tube Micrometer
2. Screw Thread Micrometer
3. Flange Micrometer
4. Dept Micrometer
5. Digital Micrometer
6. Ball Micrometer
7. Stick Micrometer
8. Key-way Depth Micrometer
9. Outside micrometer with Interchangeable Anvil.
10. Inside Micrometer.

33. Micrometer is based on which principle?

- (a) On the principle of proportional speed of gear
(b) On the principle of the distance between anvil and spindle
(c) On the principle of lead and pitch of screw thread
(d) None of these

Kerala PSC Inst. (RAC) 2016

Ans. (c) : A micrometer works on the principle of the lead and pitch of a screw thread i.e. – it works like a nut and bolt.

■ Micrometer is a precision instrument which can measure a job with a precision of 0.01 mm in metric system, 0.001 inch in British system.

Parts of Micrometer

1. Frame
2. Barrel
3. Thimble
4. Spindle
5. Anvil
6. Spindle Lock nut
7. Ratchet stop

34. Who invented micrometer?

- (a) Jean Palmer (b) John Pascal
(c) Perry dean (d) None of these

RRB ALP Allahabad 03.08.2008

Ans. (a) : Jean Palmer is inventor of micrometer.

■ Micrometer is a precision instrument and least count is 0.01 mm of micrometer.

35. The least count of micrometer in metric system is—

- (a) 0.001 mm (b) 0.01 mm
(c) 0.1 mm (d) 1.01 mm

RRB ALP Allahabad 09.12.2007

Ans. (b) : The least count of micrometer in metric system is 0.01 mm while least count of micrometer is 0.001 inch in British system.

■ It works on the principal of the lead and pitch of a screw thread.

36. What is used to stabilize the job in the frame of micrometer?

- (a) Thimble lock (b) Ratchet stop
(c) Steeve lock (d) Lock nut

RRB ALP Bangalore 25.01.2004

Ans. (d) : For stabilize the job in the frame of micrometer lock nut is used.

Parts of Micrometer -

Thimble : Connected to the spindle graduation are marked on its bevel parts.

Ratchet stop : To ensure equal pressure between the measuring surface.

Barrel : The parts attached on the frame with the graduated datum line.

37. The value of one part of vernier bevel protector is—

- (a) 1° (b) 5°
(c) 0.01° (d) 30°

RRB ALP Bangalore 08.07.2007

Ans. (a) : The vernier bevel protractor is a precision instrument used for measuring angle to an accuracy of 5° minute it means 12th part of 1°.

■ The value of each main-scale division of a vernier bevel protractor is 1°.

38. Which of the following is not a precision measuring instrument?

- (a) Micrometer (b) Vernier caliper
(c) Vernier gauge (d) Dial gauge

Kerala PSC (RAC) 12.09.2020

Ans. (c) : Vernier gauge is not a precision measuring instrument while micrometer, dial gauge, and vernier caliper are precision measuring devices.

■ The least count of vernier caliper is 0.02 mm.

■ Least count of micrometer is 0.01 mm.

39. Main scale is on which part of the vernier caliper?

- (a) Tail (b) Beam
(c) Vernier slide (d) Jaw clamp

RRB ALP Bhopal 06.06.2010

Ans. (b) : A vernier caliper consists of two main parts -

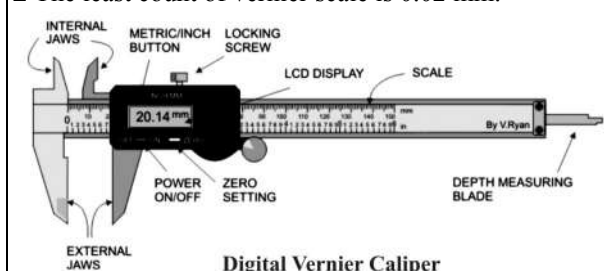
1. Main scale engraved on a solid L-shaped frame (beam).

2. The vernier scale that can slide along the main scale.

■ Vernier caliper is commonly used to measure accurately-

- (a) Outside diameter of shafts
(b) Thickness of various parts
(c) Diameter of holes and rings
(d) Internal dimensions of hollow jobs or articles.

■ The least count of vernier scale is 0.02 mm.



40. The instrument which can take the external, internal and depth measurement is called—

- (a) depth micrometer
(b) combi micrometer
(c) vernier caliper
(d) vernier micrometer

RRB ALP Bhubneswar 14.06.2009

Ans. (c) : Vernier caliper is a instrument which can take the external, internal and depth measurement.

■ Least count of vernier caliper is 0.02 mm.

Depth micrometer : This is used to measure the depth of bores, counter bores, slots, internal slots and holes with accuracy. In this graduation is read similar to a standard micrometer.

■ Vernier caliper works on the principal of the difference between the values of two scales.

41. It is not a part of vernier caliper—

- (a) main scale (b) depth beam
(c) spindle (d) locking screw

RRB ALP Bhubneswar 15.07.2012

Ans. (c) : Spindle is not a part of vernier caliper.

The main parts of vernier caliper are as follow.

1. Movable Jaw
2. Fixed Jaw
3. Vernier slide
4. Beam
5. Depth Bar
6. Vernier scale
7. Main scale
8. Thumb Lever

42. Which of the following file is called vixen file?

- (a) Rasp cut file (b) Curved cut file
(c) Knife edge file (d) Hand file

RRB ALP Bilaspur 15.07.2012

Ans. (b) : Curved cut file is also called vixen file.

Curved Cut file : This is available in a flat shape and it is used for deep shearing process.

■ Corved cut files are used to file the soft metals such as- tin, aluminium, copper and plastic.

43. In a shaper machine, the metal is removed during—

- (a) Return stroke
(b) Forward stroke
(c) Both (a) and (b)
(d) Neither the forward nor the return stroke

NCVT 2016

Ans. (b) : In a shaper machine, the metal is removed during forward stroke.

Shaper Machine :

■ In a shaper, the rotary motion of a drive is converted into the reciprocating motion of the ram by the mechanism housed within the column or the machine.

■ In a standard shaper, metal is removed in the forward cutting stroke while the return stroke goes idle and no metal is removed during this period.

44. A tool used to withdraw a drill from the sleeve is called—

- (a) Drill remover (b) Drill puller
(c) Drift (d) Drill drawer

NCVT 2016

Ans. (c) : Drift is used to withdraw a drill from the sleeve.

Drill Drift : One of its head is taper, it is made of mild steel. The tapered part is inserted in the slot in the spindle and struck upwards by hand. It is used for removing the drill chuck, sleeve and taper shank drill out from the machine spindle.

45. Vernier height gauge is required for

- (a) marking a fitting job
(b) measure the dimension
(c) marking the angle
(d) check the level

NCVT 2016

Ans. (a) : Vernier height gauge is required for marking a fitting job.

Vernier Height Gauge : It is used for marking accurate distances, measuring and centre determination.

■ A vernier height gauge works on the principal of difference in divisions of two scales. (main scale and vernier scale) of the same measurement.

Parts of Vernier height gauge :

1. Base
2. Beam
3. Vernier slide

46. What precaution must be taken for hand drill machine?

- (a) Tighten the drill bit property like jaw
(b) Press the handle straight while using machine
(c) Mark the metal sheets with centre punch before making holes in it
(d) All of these

RRB ALP Chandigarh 14.09.2008

Ans. (d) : Precautions for hand drill machine -

1. Tighten the drill bit property like Jaw.
2. Press the handle straight while using machine.
3. Mark the metal sheet with centre punch before making holes in it.
4. Always use a swarf rake or scoop to remove metal chips. Never used bare hands.
5. Cut the power immediately when the drilling machine is not in use.

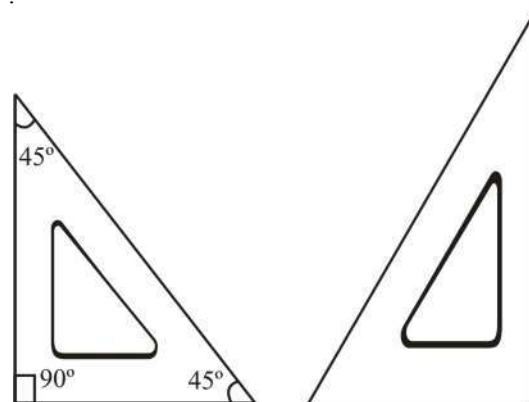
47. The size of the set square is taken by—

- (a) the length and width of stock
(b) the length and width of blade
(c) the internal edge of stock to the ending edge of blade
(d) none of these

RRB ALP Chandigarh 15.07.2012

Ans. (c) : The size of the set square is taken by the internal edge of stock to the ending edge of blade.

■ Set squares are made of transparent celluloid plastic. They are two in numbers each having one corner with 90°.



(a) 45° set-square

(b) 30°-60° set-square

48. Which angle can be checked by set square?

- (a) 30° (b) 45°
(c) 60° (d) 90°

RRB ALP Chandigarh 25.05.2003

Ans. (d) : Set square can check mainly 90° angle.

■ It can also be used to draw perpendicular lines, angles and complete shapes such as squares, rectangles and triangles.

49. Which of the following names do not indicate the grade of file?

- (a) Bastard (b) First cut
(c) Second cut (d) Smooth

DSSSB Craft Inst. (RAC) 2019

Ans. (b) : First cut do not indicate the grade of file.

The grade of file tool is named as following :

- (i) Rough
- (ii) Bastard
- (iii) Second cut
- (iv) Smooth
- (v) Dead smooth

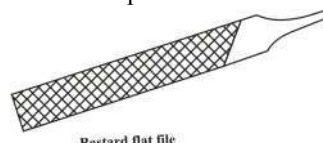
50. Which of the following removes extra material from the job?

- (a) Rough file (b) Dead smooth file
(c) Second cut file (d) Bastard file

RRB ALP Chennai 27.10.2002

Ans. (d) : Bastard file removes extra material from the job.

■ Bastard file is used in cases where there is a heavy reduction of material required.



Bastard flat file

51. Filing of tin, lead, copper etc. is done by—

- (a) rasp cut file (b) curved cut file
(c) single cut file (d) double cut file

RRB ALP Gorakhpur 08.10.2006

Ans. (b): Curved cut file : This is available in a flat shape and it is used for deep shearing process.
■ It is used to file soft metals such as tin, aluminium, copper and plastic.

52. What is the quantity of carbon in cold chisel?

- (a) 0.75% to 1.00% (b) 0.70% to 1.00%
(c) 0.60% to 0.90% (d) 0.90% to 1.000%

RRB ALP Gorakhpur 11.10.2009

Ans. (a) : The carbon percentage (%) in cold chisel is about 0.75% to 1.0%

Cold chisel : Cold chisels are made of carbon tool - steel, which is octagonal in cross section. Tool steel is used as it can be hardened to form a hard and tough cutting edge. To make a cold chisel heat the end of the bar of tool steel until it is bright red and hammer to the desired shape.

53. Reamer is a device used for—

- (a) cutting and drilling the material
(b) finishing of material after drilling and cutting
(c) internal threading
(d) external threading

RRB ALP Gorakhpur 12.10.2003

Ans. (b) : Reamer is a multipoint cutting tool. Thus, it has many cutting edges which are used for accurate size of finishing or enlarging a previously drilled hole.

■ It gives high quality surface finish.

54. The thickness of GI sheet is measured by—

- (a) plug gauge
(b) vernier height gauge
(c) sheet gauge
(d) feeler gauge

RRB ALP Gorakhpur 14.04.2002

Ans. (c) : The thickness of GI sheet is measured by sheet gauge.

Note : Sometime wire gauge is also used to measure the thickness of sheet.

55. What is used to check the concave and convex surface of the fitting job?

- (a) Feeler gauge (b) Wire gauge
(c) Radius gauge (d) Height level

RRB ALP Gorakhpur 21.10.2001

Ans. (c) : Radius gauge is used to check the concave and convex surface of the fitting job.

Radius gauge : Radius gauge is used to check the inside and outside radius of a job. Blades in the gauge are made of a high quality steel, which are fit in a holder and made available in the form of a set measure of the radius is marked on each strip of the gauge.

■ A single gauge with different radial is also used in special circumstances.

56. What is not present in the combination set box?

- (a) Steel rule (b) Protect head
(c) Radius gauge (d) Square head

RRB ALP Guwahati 22.01.2006

Ans. (c) : Radius gauge is not present in the combination set box.

■ Combination sets can be used for different types of work like layout work, measurement and checking of angle.

■ The combination set has a

- (i) Protractor head
(ii) Square head
(iii) Center head and a steel rule

57. What precaution should be taken while using screw driver?

- (a) Choose the screw driver according to the size of the screw
(b) Do not beat the handle of screw driver with hammer
(c) Do not use it on the place of chisel
(d) All of these

RRB ALP Jammu-Kashmir 06.06.2010

Ans. (d) : The precautions should be taken while using screw driver -

1. Don't beat the handle of screw driver with hammer.
2. Choose the screw driver according to the size of the screw.
3. Do not use it on the place of chisel etc.

58. What is the use of de-burning tool?

- (a) Flare the tube
(b) Cut or bore the tube
(c) Swedge the copper tube
(d) Scrap the ID and OD of copper tube

NCVT 2016

Ans. (d) : The use of de-burning tool is to scrap the ID and OD of copper tube.

59. Cutting blade of a tube cutter is made of

- (a) high carbon steel (b) stainless steel
(c) mild steel (d) cast iron

NCVT 2016

Ans. (a) : Cutting blade of a tube cutter is made of high carbon steel.

• Smaller pipe and tube cutter are commonly used to cut plumbing pipe made of plastic, copper, brass and aluminium.

60. The type of file used for a wood work is—

- (a) Single-cut file (b) Double cut file
(c) Rasp-cut file (d) Any one of these

NCVT 2016

Ans. (c) : Rasp cut file is used for wood work.

Rasp cut file : It is available in semi-circular shape. It has different sharp and pointed teeth made in a single row.

■ It is useful for soft material such as wood and leather.

61. The copper tubes to be used in refrigeration and air conditioning system are cut by—

- (a) Flaring tool (b) Swaging tool
(c) Tube cutter (d) Tube bender

NCVT 2016

Ans. (c): The copper tubes to be used in refrigeration and air conditioning system are cut by tube cutter.
 ■ Cutting blade of a tube cutter is made of high carbon steel.

62. A hack saw blade is specified by its–

- (a) Length (b) Material
- (c) Width (d) Number of teeth

GSSSB Sup. Inst. (RAC) 07.07.2019

Ans. (a) : A hack-saw blade is specified by its length.

■ Hack saw is a cutting tool used for cutting sheet, pipe and different shapes of material.

■ Hack-saw has two main parts - Frame & Blade.

Parts of Frame	Parts of Blade
1. Handle	1. Back edge
2. Frame	2. Side
3. Retaining pin	3. Centre line
4. Wing nut	4. Pin Holes
5. Adjustable blade Holder	

63. A file removes the metal during–

- (a) Forward stroke
- (b) Return stroke
- (c) Both (a) and (b)
- (d) None of these

NCVT 2016

Ans. (a) : A file removes the metal during forward stroke.

■ A file with a surface cut into two series of parallel ridge crossing each other usually at less than a right angle, both ridges being diagonal to the center line of the file.

64. The following is a cutting tool

- (a) Steel rule (b) Surface plate
- (c) Chisel (d) Pipe vice

NCVT 2016

Ans. (c) : The following is a cutting tool chisel.

Example of cutting tool : Milling cutter, broach, gear hobbing cutter, grinding wheel etc.

65. Mallet is a

- (a) Hard hammer (b) Soft hammer
- (c) Smoothing hammer (d) Stretching hammer

RRB ALP Kolkata 02.11.2008

Ans. (b) : Mallet is a soft hammer.

