

**2024-25**

**ENGLISH MEDIUM**

**HEAT ENGINE**

**CHAPTERWISE**

**SOLVED PAPERS**

**Youth  
Competition  
Times**

**RRB ALP (STAGE II)/RRB TECHNICIAN  
ISRO/DRDO/IOF/COAT India**

# HEAT ENGINE

**CHAPTERWISE**

**SOLVED PAPERS**

**4752<sup>+</sup>**

**OBJECTIVE  
QUESTIONS**

**226**

**SOLVED PAPERS**

**NCVT  
BASED  
PATTERN**

**SOLUTION WITH DETAILED  
ANALYSIS AND EXPLANATION**



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# ALL INDIA

# Heat Engine

## Chapterwise

## Solved Papers

**Useful for :** RRB Assistant Loco Pilot, Indian Ordnance Factory (IOF), Maintainer (DMRC, LMRC, NMRC, BMRC, JMRC), ISRO Technician, CRPF Constable Tradesman, CRPF Overseer, HAL Fitter, MES Fitter, VIZAAG Steel Fitter, SAIL, GAIL, BHEL, NTPC, ONGC, BARC, DFCCIL, MAZAGON DOCK Ltd. and Other Technician Exams.

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# **Syllabus For Semester System**

## **For The Trade of Heat Engine Under Craftmen Training Scheme (CTS) By Government of India Ministry of Labour & Employment (DGE&T)**

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### **Module : I**

■ Importance of safety and general precautions ■ Linear measurements and its units ■ Scribes-method of scribing with the help of steel rule ■ Construction of dividers, calipers-inside of outside, Harmaphrodite, their use and care ■ Centre punch and dot punch, construction and use ■ Use of marking media-hammers-types and use ■ Hacksaw frames and hack-saw blades their construction, description, use and care ■ Surface gauge, vee-blocks, marking off table, Engineers Square, Bench vice and vice clamps ■ Chisels-types and use ■ Files-types, grade, cut, section and lengths ■ Care and use of various common files ■ File cards and its a Convexity of files, its reasons ■ Proper speed for steady and accurate filing, right method of fixing file handle ■ Angle plates, parallel blocks their uses in marking out practice ■ Surface plate-construction, use and care "C" clamps and parallel clamps ■ Vernier caliper and Vernier height gauge-their construction ■ Principle-least count ■ Care and maintenance ■ Drills and drilling Drill and its terms-types as per shanks, flutes and system of size Drill angles and their importance coolants used for drilling ■ Drill angle gauge, construction and use Special type drills ■ Cutting-speed speed and feed for efficient drilling ■ Setting of correct speeds for proper drilling on drill machine ■ Combination set ■ Square head ■ Protractor head ■ Centre head and their use in marking out, checking and setting job Taps, size of taps, tapping, tapping of blind holes-reasons for broken taps, external threading-Dies-types commonly used-solid and split ■ Types of stocks and handles ■ Method of threading with stock and die ■ Threading lubricants ■ Setting the threading die ■ Micrometer outside-its description and use ■ Application of V threads and use of Thread Gauges Inside micrometer ■ Depth gauge their constructional features Use and care ■ Brief description of dial test indicator-various uses of checking the truth of flat and round surfaces.

### **Module : II**

■ Introduction to measuring of objects and their importance in the trade measuring standards normally used-Measurements of Units CGS, FPS and MKS system ■ Scriber construction and use of steel rule graduations in metric and Inch-Description of try square, dividers Jenny calipers, Calipers, combination set and scribeing Block-function and uses-Care and maintenance of the marking tools ■ Micrometers-internal and external-construction and types-their importance in measuring objects-depth micrometer ■ Dial micrometers-their description and use-errors on Micrometers and rectification-methods-care and maintenance of micrometers to maintain accuracy ■ Vernier calipers-Description and function and use-importance of vernier scales and graduations of Inch and Metric-Vernier Micrometer-constructions graduation of its application-vernier bevel protractor-construction function & use ■ Different applications care and maintenance of the above to maintain accuracy ■ Importance of dial test indicator-description and function and its use-care and maintenance Vernier depth gauge and ordinary depth gauge-description-function and use-care and maintenance ■ Use of small Bore gauge in measuring small Bores in cylinder Block-care and maintenance.

### **Module : III**

■ Importance of safety and general precautions ■ Importance of the trade & what is related instructions-Metals and non-Metals ■ Classification and uses of sheet metals ■ Mild steel and non-ferrous metals ■ Marking and layout tools ■ Dividers, trammels ■ Various type of snips a shears and their uses-Table Model shears Description -care and maintenance ■ Sheet Metal workers tool bench vice, soft jaws, elamps, pliers bench stakes, holders-various types and their uses ■ Files-various types, cuts grade, length, size and classification ■ Files used on soft metals ■ Meaning of solder-use of fluxes their effects on different metals ■ Rivets types-rivettted joints-uses ■ Bellows-blowers & their working-Forge Parts and their uses ■ Anvil and other common hand tools-brief description, their use and maintenance ■ Introduction to the welding trade-importance of welding in industrial developments-safety precautions in gas welding-elementary knowledge of first Aid ■ Description and use of welding tools and equipment-methods of shaping & joining metal-Riveting Bolting, soldering, brazing swelding ■ Basic concept of welding-fusion pressure-surface Bonding-Welding methods-types of welding joints and positions-welding process and Basic requirements-source of heat Blectric Arc and Gas welding-differences and their application in automobile-gas flame combination-flame temperature and application system of oxy-acetylene welding-Brief description of gas cylinders Regulators and blowers.

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## **Module : IV**

■ Safety precautions and first aid-care and maintenance of tools ■ Common terms used in the trade-conductors and insulators-Selected symbols and signs used in Electrical Technology ■ Types of solders and fluxes required for soldering aluminium & Copper conductors-Introduction to equipments used for soldering-Ohm's law and its application Simple problems on Ohm's law ■ Simple electrical circuit-Essential requirements of any electrical circuit ■ Series and parallel circuits-different types of resistance & fuses-Earthing- Fuses as protective devices ■ Work power and energy, their calculations in simple electrical circuits-simple problems ■ Identification of AC-DC meters ■ Types-grades and sizes of insulated wires and cables, their proper selection and use ■ Materials used in simple domestic wiring ■ Common electrical terms such as AC DC Inductance, capacitance frequency, phases-Battery-specifications and constructional details-Description of batteries-care and maintenance of batteries.

## **Module : V**

■ Introduction to the trade safety and general precautions to be observed in the trade in storing and handling fuels, brake fluids, oil, greases ■ Description of safety equipment, its purpose and use ■ Elementary first aid ■ General description, working principle, classification and characteristics of petrol engines Comparison between petrol & diesel engines types of materials used in packings and gaskets-types of locking devices their places of use in petrol engines ■ Precautions in starting, running and stopping a petrol engine ■ Difference between 2 stroke and four stroke engines ■ Brief description of engine auxiliaries and functions of various gauges used with the engine ■ Engine details cylinder heads, cylinder and cylinder liners, their materials, wear and causes, Methods of reconditioning worn cylinders ■ Pistons piston rings, types-functions and maintenance ■ Brief functions of fly wheel and clutch assembly ■ Valve & valve operating system, valve timing diagram cam Shaft & timing diagram, camshaft & timing gears and importance of timing-mark ■ Tappets and valve guides ■ Importance of correct tappet clearance ■ Ignition system of petrol engines purpose of induction coil, distributor and spark plug ■ Elementary functions of the Carburettor and adjustments ■ Importance of correct air-fuel mixture on the engine performance ■ Types of fuel filters, cleaning and replacement, procedure of removing air lock from the fuel line, maintenance procedure and maintaining engine log book.

## **Module : VI**

■ General description of conventional suspension system-wheels and tyres and tubes-sizes and applications-leaf and coil springs-shock absorbers-description and function-care and maintenance ■ Definition of wheel base and track-description of frame-types and functions I.F.S system-types Description and functions care and maintenance ■ Lay out of steering Assembly and linkages in different vehicles-name & function of each part-description and function of steering Boxes-Lubrication of Linkages & Steering box ■ Steering geometry-ackerman angle-caster, camber, king pin inclination - Toe in-Toe-out on turns - Description and purpose-checking and correcting with instruments-common steering troubles and remedy ■ General Layout of Braking system-Mechanical and Hydraulic Brakes - Purpose of hand brakes - description, function and care and maintenance of each part of the braking system ■ Principle of Hydraulic Brakes-Description and working of Master Cylinder and types in use - Purpose of check valve and compensating port-description and working of wheel cylinder and types in use -Common troubles in Brake system and their remedy.

## **Module : VII**

Description of single plate and multiplate clutches, functions of different parts of the clutch assembly ■ Material for linings ■ Bonded linings and rivetted linings ■ Precautions while relining the clutch plates ■ Purpose of Damper springs in the clutch plate, freeplay in the operation of clutch ■ Function of the pilot (spigot) bearing ■ Causes and remedies of clutch troubles ■ Purpose of the gear box, gear ratios and function of a sliding mesh gear-box ■ Common troubles and their remedies ■ Lubrication system in a gear box ■ Description and advantage of (1) Constant mesh gear box, (2) Synchromesh Gear box ■ Common troubles and remedies ■ Types of synchromesh gear box and their special features ■ Functioning of the gear shaft lever ■ Type of lubricating oil used in gear boxes ■ Types of seals and bearings used in gear boxes ■ Material used for gears, backlash of gears ■ Inspection of old gears for determining their usage ■ Working of a rear axle ■ Its lubrication and reasons for oil in the wheel drums. Description and function of final drive ■ Functioning of differential gears ■ Tooth contact and backlash adjustments in rear axle assembly ■ Introduction to power take off systems, common troubles in the transmission system and remedies.

### Heat Engine Exam. Paper Analysis Chart

S.L.	Exam Name	Exam Date/Time	No. of Questions
<b>RRB ALP and Technician</b>			
1.	RRB ALP Mechanic Diesel	08/02/2019 (Shift-I)	40
2.	RRB ALP Mechanic Diesel	23/01/2019 (Shift-I)	40
3.	RRB ALP Mechanic Diesel	23/01/2019 (Shift-II)	35
4.	RRB ALP Mechanic Diesel	23/01/2019 (Shift-III)	45
5.	RRB ALP Mechanic Diesel	21/01/2019 (Shift-I)	35
6.	RRB ALP Mechanic Diesel	21/01/2019 (Shift-II)	35
7.	Assistant Loco pilot (ALP) Fitter	23.01.2019 (III-Shift)	45
8.	Assistant Loco pilot (ALP) Mechanic Motor Vehicle	23.01.2019 (III-Shift)	75
9.	Assistant Loco pilot (ALP) Fitter	21.01.2019 (I-Shift)	30
10.	Assistant Loco pilot (ALP) RAC	23.01.2019 (I-Shift)	35
11.	Assistant Loco pilot (ALP) Heat Engine	08.02.2019 (II-Shift)	30
12.	Assistant Loco pilot (ALP) Fitter	23.01.2019 (II-Shift)	45
13.	Assistant Loco pilot (ALP) Heat Engine	23.01.2019 (III-Shift)	30
14.	Assistant Loco pilot (ALP) Fitter	23.01.2019 (I-Shift)	35
15.	Assistant Loco pilot (ALP) Heat Engine	08.02.2019 (I-Shift)	30
16.	RRB ALP Kolkata	2014	35
17.	RRB ALP Patna	2014	8
18.	RRB ALP Ranchi	2014	9
19.	RRB ALP Siliguri	2014	7
20.	RRB ALP Ahamadabad	2014	15
21.	RRB ALP Bhubneswar	15.07.2012	12
22.	RRB ALP Bilaspur	15.07.2012	11
23.	RRB ALP Bangalore	15.07.2012	11
24.	RRB ALP Chandigarh	15.07.2012	12
25.	RRB ALP Mumbai	15.07.2012	8
26.	RRB ALP Bhopal	06.06.2010	9
27.	RRB ALP Chennai	06.06.2010	8
28.	RRB ALP Jammu-Kashmir	06.06.2010	9
29.	RRB ALP Secunderabad	06.06.2010	10
30.	RRB ALP Muzaffarpur	15.02.2009	10
31.	RRB ALP Bhubneswar	14.06.2009	11
32.	RRB ALP Gorakhpur	11.10.2009	9
33.	RRB ALP Mumbai	14.06.2009	8
34.	RRB ALP Chandigarh	14.09.2008	7
35.	RRB ALP Allahabad	03.08.2008	9
36.	RRB ALP Kolkata	02.11.2008	8
37.	RRB ALP Secunderabad	29.06.2008	7
38.	RRB ALP Bangalore	08.07.2007	8
39.	RRB ALP Allahabad	09.12.2007	8
40.	RRB ALP Patna	04.02.2007	8
41.	RRB ALP Ranchi	08.07.2007	9
42.	RRB ALP Kolkata	16.07.2006	6
43.	RRB ALP Malda	16.07.2006	8
44.	RRB ALP Gorakhpur	08.10.2006	9
45.	RRB ALP Mumbai	16.07.2006	7
46.	RRB ALP Guwahati	22.01.2006	8
47.	RRB ALP Ajmer	05.06.2005	9
48.	RRB ALP Kolkata	06.02.2005	7
49.	RRB ALP Mumbai	05.06.2005	8
50.	RRB ALP Ranchi	04.09.2005	8
51.	RRB ALP Ajmer	10.10.2004	8
52.	RRB ALP Ajmer	23.05.2004	8
53.	RRB ALP Bangalore	25.01.2004	9
54.	RRB ALP Trivandrum	20.06.2004	9
55.	RRB ALP Ahamadabad	17.10.2004	8