■ A mallet is a tool used for imparting force on another object, often made of rubber or sometimes wood.

66. After cutting threads in the hole by a tap it is found that the crest of the thread is not completely made, the reason for this is–

- (a) the gap is not complete
- (b) the tip of the cutting edge of the tap is broken
- (c) the size of the hole is smaller than the size of tap drill
- (d) the size of the hole is bigger than the size of tap drill

RRB ALP Kolkata 06.02.2005

Ans. (b) : After cutting threads in the hole by a tap it is found that the crest of the thread is not completely made, the reason for this is the tip of the cutting edge of the tap is broken so before a tap is used for cutting internal thread, a hole is to be drilled.

67. A bench vice is specified in the following manner–

- (a) by the length of spindle
- (b) by the width of the jaw
- (c) by the length of stable jaw
- (d) by the kinetic distance of moving jaw

RRB ALP Kolkata 16.07.2006

Ans. (b) : A bench vice is specified in the following manner by the width of the Jaw.

■ A bench vice is a work holding device used to hold work for operations such as sawing, filling, chipping tapping, threading etc.

68. Which threads are cut on the spindle of bench vice?

- (a) Buttress thread (b) V threads
- (c) Square thread (d) Acme thread

RRB ALP Kolkata 2014

Ans. (c) : Square thread are cut on the spindle of bench vice.

■ Square thread are primarily used in application where high power transmission efficiency and high load capacity are necessary.

69. The body of a bench vice is made of–

- (a) cast iron (b) high carbon steel
- (c) nickel steel (d) chromium steel

RRB ALP Kolkata 29.09.2002

Ans. (a) : The body of a bench vice is made of cast steel and cast iron.

■ A bench vice, also known as a vice, is a tool made of Iron or steel that allow you to hold and compress material such as wood and metal.

70. The blade of screw driver is made of–

- (a) mild steel (b) carbon steel
- (c) copper (d) nickel

RRB ALP Malda 16.07.2006

Ans. (b) : The blade of screw driver is made of carbon steel.

■ Screw driver are a type of hand tool used for the insertion and removal of screw.

71. A part of flaring tool is–

- (a) flaring block (b) flaring nut
- (c) yoke (d) both (a) and (c)

RRB ALP Mumbai 03.06.2001

Ans. (d) : Flaring tool use pressure to make fabricated mechanical joint for joining or scaling copper tubing with a flare connection.

■ Flaring tool part -

1. Flaring block
2. Yoke
3. Yoke handle
4. Clamping screw

72. The tool used in making holes in gasket in refrigeration is—
 (a) compound gauge (b) punch set
 (c) pitching tool (d) pressure gauge

RRB ALP Mumbai 05.06.2005

Ans. (b) : The punch set tool used in making holes in gasket in refrigeration.

■ A punch set is a collection of punches with different tips in different sizes.

73. The tool used for closing the tube used in refrigeration from any place is—
 (a) compound gauge (b) punch set
 (c) pitching tool (d) pressure gauge

RRB ALP Mumbai 14.06.2009

Ans. (c) : The tool used for closing the tube used in refrigeration from any place is pitching tool.

■ Pitching tool used for to cut and remove excess pieces from a piece of stone to restore its natural appearance.

74. The tool used in measuring the positive pressure of the gases used in refrigeration—
 (a) compound gauge (b) punch set
 (c) pitching tool (d) pressure gauge

RRB ALP Mumbai 15.07.2012

Ans. (d) : The pressure gauge tool used in measuring the positive pressure of the gases used in refrigeration.

75. The tool used for bifurcating the gas flowing in gas tube and other tubes and transferring it to any other place—
 (a) gas bender (b) gas manifold
 (c) gas valve (d) gas divider

RRB ALP Mumbai 16.07.2006

Ans. (b) : The tool used for bifurcating the gas flowing in gas tube and other tubes and transferring it to any other place is gas manifold.

76. The part of saw which does not have teeth on it—
 (a) back (b) blade
 (c) tip (d) heel

RRB ALP Mumbai 05.01.2003

Ans. (d) : The part of saw which does not have teeth on it heel.

77. Piercing pliers is used for—
 (a) bending wires
 (b) pinching off copper pipes
 (c) recovering gas by making holes in tube
 (d) charging oil

RRB ALP Muzaffarpur 15.02.2009

Ans. (c) : Piercing pliers is used for recovering gas by making holes in tube.

■ The piercing plier is a necessary tool for you to piercing, high quality and exquisite design.

78. Gasket is used—
 (a) for reducing vibration
 (b) for the strength of joints of components
 (c) for preventing the leakage of gas
 (d) for filling ingredients

NCVT 2015

Ans. (c): Gasket is used for preventing the leakage of gas.

■ A seal is put in between the two components that are joined together for preventing the leakage problem.

■ Gasket increases the efficiency and life of component.

■ Gasket is commonly used in automobile workshop in the form of a static seal.

■ Seal is made of - copper, aluminium, asbestos, cork fiber, paper and synthetic rubber.

79. How you will cut the holes in gasket to go through bolts?

- (a) Use knife (b) Use chisel
 (c) Use punch (d) Use hacksaw

RRB ALP Patna 04.02.2007

Ans. (c) : The holes in gasket to go through bolts will cut by the use of punch.

80. There are some specific and special tool used to cut flare, join the copper tubes.

What is the tool used to cut large size hard drawn copper tubes?

- (a) Tube cutter (b) Cutting wheel
 (c) Hacksaw (d) Knife

HPSSC Tech. (RAC) 24.09.2020

Ans. (c) : There are some specific and special tool used to flare, join the copper tubes.

Hack-saw is a tool used to cut large size hard drawn copper tubes.

81. An outside micrometer has a negative error. the correct reading can be taken by.....

- (a) adding the negative error in the actual reading
 (b) deducting the negative error from the actual reading
 (c) adding twice the negative error in the actual reading
 (d) deducting twice the negative error from the actual reading

RRB ALP Patna 2014

Ans. (a) : If the micrometer gives a negative reading then it has plus zero error is added to the actual reading.

Correct reading = Actual reading + Negative reading

■ If the outside micrometer gives a reading of plus then it has minus zero error. This error is subtracted from the actual reading.

82. A micrometer has a positive error of 0.02 mm. What is the correct reading when the micrometer measures 25.41 mm?

- (a) 25.39 mm (b) 25.37 mm
 (c) 25.43 mm (d) 25.45 mm

RRB ALP Ranchi 04.09.2005

Ans. (a) : Total reading = Positive error + correct reading

$$25.41 = 0.02 + \text{Correct reading}$$

$$\text{Correct reading} = 25.39 \text{ mm}$$

83. Steel Rule is a–

- (a) Marking Instrument
- (b) Precision Instrument
- (c) Checking Instrument
- (d) Direct Reading measuring Instrument

R.R.B. Bilaspur Asst. Loco Pilot, 15.07.2012

Ans. (d) : Steel Rule is a direct reading measuring instrument.

- These are available in different range from 150 mm to 1000 mm.

- The most commonly used steel rule is the 6" rule. Although rules come in 6–inch increments

Example– 6", 12", 18", 24" and 36" length



84. What is determined while measuring a component

- (a) nominal size
- (b) actual size
- (c) specified size
- (d) scale size

R.R.B. Chandigarh Asst. Loco Pilot, 14.09.2008

Ans. (b): The actual size is determined while measuring the component.

85. Steel Rule is made of which metal–

- (a) Brass
- (b) Zinc
- (c) Stainless steel
- (d) Cast Iron

R.R.B. Chandigarh Asst. Loco Pilot, 15.07.2012

Ans. (c): Steel Rule is made of stainless steel.

- It is a straight edge with equally spaced markings along its length.

- It is used to measure distance to rule straight lines.

- Its reading accuracy least count is 0.5 mm.

86. Which of the following instrument is used for checking Flatness and squariness surface.

- (a) Try square
- (b) Vernier height gauge
- (c) Slip Gauge
- (d) Bevel gauge

R.R.B. Chandigarh Asst. Loco Pilot, 25.05.2003

Ans. (a) : Try square is a checking tool that is used to check the Flatness of the job and the right angle of 90° between two surface.

- Try square is made of "hardened steel". It is available in lengths of 100 mm, 150 mm, 200 mm.

Parts of try square–

- Blade
- Stock

87. Which of the following is an indirect measuring tool–

- (a) Inside caliper
- (b) Vernier Caliper
- (c) Universal bevel protractor
- (d) Inside micrometer

R.R.B. Chennai Asst. Loco Pilot, 06.06.2010

Ans. (a): Inside caliper is an indirect measuring

Direct measuring tool	Indirect measuring tool
Steel rule, vernier caliper, micrometer etc.	Divider, Callipers inside and outside callipers, surface gauge plug gauge, Bevel gauge etc.

88. The base unit of length as per SI unit is–

- (a) Inch
- (b) Foot
- (c) Centimeter
- (d) meter

R.R.B. Chennai/Bangalore Asst. Loco Pilot, 27.10.2002

Ans. (d): The basic unit of length in the metric system is the meter. All units of length in the metric system are derived from the meter.

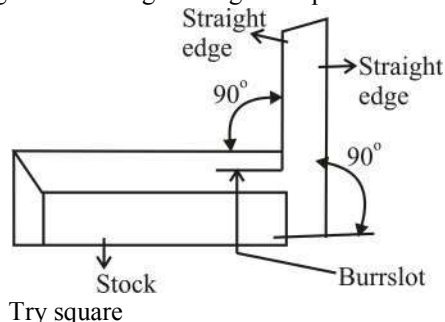
- The three most common base units in the metric system are the meter, kg and second.

89. Which of the following is not used for try square?

- (a) Right angle measurement
- (b) check the squariness
- (c) mark line at 90° to the edges of workpieces
- (d) Setting workpiece at 90° degree

R.R.B. Gorakhpur Asst. Loco Pilot, 08.10.2006

Ans. (d) : A try square is a wood working tool used for marking and checking 90° angles on pieces of wood.



90. Which of the following is an direct tool–

- (a) Try square
- (b) Steel rule
- (c) Strait edge
- (d) Ring gauge

R.R.B. Gorakhpur Asst. Loco Pilot, 11.10.2009

Ans. (b) : Steel rule is an direct instrument.

Direct measuring tool determine the actual dimension and size of work piece example. Steel rule, vernier caliper micrometer etc.

91. The minimum measurement that can be read with the help of a steel rule is

- (a) 0.01 mm
- (b) 0.02 mm
- (c) 0.05 mm
- (d) 0.50 mm

R.R.B. Gorakhpur Asst. Loco Pilot, 12.10.2003

Ans. (d) : For linear measurement and marking

Material – Spring steel or stainless steel in 10 mm, 5mm, 1 mm and 0.5 mm in

Gradyatuib– metric system the reading accuracy of the steel rule is 0.5 mm

Size– available in 150 mm, 300 mm & 600 mm

92. Which can be checked angle by try square—
 (a) 30^0 (b) 45^0 (c) 60^0 (d) 90^0

R.R.B. Gorakhpur Asst. Loco Pilot, 14.04.2002

Ans. (d) : Try square or is a wood working tool used for marking and checking 90^0 angles on pieces of wood.

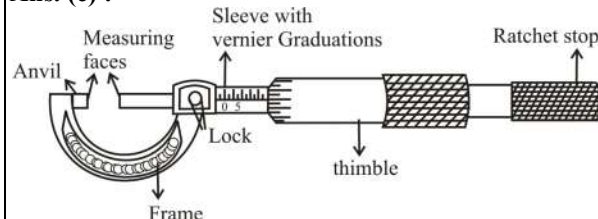
- Try square with a steel blade rivetted into a wooden stock faced with brass.

93. In a metric micrometer a complete evolution of thimble advances

- (a) 0.01 mm (b) 0.25 mm
 (c) 0.50 mm (d) 1.00 mm

R.R.B. Gorakhpur Asst. Loco Pilot, 21.10.2001

Ans. (c) :



- In a metric micrometer a complete revolution of thimble advances 0.50 mm.
- In metric micrometer, the pitch of the spindle thread is 0.5 mm
- The circumference of the level edge of the thimble is graduated into 50 divisions and marked 0–5–10–15.....45–50 in a clockwise direction.

94. The least count of vernier level protector is—

- (a) 1' (b) 5'
 (c) 10' (d) 25'

R.R.B. Guwahati Asst. Loco Pilot, 22.01.2006

Ans. (b): Vernier level protractor is a precision instrument meant for measuring angles to an accuracy of 5 minutes.

- The least count of vernier level protractor is 5 (five minutes) the value of each vernier scale division of vernier level protractor is degree 55 minutes (5) in a vernier level protractor the 23 degree main scale is divided into 23 degree main scale is divided into 12 equal parts on vernier scale.

95. The least count of metric micrometer is—

- (a) 0.01 mm (b) 0.05 mm
 (c) 0.02 mm (d) 0.5 mm

R.R.B. Jammu-Kashmir Asst. Loco Pilot, 06.06.2010

Ans. (a): The least count of metric micrometer is 0.01 mm

Instrument	Least Count
Out side micrometer	0.01/mm
Vernier micrometer	0.01/mm
Vernier caliper	0.02/mm
Vernier Depth gauge	0.02 mm
Vernier Height gauge	0.02 mm

96. An outside micrometer has a negative error the correct reading can be taken by

- (a) Adding the negative error in the actual reading
 (b) Deducting the negative error from the actual reading

- (c) Adding the twice the negative error in the actual reading
 (d) Deducting twice the negative error from the actual reading

R.R.B. Kolkata Asst. Loco Pilot, 02.11.2008

Ans. (a) : An outside micrometer has a negative error the correct reading can be taken by adding the negative error in the actual error.

97. Which one of the following instruments is used to check the concentricity of the outside diameter.

- (a) vernier caliper
 (b) outside micrometer
 (c) Dial test Indicator
 (d) Dial caliper

R.R.B. Kolkata Asst. Loco Pilot, 16.07.2006

Ans. (c) : The dial test indicator is used to indicate the run-out (the misalignment between the workpiece's axis of rotational symmetry and the axis of rotational of the spindle of the workpiece.

98. The minimum measurement that can be correctly read with a vernier caliper is called—

- (a) zero reading
 (b) Least count
 (c) main scale reading
 (d) Actual reading minus zero error

R.R.B. Kolkata Asst. Loco Pilot, 2014

Ans. (b) : A vernier caliper is defined as a measuring device that is used for the measurement of linear dimensions.

- It is also used for the measurement of diameters of round objects with the help of the measuring jaws.

Note— The minimum measurement that can be correctly read with a vernier caliper is called least count.

- The least count of vernier caliper is 0.02 mm.

99. Metric outside micrometer has a threaded spindle with a pitch of

- (a) 0.5 mm (b) 0.25 mm
 (c) 1.00 mm (d) 1.50 mm

R.R.B. Kolkata Asst. Loco Pilot, 29.09.2002

Ans. (a) : Metric outside micrometer has a threaded spindle with a pitch of 0.5 mm.

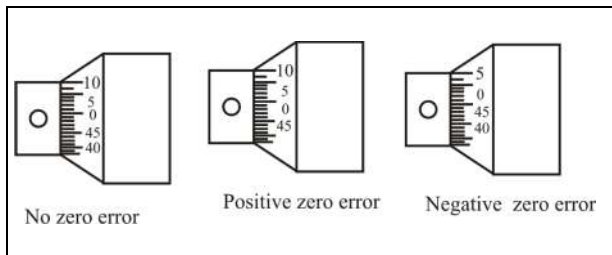
- The least count of metric outside micrometer is 0.01 mm.

100. Zero error in micrometer means—

- (a) There is negligible gap between the spindle and the anvil
 (b) micrometer is true
 (c) zero mark on thimble is not visible
 (d) zero on thimble and datum line on sleeve do not coincide when measuring faces are in contact.

R.R.B. Malda Asst. Loco Pilot, 16.07.2006

Ans. (d) : Zero error in micrometer occurs when zero on the thimble and datum line on sleeve do not coincide when measuring faces are in contact.



101. Lock nut in the micrometer is provided to –
- Control the movement of the spindle
 - Lock the reading after setting it over the workpiece
 - measure the workpiece accurately
 - Lock the micrometer when it is not in use.

HSSC Tech. (RAC) 23.02.2022 (Shift-I)

Ans. (b) : Lock nut in the micrometer is provided to Lock the reading after setting it over the workpiece.

102. Micrometer works on the principle of–
- screw
 - bolt
 - stud
 - Nut and screw

R.R.B. Mumbai Asst. Loco Pilot, 05.06.2005

Ans. (d) : Micrometer works on the principal of Nut & Bolt. It always you an axial rotation of the barrel-like structure, also knows as thimble, which is used to measure the distance of the object.

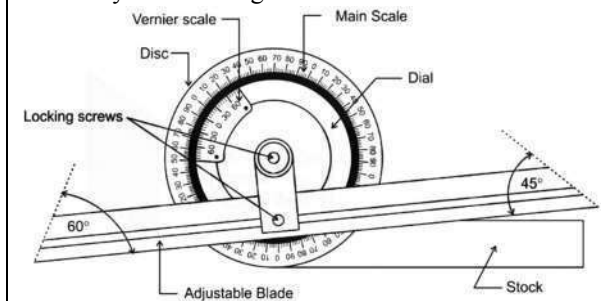
103. Which one of the following instrument is used to measure accurately the angle of taper.
- Bavel gauge
 - Bevel pro tractor
 - Vernier bevel protractor
 - Taper gauge

R.R.B. Mumbai Asst. Loco Pilot, 14.06.2009

Ans. (c): The vernier bevel protractor is a precision instrument meant for measuring angle of taper.

Parts of vernier bevel protractor–

- Stick
- Dial
- Blade
- Locking screw
- It is used to measure the acute angle
- The least count of vernier level protractor is 5. It is commonly used for angular measurement.



104. The least count of a vernier caliper is–
- 0.10 mm
 - 0.01 mm
 - 0.05 mm
 - 0.02 mm

R.R.B. Mumbai Asst. Loco Pilot, 15.07.2012

Ans. (d): The least count of a vernier caliper is 0.02 mm.

105. To convert the linear motion of the plunger of a dial test indicator the rotary motion of the pointer, which one of the following mechanism is used?

- quick return mechanism
- Rack and pinion mechanism
- Screw thread mechanism
- Hydraulic mechanism

R.R.B. Mumbai Asst. Loco Pilot, 16.07.2006

Ans. (b) : A dial test indicator, also known as a lever arm test indicator or finger indicator has a smaller measuring range than a standard dial indicator.

106. Ratchet stop in the micrometer helps to–

- Control the pressure
- Lock the spindle
- Adjust zero error
- Hold the work piece

R.R.B. Mumbai/Bhopal Asst. Loco Pilot, 05.01.2003

Ans. (a): Ratchet stop in the micrometer helps to control the pressure

- The ratchet stop or simple ratchet ensures uniform pressure between the measuring surfaces.

107. The least count of the vernier caliper is equal to–

- value of 1 M.S.D– value of 1 V.S.D
- value of 1 V.S.D – Value of 1 M.S.D
- Value of 2 M.S.D – Value of 1 V.S.D
- Value of 1 M.S.D – Value of 1 V.S.D

R.R.B. Muzaffarpur Asst. Loco Pilot, 15.02.2009

Ans. (a) : The least count of vernier calipers is also known as the vernier constant. It is defined as the difference between one main scale division and one vernier scale division

$$VC = 1MSD - 1VSD$$

108. A micrometer has a negative error of 0.03 mm what is correct reading when the micrometer measures 40.53 mm?

- 40.50 mm
- 40.56 mm
- 40.46 mm
- 40.59 mm

R.R.B. Patna Asst. Loco Pilot, 11.11.2001

Ans. (b) :

$$\begin{aligned} \text{Correct reading} &= \text{actual reading} + \text{Negative error} \\ &= 40.53 + 0.03 \\ &= 40.56 \end{aligned}$$

109. Zero error of a 50–75 mm outside micrometer can be checked with

- Dial test indicator
- Vernier height gauge
- Test piece
- Feeler gauge

R.R.B. Patna Asst. Loco Pilot, 2014

Ans. (c): Zero error of a 50–75 mm outside micromete can be checked with test pices.

110. The value of the smallest division on sleeve of a metric outside micrometer is

- (a) 0.50 mm (b) 1.00 mm
(c) 1.50 mm (d) 2.00 mm

R.R.B. Patna Asst. Loco Pilot, 2014

Ans. (a) : The value of the smallest division on sleeve of a metric outside micrometer is 0.50 mm.

111. The value of one division on level edge of the thimble of a metric outside micrometer is

- (a) 0.10 mm (b) 0.05 mm
(c) 0.02 mm (d) 0.01 mm

HSSC Tech. (RAC) 23.02.2022 (Shift-II)

Ans. (d) : The value of one division on level edge of the thimble a metric outside micrometer is 0.01 mm.

112. If the zero graduation of the thimble division of an outside micrometer is below the datum line, when the measuring faces of the micrometer are in contact the error is

- (a) Negative (b) Positive
(c) Zero (d) None

R.R.B. Ranchi Asst. Loco Pilot, 08.07.2007

Ans. (a) : If the zero graduation of the thimble division of an outside micrometer is below the datum line, when the measuring faces of the micrometer are in contact the error is negative.

113. A depth micrometer can be used to measure wide range of sized because.

- (a) It is equipped with a number of extension rod
(b) It has a lengthy spindle
(c) It has a lengthy sleeve
(d) It has in adjustable base

R.R.B. Ranchi Asst. Loco Pilot, 19.01.2003

Ans. (a): Depth micrometers are used to measures the depth of holes, slots; shouldery and other projections.

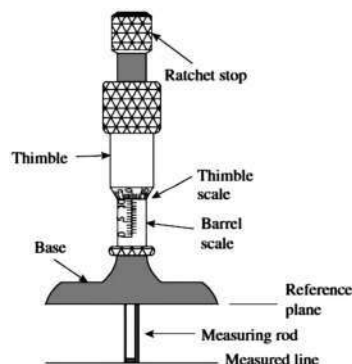
• Depth micrometers are used to measures the depth of holes, slots; shouldery and other projections.

114. In which one of the following micrometers, the graduations on thimble and sleeve are in reverse direction to that of outside micrometer.

- (a) Inside micrometer (b) Depth micrometer
(c) Tube micrometer (d) Flange micrometer

R.R.B. Ranchi Asst. Loco Pilot, 2014

Ans. (b) :



• Depth micrometer the graduations on thimble and sleeve are in revers direction to that of outside micrometer.

• The depth micrometer is ideal for east highly accurate depth measurements of up to 25 mm.

• The least Count of depth micrometer is 0.01 mm.

115. On which part of the vernier height gauge, are the main scale dimensions graduated?

- (a) Vernier plate (b) Beam
(c) Fine adjusting unit (d) Base

R.R.B. Sikandrabad Asst. Loco Pilot, 06.06.2010

Ans. (b) : Vernier height gauge

• Vernier height gauge is used for inspection of parts and layout work

• Measuring and marking vertical distance above a reference surface.

• Beam part of the vernier height gauge are the main scale dictions graduated.

• The section of beam is selected in such a way that, It ensure rigidity during use of instruments.

116. While measuring with vernier bevel protractor which parts is used normally as reference surface.

- (a) Stock (b) blode
(c) Dial (d) Disc

R.R.B. Sikandrabad Asst. Loco Pilot, 11.11.2001

Ans. (a) : Stock measuring with vernier bevel protractor which part is used normally as reference surface.

117. On which part of the vernier bevel protractor are the main scale division graduated?

- (a) blade (b) disc
(c) dial (d) stock

R.R.B. Sikandrabad Asst. Loco Pilot, 29.06.2008

Ans. (a): Blade part of the vernier bevel protractor are the main scale divisions graduated

• It is precision instrument that is used to measure any angle from 0 to 360°.

• It works on vernier's theory as a result of which it can be measured for a minimum of 5 minutes.

118. The value of each vernier scale divisions of vernier level bevel protractor is

- (a) 1° (b) 5°
(c) 1° - 55° (d) 2°

R.R.B. Siliguri Asst. Loco Pilot, 2014

Ans. (c) : The value of each vernier scale divisions of vernier bevel protractor is 1°-55°.

120. The value of each main scale division of vernier bevel protractor is—

- (a) 1° (b) 5°
(c) 1° - 55° (d) 1°/2

R.R.B. Ajmer Asst. Loco Pilot, 05.06.2005

Ans. (a): The value of each main scale division of vernier bevel protractor is 1°.

121. The least count of universal bevel protractor

- (a) 0.5' (b) 5'
(c) 5" (d) 5°

R.R.B. Trivandrum Asst. Loco Pilot, 20.06.2004

Ans. (b): The least count of universal bevel protractor

- Universal bevel protractor is the simplest angular measuring device which is having a vernier scale along with the acute angle attachment.

122. The least count of vernier depth gauge is–

- (a) 0.10 (b) 0.01 mm
(c) 0.20 mm (d) 0.02

Indian Ordnance Factory, 10.09.2017

Ans. (d) : The least count of vernier depth gauge is 0.02 mm.

Vernier depth gauge is used for measuring the depth of holes, recesses and distance from a plane surface of a projections.

123. Vernier depth gauge is used for measuring –

- (a) external dimension
(b) Internal dimension
(c) step, depth of blind hole
(d) pitch diameter

Indian Ordnance Factory (Itarsi) , 08.05.2016

Ans. (c) : Vernier depth gauge is used for measuring step depth of blind hole.

A depth gauge is a very common hand tool used to inspect the depth of holes, slots, counter bores, or the distance from one surface to another.

124. The least count of vernier height gauge is–

- (a) 0.01 mm (b) 0.02 mm
(c) 0.05 mm (d) 0.10 mm

Indian Ordnance Factory, 2013

Ans. (b) : The least count of vernier height gauge is 0.02 mm. It is micrometer instrument used to measure the height of parts. It consists of a vertical column of hardened steel.

Which is fitted on a heavy base made of steel.

125. While laying out, the vernier height gauge should be used on the surface plate.

- (a) surface plate (b) vee block
(c) machine bed (d) Any flat surface

Indian Ordnance Factory, 2012

Ans. (a): While laying out, the vernier height gauge should be used on the surface plate.

- The working principle of vernier height gauge is similar to that of vernier caliper.

126. While marking with a vernier height gauge the workpiece is generally

- (a) Supported by an angle plate
(b) Supported by another workpiece
(c) Held by one hand
(d) Held without support

DMRC (Maintainer) (Morning), 15.02.2017

Ans. (a): While marking with a vernier height gauge the workpiece is generally supported by an angle plate. The height of a job is measured by the distance the bottom of its base and the bottom of the job.

127. The smallest inside micrometer has the graduation marked on the sleeve to a range of

- (a) 10 mm (b) 12 mm
(c) 13 mm (d) 25 mm

DMRC (Maintainer), 20.07.2014

Ans. (c): Smallest inside micrometer has the graduation marked on the sleeve to a range of 13 mm.

- Inside micrometer is used for direct measurement of inside sizes such as the diameter of holes, or the diameter of two parallel surfaces.

128. To get least count of 5' in a vernier bevel protractor the 23 degree main scale are divided into.

- (a) 12 equal parts on vernier scale
(b) 22 equal parts on vernier scale
(c) 24 equal parts on vernier scale
(d) 25 equal parts on vernier scale

DMRC (Maintainer), 24.12.2006

Ans. (a) : In a vernier bevel protractor the 23° main scale is divided into 12 equal parts on the vernier scale to obtain the least count of 5'.

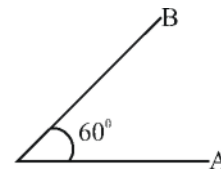
- This is an angle measurement. Which is used to layout or check an angle is 5 minute precision.

129. The angle which is less than 90° degree is called as–

- (a) Obtuse angle (b) Acute angle
(c) Right angle (d) None of the above

BMRC Maintainer, 2016

Ans. (b) : An angle less than 90° is called an acute angle



Example- 70°, 60°, 50°, 40°, 30°, 20°, 10°, 5°

130. The principle of universal bevel protractor is similar to that of–

- (a) Vernier bevel protractor
(b) Depth micrometer
(c) Dial test indicator
(d) Fixed gauge

LMRC (Maintainer), 16.03.2016

Ans. (a) : The principle of universal bevel protractor is similar to that of vernier bevel protractor.

- Vernier bevel protractor is an angle measuring micrometer used to layout or check an angle of up to 5 minute precision.

131. One pound is equal to–

- (a) 0.354 kg (b) 0.454 kg
(c) 0.554 kg (d) 0.662 kg

Noida Metro Maintainer, 2017

Ans. (b): One pound is equal to 0.454 kg
1 pound = 0.4535 kilograms

- A pound is unit of weight commonly used in the United States and the British Commonwealth. A pound is defined as exactly 0.45359237 kg.

132. One k.m. is equal to–

- (a) 0.602 mil (b) 0.622 mil
(c) 0.642 mil (d) 0.662 mil

ISRO Technician-B (Bangalore RAC), 27.11.2016

Ans. (b): One km is equal to 0.622 mile . It is a distance unit.

1 mile = 1.6 k.m.

$$1 \text{ km} = \frac{1}{1.6} \approx 0.622 \text{ mile}$$

133. The prefix 10^6 means–

- (a) Kilo
- (b) Giga
- (c) Mega
- (d) Tera

ISRO Technician-B Diesel Mechanic, 27.11.2016

Ans. (c) : 1 mega = 10^6 m

134. The prefix 10^{-1} means–

- (a) micro
- (b) mili
- (c) centi
- (d) deci

ISRO Technician-B Fitter, 20.11.2016

Ans. (d) : The prefix 10^{-1} means deci

$$\therefore 1 \text{ decimeter} = \frac{1}{10} = 10^{-1} \text{ meter}$$

135. The chisel used for key way cutting is–

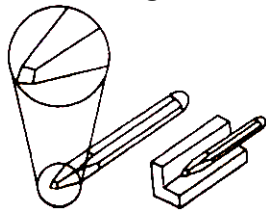
- (a) Flat chisel
- (b) Cross-cut chisel
- (c) Round Nose chisel
- (d) Diamond point chisel

DRDO Machinist, 2016

Ans. (b): A cross cut chisel is used to cut a keyway in a shaft or hub.

- The width of the cutting edge of a cross cut chisel is less than its thickness it occurs.
- It is used to cut grooves in a workpiece.

136. Chisel is shown in the figure.



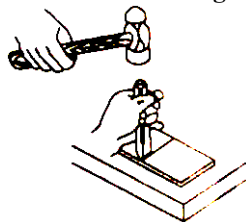
- (a) Flat chisel
- (b) Half Round chisel
- (c) Diamond point chisel
- (d) Cape chisel

DRDO Motor Mechanic, 2016

Ans. (c): Diamond point chisel is shown in figure.

- The shape of the cutting edge of this chisel is like a pointed and square diamond.
- V grooves can be cut with its sharp point.