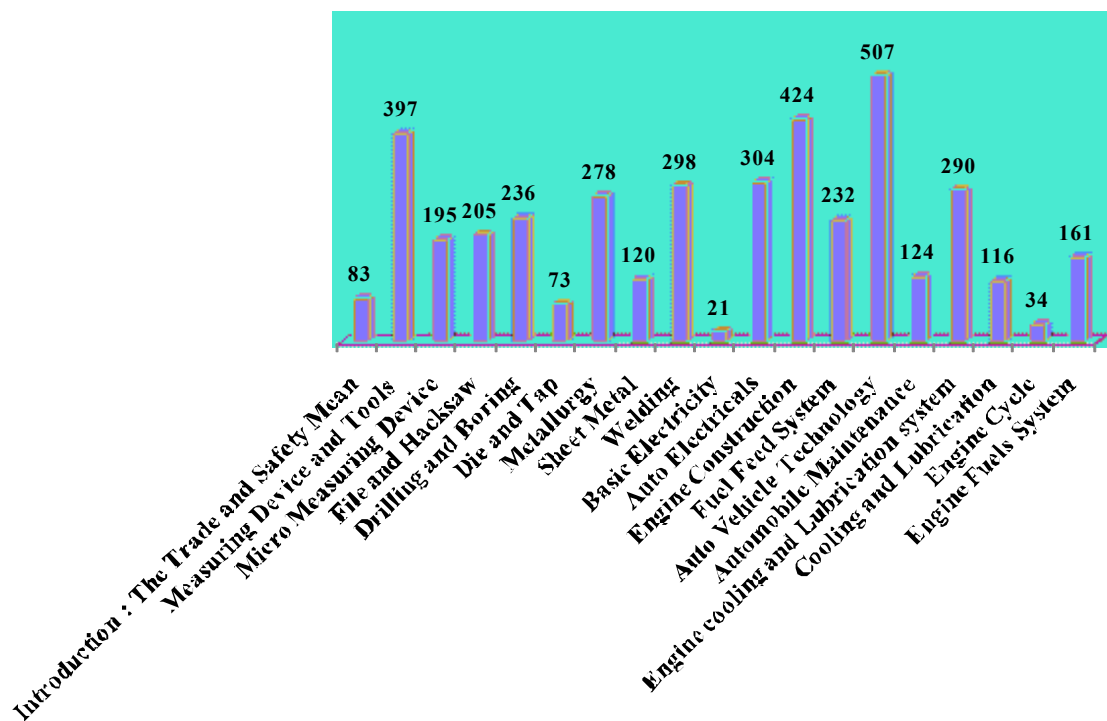
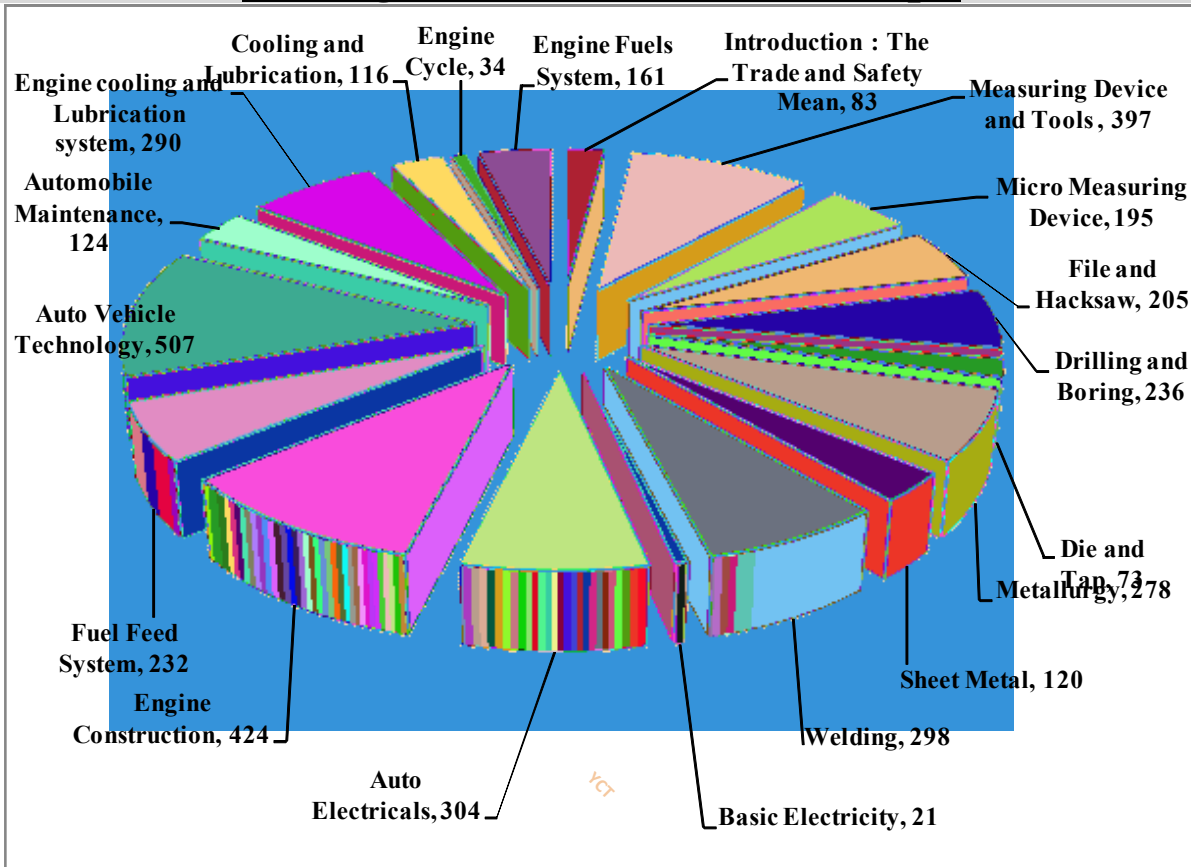
56.	RRB ALP Chandigarh	25.05.2003	9
57.	RRB ALP Gorakhpur	12.10.2003	8
58.	RRB ALP Mumbai	05.01.2003	9
59.	RRB ALP Ranchi	19.01.2003	8
60.	RRB ALP Ranchi	21.09.2003	8
61.	RRB ALP Chennai	27.10.2002	9
62.	RRB ALP Kolkata	29.09.2002	8
63.	RRB ALP Gorakhpur	14.04.2002	8
64.	RRB ALP Gorakhpur	21.10.2001	9
65.	RRB ALP Mumbai	03.06.2001	8
66.	RRB ALP Patna	11.11.2001	9
67.	RRB ALP Secunderabad	11.11.2001	9
<b>ISRO</b>			
68.	ISRO Technician-B (Fitter)	03.11.2022	15
69.	ISRO Technician-B (RAC)	03.11.2022	15
70.	ISRO Technician-B (Machinist)	03.11.2022	15
71.	ISRO Technician-B (Fitter)	21.10.2021	15
72.	ISRO Technician-B (Turner)	14.07.2021	15
73.	ISRO VSSC Technician-B (Fitter)	14.07.2021	15
74.	ISRO VSSC Technician-B (Turner)	14.07.2021	18
75.	ISRO VSSC Technician B Mechanic Diesel	2021	18
76.	ISRO Technician-B (Fitter)	23.02.2020	18
77.	ISRO Technician-B (Turner)	23.02.2020	15
78.	ISRO Technician-B (Fitter)	10.02.2019 (I-Shift)	15
79.	ISRO Technician-B (Fitter)	10.02.2019 (II-Shift)	18
80.	ISRO Technician-B (Fitter)	10.02.2019	18
81.	ISRO Technician-B (Fitter)	02.06.2019	18
82.	ISRO Technician-B (Turner)	02.06.2019	18
83.	ISRO Technician-B (Plumber)	02.06.2019	18
84.	ISRO Technician-B (Fitter)	04.03.2018	18
85.	ISRO Technician-B (Fitter)	21.04.2018	15
86.	ISRO Technician-B (Turner)	22.04.2018	15
87.	ISRO Technician-B (Welder)	21.04.2018	18
88.	ISRO Technician-B (Fitter)	10.12.2017	18
89.	ISRO Technician-B (Turner)	10.12.2017	18
90.	ISRO Technician-B (Plumber)	10.12.2017	15
91.	ISRO Technician-B (Welder)	10.12.2017	15
92.	ISRO Technician-B (Fitter)	25.09.2016	15
93.	ISRO Technician-B (Fitter)	28.08.2016	15
94.	ISRO Technician-B (Fitter)	10.12.2016	18
95.	ISRO Technician-B (Turner)	25.09.2016	18
96.	ISRO Technician-B (Welder)	25.09.2016	18
97.	ISRO Technician B Mechanic Diesel	27/11/2016	18
98.	ISRO Technician-B Carpenter	27.11.2016	18
99.	ISRO Technician-B Fitter	20.11.2016	18
100.	ISRO Technician-B Grinder	27.11.2016	15
101.	ISRO Technician-B Motor Mechanic	27.11.2016	15
102.	ISRO Technician-B Plumber	27.11.2016	15
103.	ISRO Technician-B Turner	22.11.2016	18
104.	ISRO Technician-B (Turner)	21.02.2015	18
105.	ISRO Technician-B (Fitter)	21.02.2015	18
106.	ISRO Technician-B (Fitter)	22.12.2012	18
<b>AMVI/MVI</b>			
107.	TSPSC AMVI	28.06.2023	50
108.	Kerla PSC AMVI	26.05.2023	40
109.	RSSB MVI	13.02.2022	50
110.	BPSC MVI	05.03.2022	50
111.	BPSC MVI	06.03.2022	50
112.	MPSC AMVI (Mains)	20.11.2021	50
113.	MPSC (AMVI)	2017	40
114.	MPSC (AMVI)	2013	40
115.	MPSC (AMVI)	2011	40



116.	MPSC (AMVI)	2005	50
117.	MPSC (AMVI)	2004	40
118.	MPSC (AMVI)	2003	50
119.	MPSC (AMVI)	1998	50
120.	GPSC AMVI (Mechanical)	21.07.2020	50
121.	GPSC AMVI (Automobile)	21.07.2019	50
122.	GPSC AMVI (Automobile)	24.12.2016	50
123.	GPSC AMVI (Mechanical)	09.10.2016	50
124.	GPSC AMVI (Mechanical)	24.12.2016	40
125.	GPSC AMVI (Auto)	02.12.2012	40
126.	Karnataka PSC AMVI	2016	40
127.	TSPSC AMVI	2015	40
128.	Mizoram PSC AMVI (Mech) P-II	2014	50
129.	Mizoram PSC AMVI (Mech) P-I	2014	50
130.	Mizoram PSC AMVI (Auto) P-I	2014	50
131.	Mizoram PSC AMVI (Auto) P-II	2014	50
<b>DMRC/LMRC/BMRC</b>			
132.	JMRC Maintainer (Fitter)	05.02.2021	28
133.	DMRC Maintainer (Fitter)	21.02.2020	28
134.	NMRC Maintainer (Fitter)	15.09.2019	30
135.	DMRC Maintainer (Fitter)	19.04.2018 (I-Shift)	30
136.	DMRC Maintainer (Fitter)	19.04.2018 (II-Shift)	30
137.	DMRC Maintainer (Fitter)	20.04.2018	30
138.	DMRC (Maintainer) Fitter (Evening)	15.02.2017	30
139.	DMRC (Maintainer) Fitter (Morning)	15.02.2017	30
140.	Noida Metro Maintainer Fitter	2017	30
141.	DMRC (Maintainer) Fitter	20.07.2014	28
142.	DMRC (Maintainer) Fitter	24.12.2006	28
143.	BMRC Maintainer Fitter	2016	28
144.	LMRC (Maintainer) Fitter	16.03.2016	30
<b>DRDO</b>			
145.	DRDO Fitter	2022	22
146.	DRDO Turner	2022	20
147.	DRDO Machinist	2022	20
148.	DRDO Mechanic Motor Vehicle	2022	22
149.	DRDO Mechanic Diesel	2022	22
150.	DRDO Fitter	2016	22
151.	DRDO Machinist	2016	22
152.	DRDO Motor Mechanic	2016	20
153.	DRDO Mechanic Diesel	2016	20
154.	DRDO Turner	2011	20
<b>Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL)</b>			
155.	UPRVUNL	22.12.2022	25
156.	UPRVUNL	05.04.2021	25
157.	UPRVUNL	09.11.2016	25
158.	UPRVUNL	22.09.2015	30
159.	UPRVUNL	09.05.2015	30
<b>UPSSSC Asstt. Boring Technician &amp; Tubewell Operator</b>			
160.	UPSSSC Boring Technician	03.07.2022	15
161.	UPSSSC Tubewell Operator	12.01.2019	15
162.	UPSSSC Tubewell Operator	02.09.2018	15
163.	UPSSSC Boring Technician	09.08.2015	15
164.	UPSSSC Tracer	2015	15
<b>Indian Ordnance Factory</b>			
165.	Indian Ordnance Factory Fitter	10.09.2017	15
166.	Indian Ordnance Factory	2016	10
167.	Indian Ordnance Factory (Itarsi)	08.05.2016	12
168.	Indian Ordnance Factory	2015	13
169.	Indian Ordnance Factory	2014	15
170.	Indian Ordnance Factory	2013	16
171.	Indian Ordnance Factory	2012	15