137. Name the chisel used in the figure below–



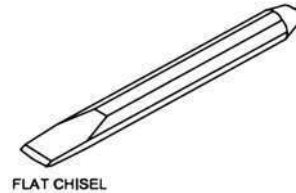
- (a) flat chisel
- (b) half round chisel

- (c) diamond point chisel
- (d) cape chisel

DRDO Mechanic Diesel, 2016

Ans. (a) : Flat chisel is shown in the figure.

- Flat chisel its width is greater than its thickness.
- Its cutting edge is given a slight roundness which provides convenience in cutting.
- Use of Flat chisel to remove and cut metal such as chipping is done for



138. Chisel is used for–

- (a) cutting of rivet head
- (b) Tightening nuts and bolts
- (c) light marking
- (d) removing small pins from holes.

SAIL Bokaro Steel Plant, 2016

Ans. (a) : Chisel is used for of cutting rivet head

- Chisel is the most commonly used tool for cutting light and then metals.
- High carbon steel is used to make the chisel
- By forging method the head of the chisel is made conical at an angle of about 70° .
- An angle of 35° to 70° is kept on its cutting edge.

139. Hacksaw blade two standard lengths..... and is available.

- (a) 200 mm, 300 mm
- (b) 250 mm, 300 mm
- (c) 350 mm, 370 mm
- (d) 100 mm, 150 mm

SAIL Durgapur Steel Plant, 05.09.2014

Ans. (b): Hacksaw blades are available in two standard lengths 250mm and 300mm.

- The cutting part of a hacksaw is the hacksaw blade.
- Carbon steel high carbon steel, high speed steel are used for hexa blade.
- The thickness of the blade leap is 0.6 mm to 0.8mm and the width is 12 mm to 16 mm.

140. Hacksaw frame with more than one standard size blades are fitted–

- (a) Fixed
- (b) tubular
- (c) adjustable
- (d) deep cutting

VIZAAG Steel, 2015

Ans. (c): The adjustable hacksaw frame is made in two piece

- Adjustable hacksaw frame have grooves built into the side of more than one standard adjustable screw.
- In this length of the frame is adjusted.

141. Hacksaw blade in cutting

- (a) Forward stroke
- (b) back word stroke
- (c) Angular stroke
- (d) None of these

RSMSSB Tech.-B (RAC) 24.12.2019

Ans. (a): The hacksaw blade cuts in the forward stroke

- On the basis of the grade of teeth used in the hacksaw blade. They are of the following four types.

- (1) Coarse grade hacksaw blade
- (2) Medium grade hacksaw blade
- (3) Fine grade hacksaw blade
- (4) Super fine grade hacksaw blade.

142. Why does the hacksaw blade become loose again and again.

- (a) due to the drag of the blade
- (b) due to improper selection of blade pitch
- (c) due to wear of wing nut threads
- (d) due to non use of coolant.

BHEL Hyderabad, 2014

Ans. (c) : The hacksaw blade becomes loose again and again due to wear of wing nut threads.

- The blade should be selected according to the metal and thickness of the job.
- High speed steel blade should be selected for steel job while high carbon steel blade should be used for brass or aluminium.

143. The teeth of hack saw blade are curved

- (a) one side
- (b) both side
- (c) back side
- (d) forward

COAL India (Motor Mechanic), 2013

Ans. (b): To prevent the hack saw blade from getting caught in the slit it has cut, its teeth are slightly bent on either side. So that width of the wrinkle it cuts is greater than the thickness of the blade. This process is called the setting of the teeth. Friction is reduced by setting.

144. Hacksaw blade is made from –

- (a) High speed aluminium
- (b) Low speed carbon
- (c) High speed carbon
- (d) None of these

CRPF Constable Tradesman, 2016

Ans. (c) : Carbon steel, high carbon steel, high speed steel are used for made of Hacksaw blade after cutting teeth and making holes, it is hardened and tempered.

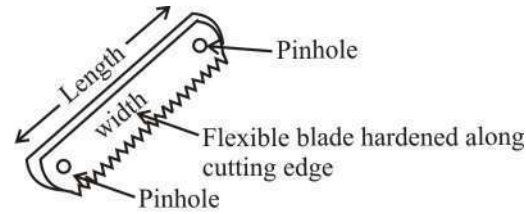
145. Hacksaw blade is measured-

- (a) from one end of the toothed part to the other
- (b) from the center of one pin hole to the center of another pin hole
- (c) from one end of the blade to the other end.
- (d) from the end of one pin hole to the end of the other pin hole

HAL, 2015

Ans. (b) : The length of a Hacksaw blade is measured from the center of one pin hole to the center of the other pin hole.

- The part to be cut in a hacksaw is the hacksaw blade itself.



Hack - saw blade

146. A new hacksaw blade should not be used in a blade socket made by the old method because.

- (a) There is not enough space for the blade to move
- (b) The blade is expensive
- (c) The teeth of the new blade are sharp
- (d) None of the above

Mazagon Dock Shipbuilders Ltd., 2013

Ans. (a) : Carbon steel, high carbon steel, high speed steel are used for made of hacksaw blade.

- A new hacksaw blade should not be used in a blade socket made by the old method as there is not enough space for the blade to move.

147. Which of the following is not a part of hacksaw

- (a) Pin
- (b) Spacer
- (c) Blade
- (d) Wing nut

MES Automobile Tradesman, 2015

Ans. (b) : Hacksaw is a type of cutting tool

- A hacksaw blade is a thin, narrow, steel band with serration and two pin hole at the ends.

Hacksaw has the following parts.

(a) hacksaw frame (b) hacksaw blade

Fixed hacksaw Frame, deep cutting frame, adjustable hacksaw Frame etc are part of the hack-saw Frame.

- Pin, Blade, wing nut are the part of fixed hacksaw Frame. The spacer is not part of the hacksaw blade.

148. Hacksaw blade for cutting solid brass suitablepitch.

- (a) 0.8 mm
- (b) 1.0 mm
- (c) 1.4 mm
- (d) 1.8 mm

R.R.B. Ajmer Asst. Loco Pilot, 05.06.2005

R.R.B. Ahmedabad Asst. Loco Pilot, 2014

Ans. (d) : The hacksaw blade has coarse pitch from 1.5 to 2.0 mm; medium pitch from 1.0 to 1.5 mm and fine pitch from 0.8 to 1.0 mm

The hacksaw blade has 1.8 mm pitch for cutting solid brass.

149. The hacksaw blade has a coarse tooth pitch–

- (a) 0.5 mm
- (b) 0.8 mm
- (c) 1.8 mm
- (d) 1.0 mm

R.R.B. Ahmedabad Asst. Loco Pilot, 17.10.2004

Ans. (c) : The thickness of the blade leaf varies from 0.6 mm to 0.8 mm and width from 12 mm to 16 mm thick pitch, medium pitch or thin pitch blade are used.

Thick pitch from 1.5 mm to 2.0 medium pitch from 1.0 mm to 1.5 mm and fine pitch from 0.8 to 1.0 mm.

150. Hand hacksaw with blade is used for cutting different section of metal. In which type of Frame is the standard length blade used.

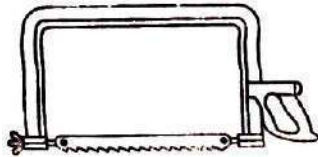
- (a) In plane type adjustable frame
- (b) In tubular type adjustable frame
- (c) In solid Frame
- (d) In flexible frame

R.R.B. Ajmer Asst. Loco Pilot, 10.10.2004

Ans. (a) : The adjustable hacksaw Frame is made in two pieces. Grooves are made on the side the adjustable screw.

- These blades are made from either low alloy steel or high speed steel and 250 mm and 300 mm are found in standard length of blade.

151. Identify the hack-saw Frame shown in the figure–



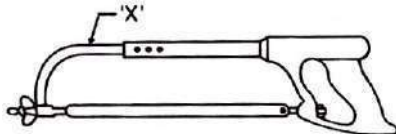
- (a) Adjustable hack saw Frame
- (b) Deep cutting hack saw
- (c) Fixed hack saw Frame
- (d) None of these

R.R.B. Ajmer Asst. Loco Pilot, 23.05.2004

Ans. (b) : Deep cutting hack-saw Frame is a variant of solid Frame.

- The length of blade used in deep cutting hacksaw Frame is same.
- Its depth is kept very high so that it does not get stuck in the job even after cutting deep.

152. Name the part marked as X in the figure



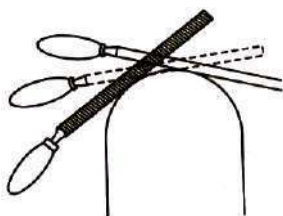
- (a) Frame
- (b) Handil
- (c) Adjustable blade holder
- (d) Fixed blade hold

R.R.B. Allahabad Asst. Loco Pilot, 03.08.2008

Ans. (a) : The adjustable hacksaw frame is shown in the above figure.

- The x part of it is called the frame.
- The adjustable hacksaw frame is made of two pieces. The adjustable frame (Flat type) different standard length of blades can be fitted to this Frame i.e. 250 mm and 300 mm.

153. Which type of File is shown in the following picture



- (a) Crass file
- (b) Straight file
- (c) Draw file
- (d) Curved file

R.R.B. Allahabad Asst. Loco Pilot, 09.12.2007

Ans. (d) : Curved file is shown in the above picture these files have a deep cutting action and are useful for filling soft material such as aluminium, tin, copper and plastic.

- These files are only found in flat size.

154. Which one of the following file is used for soft light and small works?

- (a) Piller file
- (b) Triangular file
- (c) Niddle file
- (d) Spherical file

R.R.B. Bangalore Asst. Loco Pilot, 25.01.2004

Ans. (c) : Needle file is used for very fine cross – section.

- While the shape of the cut is of different types. Hence it is called needle file.

- Its length is 10–20 cm.

- Needle file is used for soft light and small works.

- They have a smooth edge on side so that don't mark the metal when you are filing in tight space.

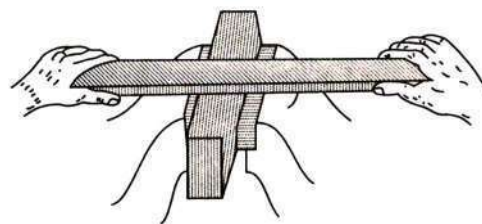
155. A bastard in the file.....

- (a) 8 Teeth/cm
- (b) 9 Teeth/cm
- (c) 10 Teeth/cm
- (d) 12 Teeth/cm

R.R.B. Bangalore Asst. Loco Pilot, 08.07.2007

Ans. (d) : Bastard file has 12 teeth per cm. This is medium grade file. It is used for both hard and soft metals.

156. Which type of filing is shown in the picture bellows



- (a) Cross
- (b) Draw filing
- (c) Straight filing
- (d) Curve filing

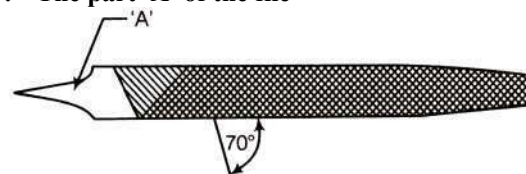
R.R.B. Bangalore Asst. Loco Pilot, 15.07.2012

Ans. (b) : Draw filing is shown in above figure. This method is used to remove file marks and for finishing operations.

- Here, the file is griped as close to the works as possible between two hands.

- In this method, a fine cut file with a flat face should be used.

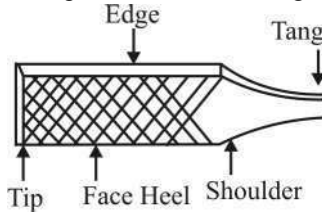
157. The part 'A' of the file–



- (a) Shant
- (b) Shoulder
- (c) Tang
- (d) Torque

R.R.B. Bhopal Asst. Loco Pilot, 06.06.2010

Ans. (c): The part 'A' of the file tang



Various parts of file–

- Face
- Heel
- Tip
- Tang
- Edge
- Shoulder
- Handle
- A file is a tool used to remove fine amounts of material from a workpiece.

158. Hand files are made from–

- (a) low carbon steel
- (b) medium carbon steel
- (c) high carbon steel
- (d) high chromium steel

R.R.B. Bhubneswar Asst. Loco Pilot, 14.06.2009

Ans. (c) : Hand file is made of high carbon steel hand file is rectangular cut like flat file

- Its width is uniform through out its length. It tapers in 1/3 length and thickness towards the point.

159. There are mainly four types of cuts in file of these he which one is not a cut?

- (a) Single cut
- (b) Double cut
- (c) Curved cut
- (d) straight cut

R.R.B. Bhubneswar Asst. Loco Pilot, 15.07.2012

Ans. (d) : Types of cut–

- Single cut
- Double cut
- Rasp cut
- Curved cut

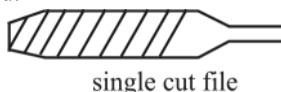
Straight cut is not a type of file cut.

160. What angle are the teeth cut on the face of single cut file?

- (a) At 45° to the center line of the file
- (b) At an angle of 60° the center line of the file
- (c) At 75° to the center line of the file
- (d) At an angle of 80° to the center line of the file.

R.R.B. Bilaspur Asst. Loco Pilot, 15.07.2012

Ans. (b): In single cut files, the teeth are made in straight lines on the face. These lines are parallel to each other and are at 60° to the center line of the face. Metal is less cut with these files but the surface is well refined.



161. File card is used to

- (a) to clean the workpiece
- (b) to clean the teeth of file
- (c) to bring file's teeth into perfect condition
- (d) to clean the chips

ISRO Tech.-B (RAC) 28.08.2016

Ans. (b) : File card is used to clean file teeth. Generally the length of the file is from 100 mm to 450 mm, depending on the cut of the teeth the following types of files it occurs –

Single cut, double cut, Rasp cut, curved cut.

162. Any rough files is used

- (a) on irregular shaped jobs
- (b) for rapid grinding of metal
- (c) on wood
- (d) if smooth file is not available.

R.R.B. Chandigarh Asst. Loco Pilot, 15.07.2012

Ans. (b): Rough file is used for rapid grinding of metal. Rough file has 8 teeth per cm. This is the coarsest tooth file.

- Rough file cuts the most metal and rough file is used for rubbing the metal quickly
- They are used only for filing soft metals.

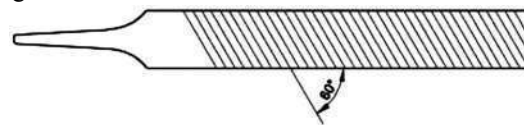
163. You have to cut on aluminium block to a smooth finish which of the following file is most suitable?

- (a) Single cut
- (b) Double cut
- (c) Rasp cut
- (d) Circular cut

R.R.B. Chandigarh Asst. Loco Pilot, 25.05.2003

Ans. (a): The teeth of single cut files are medium straight line on the face.

These lines are parallel to each other and is at 60° to the center line of the face. They are used for sharpening tools and for grinding hard metals. It is more suitable to cut aluminium block to a smooth finish by single cut filing



164. Which of the following file is used for filing the grooves.

- (a) Pillar file
- (b) Mill file
- (c) Warding file
- (d) Flat file

R.R.B. Chennai Asst. Loco Pilot, 06.06.2010

Ans. (a) : Pillar file is similar in shape to hand file. Its thickness is found up to 12-25 cm. It is used for filing in grooves like key way etc.

- The ratio of width and thickness in pillar file is less than that of hand file.

165. Which of the following material rasp cut file can be cut by?

- (a) steel
- (b) cast iron
- (c) wood
- (d) Bronze

R.R.B. Chennai/Bangalore Asst. Loco Pilot, 27.10.2002

Ans. (c) : This file has line of distinct, sharp pointed serrations and is useful for filling wood, leather, and other soft materials. These files are found only in half-round shape.