Other State & PSU's Examination			
172.	DSSSB Draughtsman (Mech.)	03.11.2022	20
173.	HPCL Maintenance & Tech. (Mech.)	07.08.2022	20
174.	Cochin Shipyard (Fitter)	13.06.2022	20
175.	Cochin Shipyard (Sheet Metal)	13.06.2022	20
176.	NLC Technician	24-09.2022	15
177.	HAL Apprentice	10.11.2022	15
178.	NPCIL Stipendiary Trainee (Fitter) Rawatbhata	16.10.2022	20
179.	MP ITI Training Officer	20.12.2022	15
180.	BDL Technician	2022	15
181.	BEML	2022	20
182.	NALCO Jr. Operative Trainee	2021	20
183.	NALCO Operator Boiler	2021	20
184.	BRO Vehicle Mechanic	2021	20
185.	BARC Stipendiary Trainee Maintainer	2021	20
186.	NFC Stipendiary Trainee Maintainer	2021	20
187.	IGCAR Stipendiary Trainee Maintainer	2021	20
188.	HSSC Instructor Mechanic Diesel	25.12.2021	15
189.	NCVT NIMI Mechanic Diesel	2021	15
190.	Cochin Shipyard (Fitter)	14.12.2021	20
191.	HSSC Pipe (Fitter)	03.08.2021	15
192.	HSSC Fitter	09.08.2021	15
193.	NCL Tech. (Machinist)	27.12.2020	20
194.	NCL Tech. (Fitter)	27.12.2020	20
195.	NCL Tech. (Machinist)	10.07.2020	20
196.	Cochin Shipyard TA Mechanic Diesel	12.01.2020	20
197.	NSQF Mechanic Diesel	2020	20
198.	IOCL	2020	20
199.	BHEL	2020	20
200.	RRCAT Stipendiary Trainee Maintainer	2019	15
201.	SAIL (Fitter)	17.11.2019	15
202.	BECIL (NE07) Maintainer (Fitter)	2019	15
203.	RSMSSB Jr. Instructor	23.12.2019	15
204.	HPSSC Fitter	20.10.2019	20
205.	NCVT Mechanic Diesel	01.11.2019	20
206.	NCVT NIMI Mechanic Diesel	2019	20
207.	HPSSC Mechanic Diesel (Instructor)	2018	20
208.	KPSC Jr. Instructor Mechanic Diesel	26.09.2018	15
209.	HPSSC Jr. Technician (fitter) 30.08.2018	30.08.2018	15
210.	KPSC Instructor Mechanic Diesel	17.01.2017	15
211.	MP ITI TO Mechanic Diesel	08.11.2016	15
212.	CRPF Constable Tradesman	2016	15
213.	SAIL Bokaro Steel Plant	2016	15
214.	NTPC Fitter	2016	15
215.	BPCL Operator (Field)	2016	20
216.	BEL Technician Fitter	20.11.2016	20
217.	BEL Technician Fitter	19.11.2016	20
218.	MP ITI Training Officer	08.11.2016	20
219.	HAL Fitter	2015	20
220.	VIZAG Steel Fitter	2015	20
221.	MES Fitter (Tradesman)	2015	20
222.	NTPC Fitter	2014	15
223.	BHEL Hyderabad Fitter	2014	15
224.	SAIL Durgapur Steel Plant	2014	15
225.	COAL India Fitter	2013	15
226.	Mazagon Dock Shipbuilders Ltd. Fitter	2013	15
Total			4752