166. Double cut file is used for filing on is used for–

- (a) wood (b) high board
(c) leather (d) steel

R.R.B. Gorakhpur Asst. Loco Pilot, 08.10.2006

Ans. (d) : Double cut file, two rows of teeth are in the form of diagonals. The first row of teeth is called the overcut.

- Double cut file is used for filing on steel.
- These cuts are made at an angle of 50°–60°.

167. Tang and body separating file curve part is called?

- (a) Ferrule (b) Heel
(c) Shoulder (d) Edge

R.R.B. Gorakhpur Asst. Loco Pilot, 11.10.2009

Ans. (b) : The curved part of the file separating the tag and the body is called heel.

- Some portion between the face and the tank remain plain and toothless this part is called heel.
- The file has the following parts–
Face, tang, handle, heel, core tip or point, shoulder, ferrule etc.

168. Which part of the file is hard and tempered

- (a) handle (b) Tang
(c) Ferrule (d) body

ISRO Tech.-B (RAC) 06.11.2016

Ans. (d) : The body of the file is hard and tempered–

- Tang is the narrow and thin part of a file which fits into the handle.
- Shoulder is the curved part of the file joining tang from the body.
- Ferrule is a protective metal ring to prevent cracking of the handle.
- Heel is the portion of the broad part without teeth near the tang.
- Face is the broad part of the file with teeth cut on its surface.

169. For trimming rough edge of soft metal castings file is used–

- (a) Second cut file (b) Dead smooth file
(c) Bastard file (d) Rough file

R.R.B. Gorakhpur Asst. Loco Pilot, 14.04.2002

Ans. (d) : Rough file is used for removing more quantity of metal in less time. It is used for trimming rough edge of soft metal castings.

- Bastard file is used for general / ordinary filing purpose.
- Second cut file is used for good / fine finishing purpose
- Smooth file is used for removing less metal and for giving good surface finishing.
- Dead smooth file is used for high quality finishing.

170. Identify the type of file shown in the picture



- (a) Flat file
(b) Half Rounder file
(c) Round file
(d) Rasp cut file

R.R.B. Gorakhpur Asst. Loco Pilot, 21.10.2001

Ans. (a) : The various shapes of files with their application are available as triangular file, round file, half round file, flat file square file etc.

- Flat file's rectangular in section and tapered for 1/3 length in width and thickness towards the tip.
- The faces carry double cut teeth and the edges carry single cut teeth.
- It is a general purpose file.

171. Which of the following file is used for metal filing in large quantities.

- (a) Double cut file (b) Dead smooth file
(c) Bastard file (d) Single cut file

R.R.B. Guwahati Asst. Loco Pilot, 22.01.2006

Ans. (c) : Bastard file–Teeth of this file are comparatively smaller than those of the rough file. It is used initially to shed metal through filing in large quantity.

- Bastard file is used for general / ordinary Filing purpose
- Bastard file has 12 teeth per cm. It is a medium grade file. It is used for both hard and soft metals.

172. Shown in the picture is the hand tool?



- (a) File (b) Punch
(c) Try square (d) Divider

R.R.B. Jammu-Kashmir Asst. Loco Pilot, 06.06.2010

Ans. (a) : • A file is used for given final finishing touches to a job of metal or wood.

- After chipping a job of metal generally becomes rough and a file is used to make it smooth.
- Files are also used for sharpening the edge of some other cutting tools.

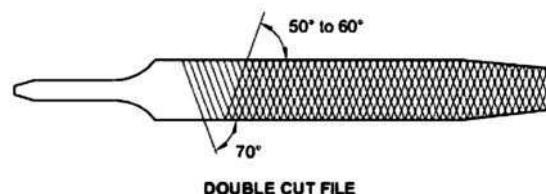
173. Which of the following is not the type of file according to its grades.

- (a) Rough (b) Bastard
(c) Dead smooth (d) Double cut

R.R.B. Kolkata Asst. Loco Pilot, 02.11.2008

Ans. (d) : Double cut file is not a type of file according to its grades.

- The different grades of files commonly available as rough, bastard, second cut, smooth and dead smooth files.



- Rough file is used for removing more quantity of metal in
- Bastard file is used for general / ordinary filing purpose
- Dead smooth file is used for high quality finishing.

174. The length of the blade of a tenon saw is generally—
 (a) 30 cm (b) 25 cm
 (c) 35 cm (d) 40 cm

R.R.B. Kolkata Asst. Loco Pilot, 06.02.2005

Ans. (a) : The length of blade of a tenon saw is suitable from 30 cm to 40 cm.

- A tenon saw is made out of high speed steel and brass.
- It is used to cut small pieces of wood and most joints.
- The saw has a fine two that cross cut for sawing plywood, thin wood and large joints.

175. Keyhole saw is used for—

- (a) For straight line cutting
- (b) For curve line cutting
- (c) to cut out the shape
- (d) both b and c

R.R.B. Kolkata Asst. Loco Pilot, 16.07.2006

Ans. (d) : It is used to give the required rectangular shape to the round hole made by drill machine in wiring boards with surmica top.

- Key hole saw is used to cut curves and shapes.

176. What is used to give the required rectangular shape to the round holes made by the drill machine?

- (a) saw (b) key-hole saw
- (c) Tenon saw (d) None of these

R.R.B. Kolkata Asst. Loco Pilot, 2014

Ans. (b) : A key hole saw is a fine toothed hand saw with a long narrow, tapered blade.

- Key hole saw are used mostly for cutting tight curves, and by first drilling a pilot hole, closed inside cuts, in material such as wood, hard board, plastic and metal.

177. Which types of instrument is a rule—

- (a) For measuring (b) For weighting
- (c) to measure time (d) for measure time

R.R.B. Kolkata Asst. Loco Pilot, 29.09.2002

Ans. (a): • Rule is an instrument for measuring length
 • Steel rule is tool sizes of 150, 200, 250 600 mm is available.

178. Steel rules are made of—

- (a) Stainless steel (b) cast steel
- (c) mild steel (d) high speed steel

R.R.B. Malda Asst. Loco Pilot, 16.07.2006

Ans. (a) : Steel rules are mostly made of stainless steel.
 • Steel rules of 150, 200, 250, 600 mm sizes are available.

- Steel rules can be flexible or non flexible, thin or wide. The thinner the rule, the more accurately it measures, because the division marks are closer to the work.
- In which position should be steel rule measurement be taken to avoid parallel error.

179. In which position should be steel rule measurement be taken to avoid parallel error.

- (a) vertical position (b) horizontal position
- (c) flat position (d) none of these

R.R.B. Mumbai Asst. Loco Pilot, 03.06.2001

Ans. (a) : Stain less steel, spring steel etc. are used for making steel rules.

- The sizes of 150, 200, 250, 600 mm are available in the market.
- Measurement by steel rule should be taken in vertical position to avoid parallel error.

180. We can take small measurement on a steel rule.

- (a) 0.2 mm (b) 0.4 mm
- (c) 0.5 mm (d) 1.0 mm

ISRO Tech.-B (RAC) 02.06.2019

Ans. (c) : By simple measuring instruments minimum measurement is taken up to 0.5 mm metric system and 1/64 inch in British system. Marks of 0.5, 1.5, 10 mm are made on the steel rule.

- The steel rule is an easy and quickest means to measure the linear dimensions.
- It is frequently used in the workshop for measurement.

181. Match List I and list II.

List –I

List -II

- | | |
|-----------------|----------------------------------|
| A. Folding rule | 1. In long distance measurement |
| B. Steel rule | 2. 1 m or 2 m length measurement |
| C. Steel tape | 3. In angle measurement |
| D. Try square | 4. High carbon steel |

Code:

- | | A | B | C | D |
|-----|---|---|---|---|
| (a) | 1 | 4 | 2 | 3 |
| (b) | 2 | 4 | 1 | 3 |
| (c) | 4 | 3 | 2 | 1 |
| (d) | 3 | 2 | 1 | 4 |

R.R.B. Mumbai Asst. Loco Pilot, 14.06.2009

Ans. (b) : The measuring instrument are of the following types. steel rule, steel tape, scale etc.

- Folding rule – 1 m or 2 m length of measure
- steel rule – High carbon steel
- Steel tape – In long distance measurement
- Try square – Angle measurement

182. Job is tested by try square—

- (a) right angle (b) acute angle
- (c) obtuse (d) none of these

R.R.B. Mumbai Asst. Loco Pilot, 15.07.2012

Ans. (a): Try square is used to draw parallel and perpendicular lines while marking the job and to check the perpendicular angles of the surface.

- The right angle of the job is tested by try square.

183. The size of the tri-square is taken–

- The length of the stock
- The length of the stock
- Length and width of the blade
- None of the above

R.R.B. Mumbai Asst. Loco Pilot, 16.07.2006

Ans. (b): This is used to mark lines at 90 degree of a straight edge.

- It is used to mark out lines square to the faces edge and faces side.

Used:

- Check the squares
- Check the flatness
- Mark lines at 90° to the edge of workpieces.
- Set workpieces at right angle.

184. Under the blade on the stock in try square an under is cut, the purpose of which

- checking the size of the try-square
- to enhance its beauty
- positioning of burr on the edges of the job by machining
- none of the above

R.R.B. Mumbai/Bhopal Asst. Loco Pilot, 05.01.2003

Ans. (c) : Try square is the most useful tool with the half of which the perpendicularity of surface is tested.

- The try square has an undercut on the stock below the blade. The purpose of which is to place the on the edges of the job from machining.

185. The correct statement regarding try square is–

- with the help of this test the right angle
- it is used while marking the job parallel and vertically.
- its size is expressed by the length of the blade
- all of the above.

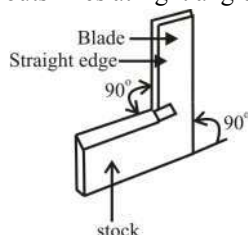
R.R.B. Muzaffarpur Asst. Loco Pilot, 15.02.2009

Ans. (d) : Try square is a precision instrument which is used to check the squareness of a surface

- It consists of a stock and a blade
- Its size is specified by the length of its blade.

Its three main uses are–

- To check the surface for flatness
- To determine if two surfaces are at right angle to each other
- To layout lines at right angle to a machined surface



186. Which metal leaf is applied on the inner surface of the stock to protect the wooden from wearing?

- Brass
- Steel
- Aluminium
- Iron

R.R.B. Patna Asst. Loco Pilot, 04.02.2007

Ans. (a) : Try – square is used to check the surface or perpendicular angles, in which brass leaf is applied on its inner surface to protect the wooden stock from rubbing.

- The thickness of the stock is kept greater than that of the blade.

187. Which of the following not a marking tool?

- Scriber
- snip
- punch
- divider

R.R.B. Patna Asst. Loco Pilot, 11.11.2001

Ans. (b) : The tools which are used to mark a job after measuring it are called marking tool.

Following are the marking tool

Such as– scale, try square Divider terminal scriber marking gauge punch etc.

- Snip is not a marking tool.

188. Which tool is used to make marks on a printed circuit board before punching?

- Divider
- Scriber
- Punch
- None of these

R.R.B. Patna Asst. Loco Pilot, 2014

Ans. (c) : Punch is a tool used to indent or create a hole through a hard surface.

- Scriber is a hand tool used in metal work to mark lines on workpieces, period of machining.

- Divider, instrument for measuring transforming or marking off distances, consisting of two straight adjustable legs hinged together and ending in sharp point.

189. Which of the following is the work of permanent marking done?

- Scriber
- divider
- marking plate
- Punch

R.R.B. Ranchi Asst. Loco Pilot, 04.09.2005

Ans. (d): Punches are generally made of high carbon steel.

- Its three parts are head, point and body permanent marking is done by punch.

- The punch tool is used to make the temporary marking permanent.

Types of punch

- Centre punch, • Dot punch, • Prick punch, • Drift Punch, • Pin punch, • Automatic punch, • bell punch, • Solid punch, • Hollow punch.

190. For light punch marks with 30° of prick punch are used, while for proof marks use the containing prick punch.

- 60°
- 90°
- 120°
- 75°

R.R.B. Ranchi Asst. Loco Pilot, 08.07.2007

Ans. (a): Prick punch is used for making light punch marks needed to positive dividers. For the correct location and seating of the divider point prick punch marks of 30° are used prick punch is made of high carbon steel.

191. Point angle of centre punch is –

- (a) 30° (b) 45°
(c) 60° (d) 90°

ISRO Tech.-B (RAC) 24.03.2019

Ans. (d) :

Punch	Point angle	Application
Centre punch	90°	This is used for location the centre of the hole. The wide punch mark gives a good eating for starting the drill.
Prick punch	30°	It is used for making light punch marks needed to positive dividers.
Dot punch	60°	It is used for marking witness marks

192. In general works on(m) Jaw bench vice is used.

- (a) 10 cm (b) 15 cm
(c) 20 cm (d) 5 cm

R.R.B. Ranchi Asst. Loco Pilot, 2014

Ans. (a) : • Vice are used for holding the work pieces they are available in different types.

- The vice used for bench work is the bench vice or called engineer's vice.
- A bench vice is made of cast iron or cast steel and it is used to hold or clamp work for filing, sawing, threading and other hand operations.
- The size of the vice is stated by the width of the Jaws.

193. Which Jig is used for drilling on thin iron sheet.

- (a) solid jig (b) sandwich jig
(c) post jig (d) table jig

R.R.B. Sikandrabad Asst. Loco Pilot, 11.11.2001

Ans. (c) : Post jig is used for drilling on thin iron sheet.

- In this jig the work piece is located on its bore on the post. The post is also used to locate the drill plate.

194. Which of the following is not a part of hammer.

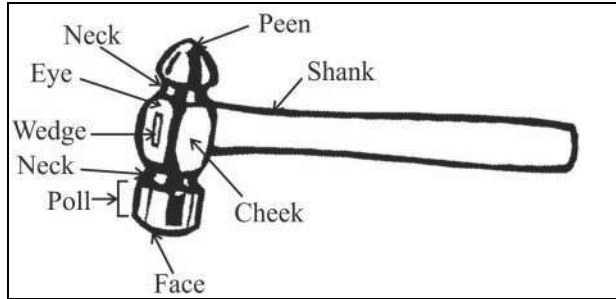
- (a) face (b) pin
(c) handle (d) shank

R.R.B. Ranchi Asst. Loco Pilot, 21.09.2003

Ans. (d) : Hammer is a tool, most often a hand tool, consisting of a weighted head fixed to a long handle that is swung to deliver an impact to a small of an object.

Parts of hammer–

- Head, • Cheek, • Claw, • Handle, • Face, • Eye, • Neck.



195. The part of the drill bit, which is hold by the drilling machine it is run by is called.

- (a) shank (b) pin
(c) handle (d) face

R.R.B. Sikandrabad Asst. Loco Pilot, 06.06.2010

Ans. (a): Drill bits are cutting tools used in a drill to remove material to create holes, almost always of circular cross section.

- Drill bits come in may sizes and shape and can create different kinds of holes in many different material.
- The part of the drill bit, which is hold by the drilling machine it is run by shank is called.

196. Hand drill is used in petroleum refinery and explosion making factory

- (a) Breast hand drill
(b) Pneumatic hand drill
(c) electric hand drill
(d) Ratchet base drill

R.R.B. Sikandrabad Asst. Loco Pilot, 29.06.2008

Ans. (b) : Pneumatic hand drills, a type of percussive equipment that runs on compressed air could also be classified as a large mechanical drill.

- These pneumatic drills are typically used to drill small diameter notes in hard rock in mining and construction.

197. Do not attempt to drill notes in object made with an electric drill machine.

- (a) Tool steel (b) wood
(c) plastic (d) all of these

R.R.B. Siliguri Asst. Loco Pilot, 2014

Ans. (a) : Electric drill machine is used for light and heavy works.