## Trend Analysis of Previous Year Heat Engine Trade Through Pie Chart and Bar Graph





# 1.

## Introduction : The Trade and Safety Means

### i. Importance of First Treatments

1. Which fire extinguisher is used to control class 'B' fire—

- (a) Waterr (b) Carbon tetrachloride  
(c) Wood chips (d) CO<sub>2</sub>

RRB ALP Fitter 23-01-2019, Shift-III

Ans : (d)

Fire class	Type of fire	Fire extinguisher used
Class-A	Carbonace fire (wood, paper, coal) Solid fuel	Water, sand, soda acid
Class-B	Liquid fuel (diesel, petrol, kerosene)	Foam type extinguisher, CO <sub>2</sub> extinguisher
Class-C	Gases fuel (LPG, methane, CNG, etc.)	CO <sub>2</sub> , Hylone chemical
Class-D	Electric current, metallic fire	CTC (Carbon tetra chloride)

2. In a 5S concept the term 'Seiso (Shine)' stands for \_\_\_\_\_.

- (a) Segregate needed item from unneeded and clear the later.  
(b) Keep needed item in correct place.  
(c) Keep the work piece neat and clean.  
(d) Maintain the established procedures.

UPRVUNL TG-2 Fitter 22.12.2022

Ans. (c) : The concept of 5S— 5S is a methodical way to organize workplace and working practices as well as being an overall philosophy and way of working. It is split into 5 phases each named after a different Japanese term beginning with the letter "S" (Seiri, seiton, seiso, seiketsu, shitsuke).

Hence the name 5S.

Seiri – Sort, classify

Seiton – Straighten, simplify, set in order, configure

Seiso – Sweep, shine scrub, clean and check

Seiketsu – Standardize, stabilize, conformity

Shitsuke – Sustain, self discipline, custom and practice.

3. A victim of electric shock is unconscious and not breathing. In case the victim's mouth is closed tightly, which method of artificial resuscitation/respiration is more suitable?

- (a) Mouth-to-mouth method  
(b) Nelson's method  
(c) Schaffer's method or, Holger-Nielsen method  
(d) None of these

UPSSSC Boring Technician 03-07-2022

Ans. (c) : • A victim of electric shock is unconscious and not breathing in case the victim's mouth is closed tightly, then schaffer's method or Holger-Nielsen method of artificial resuscitation respiration is more suitable.

4. What is CPR in safety?

- (a) Cardio pulmonary resuscitation  
(b) Cardiac prevention remedies  
(c) Cardiac pulsating rate  
(d) None of these

Cochin Shipyard Fitter (Sheet metal) 13-06-2022

IOCL 2020

Ans. (a) : Cardio pulmonary resuscitation (CPR) is a lifesaving technique that's useful in many emergencies, such as a heart attack or near drowning, in which someone's breathing or heartbeat has stopped.

CPR can keep oxygen rich blood flowing to the brain and other organs until emergency medical treatment can restore a typical heart rhythm.

The three basic parts of CPR are easily remembered as "CAB" : C for compressions, A for airway and B for breathing.

5. If a patient is not responding to the mouth-to-mouth respiration, then the primary attendant should—

- (a) immediately search for medical assistance  
(b) check the fractured bones  
(c) check the body warm with a quilt  
(d) check nerves and eyes

BHEL Hyderabad Fitter 2014

Ans. (a) : If a patient is not responding to the mouth-to-mouth respiration, then the primary attendant should immediately search for medical assistance.

6. Which of the following options is INCORRECT with respect to the key elements of a fire safety management system?

- (a) Regularisation of staff leave plan  
(b) Regular evacuation drills  
(c) Maintenance and servicing of fire equipment  
(d) Staff training

BDL Technician 2022

Tubewell Operator, 12-01-2019

**Ans. (a) Fire**—Combustion/burning of any inflammable. In the combustion of any substance, the following three factors are presents in appropriate amounts—  
1. Fuel                      2. Heat                      3. Oxygen

**Cause of caught fire—**

1. Loosing of electrical wiring condition.
2. Smelting increase workshop.
3. Short circuit in workshop.
4. Searing of explosive and inflammable substance here and there.
5. Overloading of electrical wiring.

7. **Which chemical is used in the soda acid fire extinguisher**

- (a) Carbon dioxide
- (b) Sulphur dioxide (SO<sub>2</sub>)
- (c) Aluminium sulphate
- (d) Sodium bicarbonate

**IGCAR Stipendiary Trainee Maintainer 2021  
UPRVUNL Fitter, 09-05-2015**

**Ans. (d) : Soda Acid fire extinguisher**—Carbonous fire caused by wood, cloth and other solid combustive materials, soda acid fire extinguisher is used for extinguishing. It should not extinguish an electrical fires because its released chemicals are good conductors of electricity. chemical in it as sodium bicarbonate is used.

8. **National Fire Protection Association (NFPA) codes and standards are adopted and used throughout the world to minimise the possibility of fire and other risks. Which code of NFPA deals with Standards for Fire Officer professional qualifications?**

- (a) 1389                      (b) 1710
- (c) 1002                      (d) 1021

**Tubewell Operator, 12-01-2019**

**Ans. (d)** For fire officer professional qualification the 1021 code is used for the NFPA standard.

9. **In the event of an accident, immediately to the victim—**

- (a) Should be told for rest
- (b) Should inquire about accident
- (c) Should provide help (Assistance)
- (d) Should be left without treatment

**UPSSSC Tubewell Operator, 02-09-2018**

**Ans. (c) : First aid**—Medical first aid given to the patient before the arrival of the doctor. In the event of an accident, immediately to the victim should provide assistance.