198. Which type of drills are most commonly used in drilling machine?

- (a) Straight fluted drill (b) Flat drill
(c) Twist drill (d) Central drill

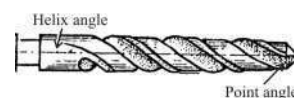
R.R.B. Trivandrum Asst. Loco Pilot, 20.06.2004

Ans. (c) : • The most popular type of drill in use today is the twist drill.

- It was basically formed by twisting a flat piece of tool steel longitudinally for several revolutions then grinding the diameter and point.

Twist drill element–

Axis, body, clearance, Face, flank, Flutes, Heel, Lends, Neck shank.



199. Drilling machine in generally how many fluet in drill?

- (a) 4 (b) 3
(c) 2 (d) 1

Indian Ordnance Factory, 10.09.2017

Ans. (c) : Twist drill are rotary cutting tools that normally have two cutting edge and two flutes which are grooves formed in the body to provide cutting lips, to permit the removal of chips and to allow coolant or cutting fluid to reach the cutting action.

200. Which of the following is an example of a portable drilling machine

- (a) electric drilling machine
(b) ratchet brace machine
(c) hand drilling machine
(d) All of these

Indian Ordnance Factory (Itarsi) , 08.05.2016

Ans. (d) : Portable drilling machine is a little compact component and use for drilling holes in work piece in every point, which can not be drilled in normal drilling machine

- These drilling machine work at rather high speed and hole drills capable of 12 mm diameter.

Example of drilling machine–

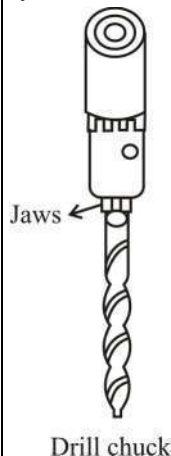
- Electric drilling machine
- Ratchet drilling machine
- Hand drilling machine

201. Drill chucks are fitted on the drilling machine spindle which is used to.....

- (a) Toothed ring (b) Arbor
(c) Drift (d) Pinion key

Indian Ordnance Factory, 2013

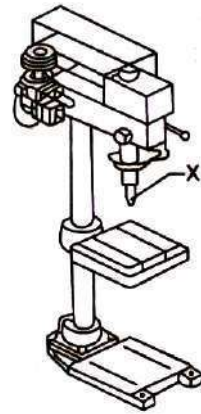
Ans. (c) : Drill chucks are held on the machine spindle by means of an drift fitted on the drill chuck



Drift

- Toper shank drills are held on the machine spindle with the help of a sleeve, Morse taper, and socket.
- Drift is used to remove the socket from the machine's spindle.
- For fixing and removing drills, the chucks are provided either with a pinion and key or a knurled ring.

202. Pillar drilling machine is shown in the figure, denoted by 'X' name a marked part.



- (a) fid handle
(b) drill chuck
(c) work table
(d) base

Indian Ordnance Factory, 2012

Ans. (b) : The drilling chuck in pillar drilling machine is shown by X in the figure.

- Piller drilling machine is bigger and heavier. Through this only holes up to 75 mm are made.

The drill chuck has a tapered shank which is fitted into the tapered hole of the machine spindle.

- They are types of drill chuck two jaw chuck, called drill chuck, three jaw chucks.

203. A type of pneumatic drilling machine be is

- (a) Sensitive drilling
(b) portable drilling machine
(c) Radial drilling machine
(d) Group drilling machine

DMRC (Maintainer) (Evening), 15.02.2017

Ans. (b) : A type of pneumatic drilling machine be is portable drilling machine

- It is fitted with a handle to reduce vibration during drilling and a screw for pressure control.

- This type of drilling machine is used in petroleum plants and explosive factories.

204. Idea in term of sensitive drilling machine

Statement :I:– The drilling machine is used to make precise holes in the equipment.

Statement :II:– The capacity of this drilling machine diameter up to 20 mm

- (a) I only (b) II only
(c) both (a) and (b) (d) none of these

DMRC (Maintainer) (Morning), 15.02.2017

Ans. (c): sensitive drilling machine is used to drill small holes at high speed in lighter jobs or workpieces.

Since the operator senses the cutting action at any instant it is called the sensitive drilling machine.

205. Which device is used to clamp the round work piece while drilling the work on a drilling machine.

- (a) V-block and clamp, bolts and packing pieces.
- (b) Machine block, bolts and packing pieces
- (c) hand block clamp and bolt
- (d) pin block, clamp and bolt

DMRC (Maintainer), 20.07.2014

Ans. (a) : This process of circular holes or holes is called drilling machine.

- V-block and clamps, bolt and packing pieces etc.
- Devices are used to hold the round workpiece tightly while drilling the work on the drilling machine.

206. Which is used to raise the pillar drilling machine table.

- (a) Rack and pinion
- (b) beel gear
- (c) spur gear
- (d) Maunter gear

DMRC (Maintainer), 24.12.2006

Ans. (a) : This machine is almost similar to the sensitive drilling. But it is very big in size and heavy through this holes, up to 75 mm can be made.

- Pinion system is used to raise the table in pillar drilling machine for which lifting handle is used.

207. Match list I and List II

- | List I | List I |
|-------------------------------|------------------------|
| A. Portable drilling machine | 1. For light works |
| B. Sensitive drilling machine | 2. Automatic feed |
| C. Pillar drilling machine | 3. For heavy equipment |

Code:

- | | A | B | C |
|-----|---|---|---|
| (a) | 3 | 1 | 2 |
| (b) | 2 | 1 | 3 |
| (c) | 3 | 2 | 1 |
| (d) | 2 | 3 | 1 |

BMRC Maintainer, 2016

Ans. (a) :	
List - I	List - II
• Portable drilling machine	For heavy equipment
• Sensitive drilling	For light works
• Pillar drilling machine	Automatic feed

208. In radial drilling machine small notes are available in the table.

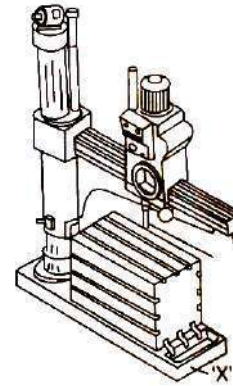
- (a) Circular
- (b) Triangle
- (c) Horizontal
- (d) Vertical

LMRC (Maintainer), 16.03.2016

Ans. (a): • Radial drilling machine is used to make circular holes on the components with the help of drill bits.

- They are used industries for the massive production of component.

209. The name of the part 'X' of the drilling machine shown in the figure is.



- (a) Radial arm
- (b) base
- (c) spindle head
- (d) Feed handle

Noida Metro Maintainer, 2017

Ans. (b) : • It is made of cost iron which possesses high compressive strength and good wear resistance.

- The base is used to support the assembly of parts in it and also absorbs the vibrations induced by the machine parts.

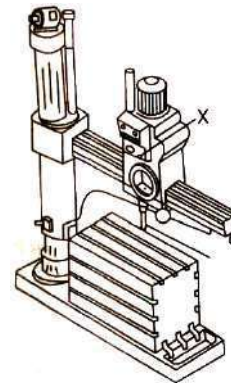
210. Which drilling machine is best suited for drilling multiple holes at different marks without disturbing the job setting.

- (a) Bach drilling machine
- (b) pillar drilling machine
- (c) Radial drilling machine
- (d) Electrical hand drilling machine

ISRO Technician-B (Benglore RAC), 27.11.2016

Ans. (c) : Radial drilling machine is used to drill the holes in the given radial distance when the component size is large in terms of height with respect to the work table.

211. Radial drilling machine denoted by the letter 'X' is the name of



- (a) Piller
- (b) Column
- (c) Spindle head
- (d) Radial arm

ISRO Technician-B, 20.11.2016

Ans. (c): The spindle head is denoted by 'X' in the figure.

- When the power supply is given, the spindle rotates which was in conjunction with the motor.

The radial arm is adjusted w.r.t the type of operation and height of the workpiece.

- The spindle is connected to the chuck and the drill bit is placed in between the jaws of the chuck.

212. Which process before tapping of gang drilling machine is done

- (a) Reaming (b) drilling
(c) both (a) and (b) (d) boring

ISRO Technician-B Motor Mechanic, 27.11.2016

Ans. (c) : A gang drilling machine consists of several individual column, drilling head, and spindles mounted on a single base utilizing a common table.

- Various machining operation like, drilling reaming, counter drilling tapping can be performed using this machine.

213. What is a special feature of radial drilling machine?

- (a) It can be used for drilling with high speed steel drill?
(b) It table can be moved in any direction and remains stable can do
(c) Its spindle can be brought to any position
(d) None of the above

DRDO Machinist, 2016

Ans. (c) : • The radial drilling machine is used to make a holes large and heavy workpiece

- The large and heavy workpiece can not move much, so the radial drilling machine is made in such way that the tool of the machine with drill head can move any part of heavy work without moving workpiece.

214. Two to one row are fitted spindle head in gang drilling machine

- (a) Four (b) Six
(c) Eight (d) ten

DRDO Motor Mechanic, 2016

Ans. (c) : Two to eight spindle heads are fitted in a row in a gang drilling machine. In this, separate operator works on each spindle

- These machine are very useful for mass production. A gang drill machine is multi-column drilling machine in which numerous drill heads and columns are mounted on a single table.

215. A drift is used for–

- (a) Removal the drill from the machine spindle
(b) Removal a broken drill from work
(c) To fix chuck on the machine spindle
(d) drawing a drill location

DRDO Mechanic Diesel, 2016

Ans. (a) : Drill chuck are held on the machine spindle by means of an arbor fitted on the drill chuck

- Toper shank drills are held on machine spindle with the help of sleeve, more taper and socket.
- Drift is used to remove the drill and socket from the machine's spindle.

216. While grinding it should be ensured that the direction of grinding is an per the marking of the machine. If the rotation direction of grinding machine is opposite, Then,

- (a) grinding process will not be possible
(b) there will be excessive sparking during grinding
(c) grinding wheel will get damaged
(d) none of the above

SAIL Bokaro Steel Plant, 2016

Ans. (a): A grinding machine is machine tools which is used for removing of rough surface of a workpiece with the help of rotating abrasive wheel that act as a tool.

- Mostly, it is finishing operation because it removes material in very small size of chips 0.25–0.5 mm. Grinding process is not possible if the rotation direction of the grinding machine is opposite.

217. For abnormal being of grinding wheel.

- (a) Run the job on fall face
(b) turn the job on the grinding wheel
(c) Towing and dressing of grinding wheels as required do.
(d) use coolant

SAIL Durgapur Steel Plant, 05.09.2014

Ans. (a) : Grinding wheels are mostly used for grinding removing excess material of a surface clearing up cuts and prepare metal work pieces for welding.

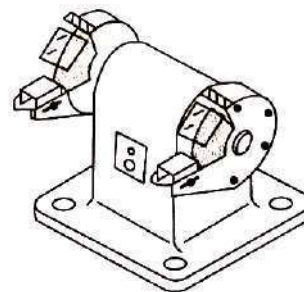
218. The process of removing metal from the surface of workpiece in machine operation in the from of very fine particles by an abrasive wheel rotating at a high speed is called.

- (a) Honing
(b) Drilling
(c) Grinding
(d) Welding

VIZAAG Steel, 2015

Ans. (c) : A grinding machine is a machine tool equipped with an abrasive wheel used for producing fine finishes or making light cuts on metals and other materials.

219. Which type of grinder is shown in the figure below?



- (a) stand grinder
(b) bench grinder
(c) portable grinder
(d) swing-frame grinder

NTPC, 2014

Ans. (b): Bench grinder are commonly used to hand grind various cutting tools and perform other rough grinding.

- Bench grinder is used in workshops for sharpening general repainting tools for flatting of castings.

220. Which of the following is the main purpose of the grinding process.

- shaping of cutting tool
- sharpening of cutting tools
- removal of metal in the form of fine particles from unhardened.
- all of the above

BHEL Hyderabad, 2014

Ans. (d) : Grinding is used to finish work pieces that must show high surface quality (e.g, low surface roughness) and high accuracy of shape and dimension.

221. After putting a thread in the hole with a tap it is found. The creast of the is not complete.

- The supply of cooling is not complete
- The tip of the cutting edge of the tap is broken
- The size of the hole is less then the size of the drill
- The size of the hole is larger than the size of the to drill.

COAL India (Motor Mechanic), 2013

Ans. (b) : When inserting the thread into the hole with the tap, it is found that the creast of the thread's not complete it is because the tip of the cutting edge of the tap is broken.

- Internal threads are cut on the bench with a hand tap.
- The tap is made of hardened steel.

222. Another name for finishing tap is–

- Intermediate tap
- Tapper tap
- Bread forming tap
- Bottoming tap

CRPF Constable Tradesman, 2016

Ans. (d) : Finishing tap is also called plug tap or bottoming tap.

- When rotated by hand, the bottoming taps chamfer is too short to start a thread because all the thread from would be removed with only 1.5 threads of the tap.
- Bottom chamfer taps are normally used to get close to the bottom of a blind hole but only after taper and plug chamfer taps have removed most of the material.

223. After drilling a hole with a tap it is found that the head of the hole is not fully formed, this defect is caused by?

- Hole size slightly larger than the tap drill.
- Insufficient supply of cooling
- Cutting edge of the tape is broken
- Hole size slightly smaller then the tap drill

HAL, 2015

Ans. (a): Tap is a type of cutting tool by which thread are cut in cylindrical holes. If the top of the hole is not fully formed after drilling with the tap, it is because the size of the hole is slightly larger than that of the top drill.

224. Which is the correct tap drill for tapping an M16 tap?

- 14 mm
- 14.16 mm
- 15.03 mm
- 15.08 mm

Mazagon Dock Shipbuilders Ltd., 2013

Ans. (a) :

Tap size	Basic major dia (mm)	Drill size (mm)
M14×1.5	14 mm	12, 5mm
M16×2	16 mm	14 mm
M16×1.5	16 mm	14, 5 mm
M18×2.5	18 mm	15, mm

225. The depth rod of vernier calliper attached.

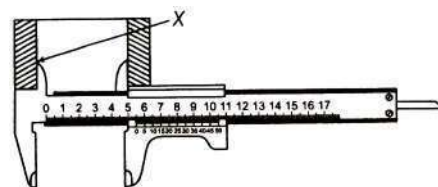
- Fix jaw
- Movable jaw
- vernier scale
- fine setting screw

R.R.B. Ahmedabad Asst. Loco Pilot, 2014

Ans. (c) : The depth rod of the vernier caliper is attached to the vernier scale.

- The vernier scale measures accurate dimensions. It has two scales a normal large scale (main scale) and a scale inside it is used to calculate measurements without any error.

226. What is the type of gauge shown in the figure marked 'X'?



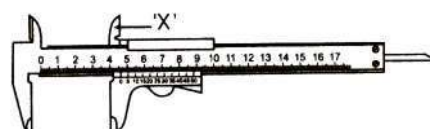
- Internal measurement
- External measurement
- Measurement of depth
- Measure of length

ISRO Tech.-B (RAC) 22.04.2018

Ans. (d) : • It is used to measure the internal diameter of a tube or cylinder.

- It is useful in measuring the length of the object.
- It is useful in measuring the length of the object.
- A vernier caliper is used to measure the diameter of circular object.

227. Name the part marked 'X' in the given figure



- (a) fix Jaw (b) movable Jaw
(c) vernier scale (d) plug gauge

R.R.B. Ajmer Asst. Loco Pilot, 05.06.2005

Ans. (b) : • Vernier caliper consists of two scales the main scale which is fixed jaw and a moving vernier scale.