**Materials for first aid—**

- Tincher iodine
- Mercury cream
- Tincher benzoin
- Dettol
- Pain killer
- Cotton
- Betadin
- Netted cloth
- Safety pin

10. **The first Aid in case of snake bite is**

- (a) Pour water on wound
- (b) Put antiseptic on wound
- (c) Tie cloth around wound and cut the wound to bleed the blood
- (d) Rub the wound

**ISRO Technician Plumber 27-11-2016**

**Ans. (c) :** The first treatment for snake bite is first of all cloth should be tied on the wound and the wound should be cut to let the blood comeout.

11. **..... Used for safety of head—**

- (a) hard hats                      (b) helmets
- (c) caps                      (d) both (a) and (b)

**(IOF Fitter, 2016)**

**Ans : (d) Head protection—**

- Safety helmets
- Hard hats
- Hair net
- Bump cap

**Respiratory protection—**

- Gas respirator
- Positive gauge pressure respirator
- Automatic respirator devices.

12. **Used for safety of eyes—**

- (a) Goggles                      (b) Glasses
- (c) Face Shields                      (d) All of above

**(IOF Fitter, 2015)**

**Ans : (d) Eye protection equipments**—While working in the workshop to protect the eyes goggles, glasses and face shield should be used to protect the eyes remain safe.

13. **Used for safety of body—**

- (a) Coveralls                      (b) Gloves
- (c) Apron                      (d) All the above

**(CRPF Constable Tradesman, 2016)**

**Ans : (d) For body safety—**

- Gloves
- Apron
- Coveralls etc.

14. **Always while grinding—**

- (a) Stand in front of wheel
- (b) Stand on the side of the wheel
- (c) Wear goggles
- (d) Both (a) and (c) above

**NFC Stipendiary Trainee Maintainer 2021**

**(HAL Fitter, 2015)**

**Ans : (b)** Always stand on the side of the wheel while grinding with a grinder at the workpiece because the sparks come out the wheel can harm you and for this you should also wear eye glasses.

**ii. Industrial Accident and Safety**

15. **In which category is the fire of electrical equipment included—**

- (a) Class-E                      (b) Class C
- (c) Class-B                      (d) Class-D

**RRB ALP Fitter 23-01-2019, Shift-II**

**MES Fitter tradesman 2015**

**NTPC Fitter 2014**

**Ans. (d):** The fire of electrical equipments category is class-D. Fire extinguisher is used for class-D is carbon tetra chloride, it is also known as halon type fire extinguishers.

**16. What type of fire extinguisher is used in case of liquids fire–**

- (a) Class-A (b) Class-B  
(c) Class-C (d) Class-D

**RRB ALP Fitter 23-01-2019, Shift-II  
UPSSSC Boring Technician 03-07-2022**

<b>Ans. (b) :</b>		
Fire class	Type of fire	Fire extinguisher
Class-A	Solid (carbonaceous)	Water, sands, soda acid F.E.
Class-B	Liquid	Foam type, CO <sub>2</sub> F.E
Class-C	Gases	Dry powder F.E.
Class-D	Electric fire/metallic fire	CTC/CO <sub>2</sub> F.E.

**17. Does not cause electric fire–**

- (a) Loose connection (b) Electric short-circuit  
(c) Open door (d) Over loading

**RRB ALP Fitter 23-01-2019, Shift-II**

**Ans. (c) :** Open door does not cause of electric fires.

**Causes of electrical fire–**

- Loose connection
- Electric short-circuit
- Over loading
- Wrong connection

**18. Halon extinguishers are filled with:**

- (a) water  
(b) liquefied petroleum gas  
(c) kerosene  
(d) carbon tetrachloride

**RRB ALP 23-01-2019, Shift-I**

**Ans. (d) :** Halon type fire extinguishers are filled with carbon tetra chloride or BromochloroFluoro methane liquid. It is specially used for electrically fire or metallic fire (class-D), but generally it is used for all type of fires.

**19. What colours are used on signs used for fire fighting equipment–**

- (a) White pictogram on a black background  
(b) Red pictogram on a white background  
(c) Green pictogram on a white background  
(d) Yellow pictogram on a white background

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (b) :** White colour diagram on red background (pictogram) are used for fire extinguisher equipment.

**Fire fighting equipments–**

1. Water type fire extinguisher
2. Soda acid fire extinguisher
3. Foam type fire extinguisher
4. Dry type powder fire extinguisher
5. CO<sub>2</sub> fire extinguisher
6. Carbon tetra chloride fire extinguisher

**20. What is the colour of Argon cylinder?**

- (a) Dark green solder (b) Yellow solder  
(c) Grey solder (d) Maroon

**RRB ALP RAC 23.01.2019, Shift-I**

**Ans. (a):**

Gases cylinder	Colour code
Acetylene	Maroon/Red
Argon cylinder	Dark green solder
CO <sub>2</sub> cylinder	Gray-solder
Cl <sub>2</sub> cylinder	Yellow solder
Helium-cylinder	Brown solder
Hydrogen cylinder	Red solder
Nitrous oxide cylinder	Blue solder

**21. Fire due to metals are classified as \_\_\_\_.**

- (a) Class M (b) Class D  
(c) Class P (d) Class K

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (b) :** Fires are classified according to the various type of combustible fuel that has been ignited, if the wrong type of fire extinguisher is used it could cause the fire to spread or injure the operator.

Class of fire	
A	Wood, paper, fabric, plastic
B	Flammable liquids (for example gasoline)
C	Burning gases (for example, natural gas)
D	Combustible metal such as magnesium, potassium and zirconium
E	Fires involving potentially energized electrical equipment
K	Unsaturated cooling oils in well insulated cooking appliances located in commercial kitchens.

**22. Which of the following is not a Personal Protective Equipment?**

- (a) Spanner (b) Ear plugs  
(c) Face shield (d) Safety shoes

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (a) :** Personal protective equipment is designed to protect from hazards and minimise the risk of injury or facility.

• Personal protective equipment (PPE) usually consists of the following–

1. Respiratory protection requirement
2. Personal alert safety system (PASS)
3. Helmets, coats, trousers, protective gloves and protective hoods.
4. Eye protection
5. Hearing protection

• Spanner is not a personal protective equipment.