- The main scale has heading in millimeters unlike standard scales, a vernier caliper can measure reading precisely up to 0.001 cm.
- The vernier calipers normally have a range of 300 mm.

228. Which of the following instrument provide actual dimension directly?

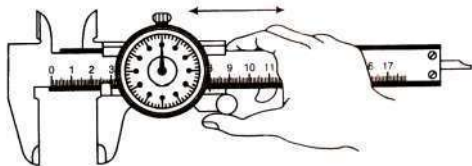
- (a) inside caliper (b) outside caliper
(c) vernier caliper (d) plug gauge

R.R.B. Ajmer Asst. Loco Pilot, 10.10.2004

Ans. (c) : Vernier caliper is used to measure the internal diameter of a tube or cylinder.

- It is used to measure the diameter of circular object.
- It is used to measuring the length of the object.

229. Identify the vernier caliper shown in the



- (a) Digital vernier caliper
(b) Dial vernier caliper
(c) Knife edge vernier caliper
(d) Depth gauge vernier caliper

R.R.B. Ajmer Asst. Loco Pilot, 23.05.2004

Ans. (b) : Dial vernier caliper shown in the figure.

- Dial caliper are normally used for measuring the thickness of material and small amounts of movement.
- The vernier, dial and digital calipers directly read the distance measured with high accuracy and precision.

230. How many micron is the least count of the micrometer?

- (a) 1 (b) 10
(c) 100 (d) None of these

R.R.B. Allahabad Asst. Loco Pilot, 09.12.2007

Ans. (b) : A vernier scale on a caliper may have a least count of 0.1 mm while a micrometer may have a least count of 0.01 mm or 10 microns.

The least count of micrometer is 0.01 mm

1 micron = 10^{-6} m

1 micron = $10^{-6} \times 10^3$ mm

1 micron = 10^3 mm

1 mm = 10^3 micron

0.01 mm = 0.01×10^3 micron = 10 micron,

10 micron is the least count of the micrometer.

231. What is the maximum distance that can be measured by outside micrometer?

- (a) 100 mm (b) 50 mm
(c) 25 mm (d) None of these

R.R.B. Bangalore Asst. Loco Pilot, 25.01.2004

Ans. (a) : Outside micrometer are used for measuring the thickness or outside diameter of small parts.

- Outside micrometer is also known as external micrometer or out side micrometer.
- Outside micrometer are made in different patterns so that, it suit for various application and they gives us direct reading.

232. The value of a thimble scale in a metric micrometer.

- (a) 1 mm (b) 0.02 mm
(c) 0.4 mm (d) 0.01 mm

R.R.B. Bangalore Asst. Loco Pilot, 08.07.2007

Ans. (d) : The value of the thimble scale is 0.01 mm.

- The circumference of the bevel edge of the thimble is graduated into 50 divisions and marked 0–5–10–15.....45–50 in a clockwise direction.
- The distance moved by the spindle during one rotation of the thimble is 0.5 mm
- Movement of one division of the thimble = $0.5 \times 1/50$ = 0.01 mm

233. (0–25 mm) zero checking of micrometer is done on–

- (a) Test piece (b) setting ring
(c) surface plate (d) straight edge

R.R.B. Bangalore Asst. Loco Pilot, 15.07.2012

Ans. (c) : The depth micrometer is ideal for fast highly accurate depth measurement of upto 25 mm/1".

- It is used to measure the depth of holes slots, projections, recesses, keyways etc.
- Its principal of function is similar to that of on outside micrometer.

234. The part of a vernier bevel protractor, which is generally it is used as a base while measuring angles?

- (a) Blade (b) Stock
(c) Disk (d) Main scale

R.R.B. Bhubneswar Asst. Loco Pilot, 15.07.2012

Ans. (*) : • In measuring the angle, it is one of the contact surfaces.

- It would be better if it is placed in contact with the surface of the job being measured along with the angle to be measured.

The parts of vernier bevel protractor is disc, dial stock, looking screw, vernier scale main scale etc.

235. How many vernier parts can one division of an vernier bevel protractor be divided.

- (a) 25 (b) 20
(c) 12 (d) 10

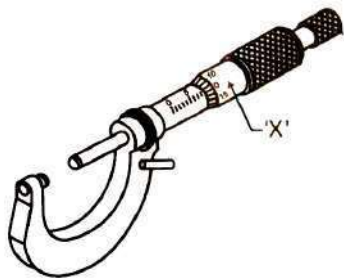
R.R.B. Bilaspur Asst. Loco Pilot, 15.07.2012

Ans. (c): 12 vernier parts can one division of an vernier bevel protractor be divided.

The vernier bevel protractor is a precision instrument meant for measuring angles of an accuracy of 5 minutes.

- Least count of vernier bevel protractor is 5 minutes.
- It is used to measure the acute as well as obtuse angles.

236. Name the part marked 'X' in the figure



- (a) Spindle (b) Anvil
(c) Thimble (d) Barrel/sleeve

R.R.B. Bhopal Asst. Loco Pilot, 06.06.2010

Ans. (c) : The name of the part 'X' shown in the figure is thimble.

- The thimble is considered to be the main part of the micrometer.
- Thimble is a tubular cover that is attached to the spindle and moves along the spindle.
- There is a bevel edge on the thimble which is divided into equal parts.
- Each 5th is number like 0, 5, 10 45.

237. Hacksaw blades are designated according to their:

(ISRO Bangalore 27-11-2016)

- (a) Length (b) Type
(c) Pitch (d) All of the above

Ans : (d) A hacksaw is a hand tool used to cut metal

- A hacksaw blade is made of either low alloy steel or high speed steel and is available in standard length of 250 mm and 300 mm.
- The selection of the blade depends on the shape and hardness of the material to be cut.

238. Which gauge should be used to measure fine vacuum?

- (a) Compound gauge
(b) Thermocouple vacuum gauge
(c) Barometer
(d) Manometer

RRB ALP Ranchi 08.07.2007

Ans. (b) : The fine vacuum is measured by thermocouple vacuum gauge.

239. is device used for lifting things that are too hot to handle.

- (a) Floor protector (b) Burr remover
(c) Fire extinguisher (d) Tong

RRB ALP Ranchi 19.01.2003

Ans. (d) : Tong is used for lifting things that are too hot to handle.

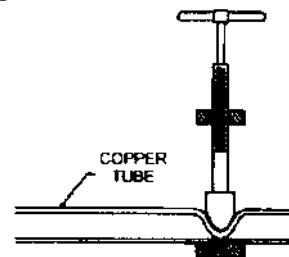
240. Pressure difference of air can be measured with

- (a) Thermocouple (b) Anemometer
(c) Humidistat (d) Manometer

Kerala PSC Inst. (RAC) 2018

Ans. (d) : Pressure difference of air can be measured with monometer.

241. What is the action being performed in the figure given below?



- (a) Flaring (b) Pinching
(c) Sweizing (d) Welding

LMRC (Maintainer) Fitter, 16.03.2016

Ans. (b): In this present picture the process of pinching is being done.

- Pinching tool is used to close or seal small diameter copper tubes.
- It consist of two bars which make beams and holes of various sizes.
- They are clamped together with wing nut and bolts.

242. Which of the following tool is?



- (a) Flaring tool (b) Swaging tool
(c) Pitching tool (d) Tube cutter

Noida Metro Maintainer Fitter, 2017

Ans. (a) : The given tool in this figure is a flaring tool.

Flaring Tool—Flaring tool is used for making flaring of copper tubes of different sizes.

- It is consist of two parts, a flaring block and a yoke.
- The flaring block consist of two bores that make holes for tubing of different sizes.

3.

SHEET METAL WORK

1. Temporary fastening one by help of:

- (a) Welding (b) Brazing
(c) Soldering (d) Rivet

Kerala PSC Inst. (RAC) 31.08.2022

Ans. (d) : Temporary fastening one by help of rivet.
Types of fasteners– Removable, permanent.

Removable– This type permits the part to be readily disconnected without damage fasteners.

2. Thickness of a GI sheet is measured by ____.

- (a) Sheet gauge
(b) Plug gauge
(c) Feeler gauge
(d) Vernier height gauge

RRB ALP Secunderabad 06.06.2010

Ans. (a) : Thickness of a GI sheet is measured by sheet gauge.

Feeler gauge– Feeler gauge is used to check the gap between the mating parts.

3. Mallet is a ____.

- (a) Hard Hammer (b) Soft Hammer
(c) Smoothing hammer
(d) Stretching hammer

RRB ALP Secunderabad 11.11.2001

Ans. (b) : Mallet is a soft hammer.

Mallet–

(A) Standard wooden mallet– Used for general purpose sheet metal work.

(B) Bossing mallet– Used for hollowing, panel heating etc.

(C) End tasked mallet– Used for stretching, hammering etc.

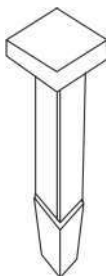
4. Thickness of 18 SWG sheet is ____.

- (a) 2 mm (b) 3 mm
(c) 1.5 mm (d) 1.2 mm

RRB ALP Secunderabad 29.06.2008

Ans. (d) : Thickness of 18 SWG sheet is 1.2 mm.

5. What is the name of the stake used in sheet metal job as shown in the drawing?



- (a) Square Stake
(b) Hatchet Stake
(c) Blow horn Stake
(d) Bevel edged square Stake

RRB ALP Siliguri 2014

Ans. (a) : The name of the stake used in sheet metal job as shown in the drawing is known as 'Square stake'.

6. What should be the minimum distance from the edge of the metal to the centre of any rivet to avoid tearing?

- (a) Equal to the diameter of the rivet
(b) Twice the diameter of the rivet
(c) Thrice the diameter of the rivet
(d) Four times the diameter of the rivet

UPRVUNL TG2 Fitter 2015

Ans. (b) : The minimum distance from the edge of the metal to the centre of any rivet is twice the diameter of the rivet to avoid tearing.

7. Articles like pans, buckets, furnace and cabinets are made of

- (a) Steel sheets
(b) Galvanised iron sheets
(c) Aluminium sheets
(d) Tin plates

RRB ALP (RAC) 23.01.2019 (Shift-I)

Ans. (b) : Articles like pans, buckets, furnace and cabinets are made of galvanised iron sheet.

8. Angle for countersink riveting is

- (a) 75° (b) 80°
(c) 90° (d) 120°

RRB ALP Ahamadabad 2014

Ans. (a) : Angle for countersink riveting is 75°.

Angle for counter sink – Counter sinks are available in different uses

75° Counter sink riveting.

80° Counter sink self-tapping screw

90° Counter sink head screw and for deburring.

120° Chamfering ends of holes to be threaded or other machining processes.

9. The joint in which the plates are kept side by side is

- (a) Lap joint (b) Butt joint
(c) Edge joint (d) None of these

RRB ALP Ahamadabad 17.10.2004

Ans. (b) : The joint in which the plates are kept side by side is butt joint.

- This is a strong joint because weld metal reaches deep inside the joint.

10. Bronze is an alloy of

- (a) Copper and Nickel
(b) Copper and Tin
(c) Copper and Zinc
(d) Iron and Copper

Kerala PSC Inst. (RAC) 2022

Ans. (b): Bronze is an alloy of copper and tin.

Alloy	Metals
Brass	Copper, Zinc
Bronze	Copper, Tin
Steel	Iron, Carbon
Invar	Iron, Nickel
Electrum	Gold, Silver
Gun Metal	Copper, Tin, Zinc
Fuse wire	Lead, Tin

11. Which material sheets are used in sheet metal?

- (a) Galvanized iron (b) Stainless steel
(c) Copper (d) All of these

RRB ALP Ajmer 10.10.2004

Ans. (d) : Stainless sheets—

- This is an alloy of sheet with nickel, chromium and other metals.
- It has good corrosive resistance and can be welded easily. The stainless steel used in a sheet metal shop can be worked similarly to galvanized iron sheets but is tougher than GI sheets.
- The cost of stainless steel is very high

12. A hack saw blade is specified by its—

- (a) Length (b) Material
(c) Width (d) Number of teeth

RRB ALP Ajmer 23.05.2004

Ans. (a) : A hack saw blade is specified by its length.

Pitch of blade- The distance adjacent teeth is known as the pitch of the blade.

Classification	Pitch
Coarse	- 1.8 mm
Medium	- 1.4 mm & 1 mm
Fine	- 0.8 mm

13. A file removes the metal during-

- (a) Forward stroke (b) Return stroke
(c) Both (a) and (b) (d) None of these

RRB ALP Allahabad 03.08.2008

Ans. (a) : A file removes the metal during forward stroke.

14. In a shaper machine, the metal is removed during-

- (a) Return stroke
(b) Forward stroke
(c) Both (a) and (b)
(d) Neither the forward nor the return stroke

RRB ALP Allahabad 09.12.2007

Ans. (b) : In a shaper machine, the metal is removed during forward stroke.

15. Brass is an alloy of

- (a) Copper and Nickel (b) Copper and Tin
(c) Copper and Zinc (d) Iron and Copper

RRB ALP Bangalore 25.01.2004

Ans. (c) : Brass is an alloy of copper and zinc.

- The colour is yellow or light yellow, or nearly white.

- Brass is also corrosion resistant.
- Brass is widely used for making motor car radiator core and water taps etc.
- An alloy of lead tin is used as solder.

16. The process of titling (beveling) one edge of hole is called—

- (a) reaming (b) drilling
(c) spot facing (d) counter sinking

RRB ALP Bangalore 08.07.2007

Ans. (d) : Counter sinking— It is also similar to counter boring, except that the additional machining done on a hole is conical (chamfering) to accommodate the counter sunk machine screw head again the depth of counter sinking should be large enough to accommodate screw head to fully flush with the surface.

17. The blade of hacksaw is made of which of the following metal?

- (a) Mild steel (b) Carbon steel
(c) Copper (d) Nickel

RRB ALP Bangalore 15.07.2012

Ans. (b) : The blade of hacksaw is made of carbon steel.

All hand blade- The full length of the blade between the pins is hardened.

Flexible blade- Only the teeth are hardened because of their flexibility, these blades are useful for cutting along curved lines. Flexible blades should be thinner than all hard blades.

18. In a lap joint

- (a) The plates are joined at the edges
(b) The plates are kept one over other
(c) One plate is kept horizontally
(d) Other is vertical

NCVT 2016

Ans. (a) : Lap joint are employed are riveting the plates having a thickness of about less than 3 mm.

- A lap joint is used for weak joints.

19. Which of the following rivet length is measured including the length of the head?

- (a) Plate head rivet
(b) Mushroom head rivet
(c) Snap head rivet
(d) Counter sunk head rivet

RRB ALP Bhopal 06.06.2010

Ans. (d) : Riveting and Rivet- Riveting is one of the methods of making permanent joint of two or more pieces (metal strips).

Uses— Rivet are used for joining metal sheets and plate in fabrication work, such as bridges, shipbuilding games structural steel work.

20. Which of the following is not a type of seam?

- (a) Grooved seam (b) Lap seam
(c) Single seam (d) Drift seam

Kerala PSC Inst. (RAC) 2016

Ans. (d): There are many types of seam which are–

1. Lap seam
2. Grooved seam
3. Single seam
4. Double seam
5. Double grooved seam.

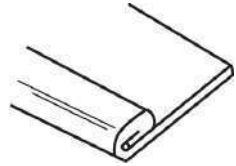
21. The folding of the edges of sheet metal is called–

- (a) hem
- (b) notches
- (c) seam
- (d) none of these

RRB ALP Bhubneswar 15.07.2012

Ans. (a) : The hem is an edge or border sheet metal made by folding.

- In the hemming process also called flattening, the edge of the sheet is folded over itself.
- Seaming is the process of joining two edges of sheet metal by hemming.



22. Concave and convex portion of a fitting job checked by

- (a) feeler gauge
- (b) wire gauge
- (c) radius gauge
- (d) height level

RRB ALP (RAC) 23.01.2019 (Shift-I)

Ans. (c) : Concave and convex portion of a fitting job checked by radius gauge.

23. The joints made of rivet are–

- (a) permanent
- (b) semi permanent
- (c) temporary
- (d) none of these

RRB ALP Bilaspur 15.07.2012

Ans. (b) : The joints made of rivet are semi permanent.

- Rivet is generally made of a ductile material such as low carbon steel, cast iron, brass, copper, aluminium and mixed metal alloys.
- The rivet is specified by shape of the head, diameter and length.

24. Copper tube can be easily folded through which process?

- (a) Soldering
- (b) Annealing
- (c) Tempering
- (d) Hardening

NCVT 2016

Ans. (b) : Copper tube can be easily folded through annealing process.

Annealing– The purpose of annealing is to soften the metal, to refine the grain structure, to relieve the stress and remove trapped gases in the metal.

- The process consists of heating the steel 30°C - 50°C above the upper critical temperature for hypereutectoid steel and by the same temperature above the lower critical temperature to hypereutectoid steels.
- It is held at this temperature for some time and then cooled slowly in the furnace.

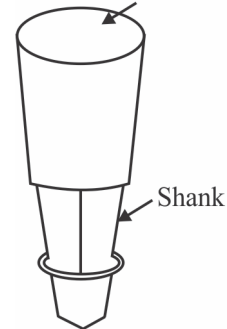
25. The head of round bottom stake is of which shape?

- (a) Cylindrical
- (b) Rectangular
- (c) Semicircular
- (d) None of these

RRB ALP Chandigarh 14.09.2008

Ans. (a) : The head of round bottom stake is of cylindrical shape. It is used bending the sheets round.

Head or horn



Round bottom stake

26. Which of the following tools sheet can be placed for bending, forging, etc.

- (a) Mallet
- (b) Stake
- (c) Snip
- (d) Scratchwal

RRB ALP Chandigarh 15.07.2012

Ans. (b) : Stake– Stake is an anvil of sheet metal on which the sheet is placed for bending seaming or forming using a hammer or mallet. This is a supporting and forming tool. The stake head is also called horn. Stake is made of cast iron or cast steel. It is of the following types–

1. Round bottom stake
2. Hatchet stake
3. Half moon stake
4. Funnel stake
5. Beak or Bick iron stake
6. Creasing iron
7. Plainising anvil
8. Horse.

27. What is the angle of slot lip at flaring block?

- (a) 30°
- (b) 45°
- (c) 60°
- (d) 75°

NCVT 2016

Ans. (b) : 45° is the angle of slot lip at flaring block.

- Flaring tools use pressure to make a fabricated mechanical joint for joining or sealing copper tubing with a flare connection.

28. Name the type of rivet used to avoid projection on the surface?

- (a) Tinman's
- (b) Flat head
- (c) Round head
- (d) Counter sunk

Kerala PSC (RAC) 12.09.2020

Ans. (d) : Counter sunk is the type of rivet used to avoid projection on the surface.

- Different type of rivet head

$$d = 6.04\sqrt{t} \text{ (mm)}$$

$$d = 1.91\sqrt{t} \text{ (cm)}$$

$$d = 1.2\sqrt{t} \text{ (inch)}$$

$$L = t + 1.5 \times d$$

d = Diameter of rivet
L = Length of rivet
t = Thickness of plate

29. What precaution should be taken while using hammer?

- (a) Hold the end edge of the handle with hand
- (b) Hold the handle close to the hammer
- (c) Grease the hammer
- (d) Work using loose handle

RRB ALP Chandigarh 25.05.2003

Ans. (a) : While using a hammer following precaution should be taken-

- (i) Hold the end edge of the handle with hand.
- (ii) Wear safety goggles to protect against flying items.
- (iii) Inspect the hammer before using it to ensure its in good condition.
- (iv) Hold the hammer properly.

30. What precaution should be taken while using insulated combination pliers?

- (a) Do not use it as a hammer
- (b) Do not throw from a high place
- (c) Oil it from time to time
- (d) All of these

RRB ALP Chennai 06.06.2010

Ans. (d) : While using a combination pliers following precautions should be taken :

- (i) Do not use it as a hammer
- (ii) Oil it from time to time
- (iii) Do not throw from a high place.

Combination pliers- It has a jaw which flat from the front and tapered at the sides. A cut is made inside its jaw for easily holding wires etc. It is used for cutting, bending, and making joints in a wire. It can be also used for tightening small nuts.

31. Which of the following tools is used for sealing or closing the diameter of copper tubes?

- (a) Swaging tool
- (b) Flaring tool
- (c) Bending tool
- (d) Pinching tool

RRB ALP Chennai 27.10.2002

Ans. (d) : Pinching tool is used for sealing or closing the diameter of copper tubes.

32. The thickness of sheet metal is indicated by a series of numbers, which is called as

- (a) Number size
- (b) Gauge
- (c) Standard size
- (d) None of the above

RRB ALP Gorakhpur 08.10.2006

Ans. (b) : The thickness of sheet metal is indicated by a series of numbers, which is called as gauge.

- Standard wire gauge (SWG) is used to measure the size of a wire and thickness of sheet.
- Copper and brass sheets are malleable and ductile.

33. Bent snip is used for

- (a) Removing the burr
- (b) Making holes on the sheet
- (c) Bending the sheet
- (d) Cutting the sheet along curved lines

R.R.B. Chandigarh Asst. Loco Pilot 25.05.2003

Ans. (d) : Bent snip- Bent snip is suitable to cut curved surfaces. It is used for cutting small curves.

- It is also used for trimming cylindrical or conical work in sheet metal.

Straight snip- Straight snip are used for making cuts and large external curves straight snips have thin blade which are only strong on a vertical planes.

- It is only suitable for straight cuts.

34. Which one of the following is the purpose for using hand groover in sheet metal worker?

- (a) To lock the grooved seam
- (b) To unlock the grooved seam
- (c) To strike the sheet
- (d) To hold the sheet in position

R.R.B. Chennai Asst. Loco Pilot 06.06.2010

Ans. (a) : A hand groover is used to lock the sheet metal seams.

35. Copper and brass sheets are

- (a) Hard and brittle
- (b) Malleable and ductile
- (c) Malleable and brittle
- (d) Hard and ductile

R.R.B. Gorakhpur Asst. Loco Pilot 2006

Ans. (b) : Copper and brass sheets are malleable and ductile.

Ductile- It is the property of a material enabling it to be drawn into wires.

Malleability- It is the property of a material enabling it to be drawn into thin sheets.

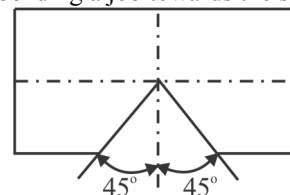
36. Which one of the following notches is used when making a job with a 90° bend?

- (a) Square notch
- (b) V – notch
- (c) Wired notch
- (d) Slant notch

R.R.B. Jammu-Kashmir Asst. Loco Pilot, 06.06.2010

Ans. (b) : V-notch is used when making a job with 90° bend.

V-notch- Both ends of this type of notch are cut at an angle of 45° sides of the notch meet at an angle of 90°. It is used for bending a job towards the side at 90°.



V-Notch mark and cut

37. Which one of the following stakes is used when shaping and seaming funnels and tapered articles

- (a) Hatchet stake (b) Half-moon stake
(c) Funnel stake (d) Creasing stake

R.R.B. Jammu-Kashmir Asst. Loco Pilot,
06.06.2010

Ans. (c) : Funnel stake– Funnel stake is used for planishing tapered work and hand forming of funnels and similar conical shapes of sheet metal.

38. The least bend radius varies depending on the

-
(a) Material and thickness of plate
(b) Direction of plate
(c) Working temperature
(d) All the above

DSSSB Craft Inst. (RAC) 2019

Ans. (d) : The least bend radius varies depending on the–

1. Working temperature
2. Direction of plate
3. Material and thickness of plate.

39. Which one of the following sheets is used for making highly corrosive acid tanks?

- (a) Black iron sheets
(b) Galvanised iron sheets
(c) Stainless steel sheets
(d) Lead sheets

RRB ALP Gorakhpur 12.10.2003

Ans. (d) : Lead sheet– The sheet made of metal is soft and heavy because there is no effect of acid on the glass. Hence they are used for making tanks of highly corrosive acids. It has properties of malleability and softness.

40. A mallet is made up of–

- (a) Lead (b) Brass
(c) Hard wood (d) Cast iron

R.R.B. Chennai/Bangalore Asst. Loco Pilot,
27.10.2002

Ans. (c): A mallet is wooden headed hammer of the round or rectangular cross section.

- The striking face is made flat to the work.
- It is most used hammers in any sheet
- It is used where light force is required
- A mallet is used for bending and smoothing the sheet.

41. Which of the following joint is suitable for roofing work?

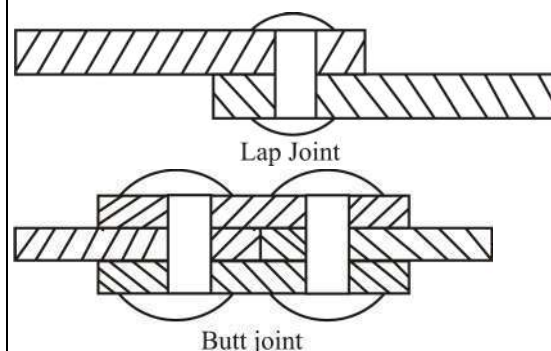
- (a) lap joint (b) butt joint
(c) hinged joint
(d) double grooved seam joint

R.R.B. Gorakhpur Asst. Loco Pilot, 11.10.2009

Ans. (d) : Double grooved seam Joint is suitable for roofing work.

Lap Joint– In this joint two plates are riveted when one plate overlaps other.

Butt joint:– In the case of the butt joint, the joint is made by placing the cover plate over the two plates either on one side or both side of the plates



42. Which among the following tools is used to flattening the metal around punched hole?

- (a) Ball peen hammer (b) Riveting hammer
(c) Setting hammer (d) Sledge hammer

R.R.B. Gorakhpur Asst. Loco Pilot, 12.10.2003

Ans. (a) : A ball peen hammer is used to flattening the metal around the punched hole. Hammer also used in shaping sheet metal by hand generally the following hammers are used–

- (1) Ball peen hammer
- (2) Cross peen hammer
- (3) Sledge

Ball peen hammer– It is used to spread the metal in all directions.

43. Which one of the following types of joints is used in which the end of sheet is placed over the end of another sheet and joined together?

- (a) Lap Joint
(b) Butt Joint
(c) Nocked up joint
(d) Grooved seam joint

R.R.B. Gorakhpur Asst. Loco Pilot, 14.04.2002

Ans. (a) : Lap Joint:– It is used to join the end of one sheet is to be joined by placing it on the end of another sheet.

- It is called lap joint.

44. Sheet metal working is done only on sheets of metal which are made from

- (a) forging (b) casting
(c) rolling (d) none of above

GSSSB Sup. Inst. (RAC) 07.07.2019

Ans. (c) : Sheet metal working is done only on sheet of metal that are rolled and formed.

- Sheet metal working is not done on sheets of non-metallic.
- Sheet metal is any metal such as iron sheet aluminium, copper, brass tin plate etc. Which can be easily in to thin sheets.

45. Which of the following is the common reason for using aluminum sheets?

- (a) Lightness (b) Brightness
(c) Downness (d) Darkness

R.R.B. Guwahati Asst. Loco Pilot, 22.01.2006

Ans. (a) : Lightness is the general reason for the use of aluminum sheets.

Advantage of aluminium sheet

- (i) Light weight
(ii) Strong
(iii) Aluminium sheets are corrosion resistant
(iv) Malleability

46. Which of the following stakes provides double-ended shelter?

- (a) Hatchet stake (b) Half moon stake
(c) creasing stake (d) Horse stake

R.R.B. Kolkata Asst. Loco Pilot, 06.02.2005

Ans. (d) : Horse stake provides double ended support.

• A stake is a sheet metal works anvils which used for bending seaming or forming with the help of a hammer or mallet.

47. The least bend radius depends on—

- (a) On the material and thickness of the plate.
(b) along the direction of the plate
(c) at working temperature
(d) all of the above

R.R.B. Kolkata Asst. Loco Pilot, 16.07.2006

Ans. (d) : The minimum bending radius is the smallest possible bending radius of material without breaking the workpiece.

48. For marking various types of hems and seams from the sheet metal of thickness less than 0.4 mm, the allowance should be?

- (a) twice the thickness of the sheet
(b) three times the thickness of the sheet
(c) four times the thickness of the sheet
(d) no any allowance.

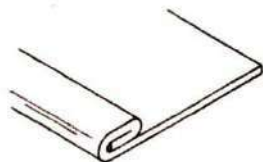
R.R.B. Kolkata Asst. Loco Pilot, 2014

Ans. (d) : There shall be no allowance for making various hems and seams from sheet of the thickness less than 0.4 mm.

• A hem is an edge that is made by folding.

Seams:— After forming the sheet metal is required shape the edges should be joined shape the edges should be joined to hold them firmly.

49. Which of the following them shown in the figure.



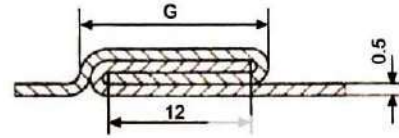
- (a) Single hem (b) Double hem
(c) Wired hem (d) Locked hem

R.R.B. Kolkata Asst. Loco Pilot, 29.09.2002

Ans. (b) : Double hem shown above the figure.

Double hem— In this the edger are folded twice. So that it become smooth and this is often done to provide strength to the edges of long Jobs.

50. Which of the following is the calculated length "G" of the grooved joint shown in the figure?



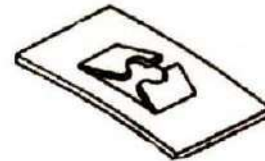
- (a) 11.5 mm (b) 12.5 mm
(c) 13.5 mm (d) 14.0 mm

R.R.B. Malda Asst. Loco Pilot, 16.07.2006

Ans. (c) : The present picture of grooved joint "G" is calculated.

Length = $12 + 0.5 + 0.5 + 0.5$ mm

51. Which of the following is the name of the special nut shown in the figure?



- (a) check nut (b) Kesil nut
(c) speed nut (d) grooved nut

HPSSC Tech. (RAC) 24.09.2020

Ans. (c) : The name of the special nut in the present picture is speed nut.

- It is also called speed nut or tonner main nut.
- Speed nut is a type of lock nut in which teeth are made in two sheet metal and they act like thread.

52. The brush used for removing course rust from sheets before painting is—

R.R.B. Mumbai Asst. Loco Pilot, 15.07.2012

- (a) wooden brush (b) Nylon brush
(c) Wire brush (d) Painting brush

Ans : (c) Wire brush is used to remove the course rust from the sheets before painting.

• Wire brush is made of iron wire or steel wire. The steel used is generally a medium to high carbon variety and very hard and springy.

53. A small hole is made at the corner of the notch.

R.R.B. Mumbai Asst. Loco Pilot, 16.07.2006

- (a) Drill hole (b) Crank stop hole
(c) Relief hole (d) None of above

Ans : (b) A small hole is made at the corner of the notch is called crank stop hole.

54. Melting point of the resin is—

- (a) $80^{\circ}-100^{\circ}\text{C}$ (b) $50^{\circ}-70^{\circ}\text{C}$
(c) $105^{\circ}-120^{\circ}\text{C}$ (d) $100^{\circ}-130^{\circ}\text{C}$

(RRB Kolkata ALP, 06.02.2005)