**23. In related to use of fire extinguisher the term P.A.S.S. stand for**

- (a) Pull - Action - Squeeze - Sweep  
(b) Pull - Aim - Squeeze - Sweep  
(c) Push - Aim - Sweep - Squeeze  
(d) Push - Action - Sweep - Squeeze

**UPRVUNL TG-2 Fitter 22.12.2022**



**Ans. (b):** PASS system stands for Pull, Aim, Squeeze and Sweep. It describes the stages in which a fire extinguisher should be operated and explains what each stage entails, giving enough information for the operator to use the extinguisher safely.

**24. Which shape is used for 'prohibition' and 'mandatory' type safety signs?**

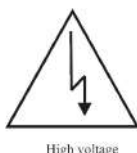
- (a) circular (b) triangular  
(c) square (d) elliptical

**UPSSSC Boring Technician 03-07-2022  
BARC Stipendiary Trainee Maintainer 2021**

**Ans. (a) :** The shape is used for prohibition and mandatory type safety signs is circular.



• The shape is used for warning (caution risk of danger) is triangular type.



• The shape is used for safe condition is, rectangular/square



**25. What is starving in extinguishing of fire?**

- (a) Adding fuel to the fire  
(b) Using water to cool the fire  
(c) Removing fuel element from the fire  
(d) Preventing oxygen supply to the fire

**UPSSSC Boring Technician 03-07-2022**

**Ans. (c) :** • Removing fuel element from the fire is starving in extinguishing of fire.

- If any combustible material can be removed or gas or fuel flows shut off.
- The most commonly used fire fighting medium is water, referring to the triangle of fire, cools the heat being produced in the fire to below ignition temperature.

**26. Which method is more effective for extinguishing a fire involving large wood, cloth or paper as a fuel?**

- (a) Spraying jets of water on the base of the fire and then gradually upwards  
(b) Cutting off the supply of oxygen to the using foam, dry powder of CO<sub>2</sub>  
(c) Any of (a) or (b)  
(d) None of these

**UPSSSC Boring Technician 03-07-2022**

**Ans. (c):** • Spraying jets of water on the base of the fire and then gradually upwards or cutting of the supply of oxygen to the fire using foam, dry power or CO<sub>2</sub> is more effective for extinguishing a fire involving large wood, cloth or paper as a fuel.

• Wood, cloth and paper fires are class-A type of fire.

**27. There is some fault in a live electrical circuit or appliance and you need to repair/service it. Which of the following does not represent a good safety practice?**

- (a) Stand on a wooden stool.  
(b) Stand on an insulated ladder.  
(c) Keep the main switch on and keep the circuit live.  
(d) Open the main switch and make the circuit dead

**UPSSSC Boring Technician 03-07-2022**

**Ans. (c) :** • There is some fault in a live electrical or appliance and you need to repair/service, keep the main switch on and keep the circuit live does not represent a safety practice/method.

**28. What immediate action is recommended in case of severe bleeding?**

- (a) make the patient to lie down and rest.  
(b) raise the injured part above the level of the body.  
(c) apply pressure to the wound.  
(d) All of these

**UPSSSC Boring Technician 03-07-2022**

**Ans. (d) :** Following action is recommended in case of severe bleeding–

- A. Apply pressure to the wound  
B. Raise the injured part above the level of the body  
C. Make the patient to lie down and rest

**29. Extinguishing of fire through the process of isolating the fire from the supply of oxygen by blanketing it with foam, sand etc. is known as:**

- (a) Smothering (b) Cooling  
(c) Watering (d) Starving

**UPSSSC Boring Technician 03-07-2022**

**Ans. (a) :** • Extinguishing of fire through the process of isolating the fire from the supply of oxygen by blanketing it with foam, sand etc. is known as smothering.

- Starvation is achieved by the removal of the fuel burning in the fire.
- Any combustible material can be removed or gas or fuel flows shut off.

**30. Unsafe working habits always end up in loss of:**

- (a) production (b) profits  
(c) personal injury (d) All of these

**UPSSSC Boring Technician 03-07-2022**

**Ans. (c) :** Unsafe working habits always end up in loss of personal injury.

**31. .... is used for the fire caused by electricity in a factory.**

- (a) Water (b) Soil  
(c) CTC extinguisher (d) All of these

**BECIL NE07 Maintainer (Fitter) 2019  
RRCAT Stipendiary Trainee Maintainer 2019**

**Ans. (c):** CTC is used for the fire caused by electricity in a factory.

- The CTC fire extinguisher full form is Carbon Tetrachloride Fire Extinguisher.
- It is used to be very effective extinguisher for combating the small fire.

**32. To control fire from oil, petrol etc., which extinguisher is used?**

- (a) Water (b) CO<sub>2</sub> (c) Foam (d) CTC

**HPSSC Fitter 20-10-2019**

**NTPC Fitter-2014**

**Ans. (c) :** Foam extinguisher is used to control fire from oil, petrol etc. Foam extinguishers takes away the 'heat' elements that is one of the conditions for the fire to take place.

**33. Fire can be reduced by removing \_\_\_\_\_.**

- (a) Oxygen (b) Heat  
(c) Fuel (d) Any of above

**ISRO Technician B (Fitter) 21-10-2018**

**Ans. (d) :**

- The three essential things required to reduced fir are fuel, heat and oxygen.
- The air supplies oxygen and heat to raise the temperature of the fuel beyond the ignition temperature.
- Fire can be reduced by removing any one of these factors.

**34. Which of the following is used to extinguish fire?**

- (a) Water (b) Foam  
(c) Chemical (d) All of above

**BRO Vehicle Mechanic 2021**

**ISRO Technician B (Fitter) 21-10-2018**

**Ans. (d) :** Water, chemical & foam all are used to extinguish fire.

- No single extinguisher can be used to tackle every fire & because each type of fire extinguisher has different categories of fire on which it is effective.

**35. \_\_\_\_\_ present in the industry should be kept in security cordon for the safety of the personnel**

- (a) Temperature indicators  
(b) Stock of welding rods  
(c) Tailstock of lathe  
(d) Flywheel of prime movers

**JMRC Maintainer (Fitter) 05-02-2021**

**Ans. (d) :** Prime movers of flywheel present in the industry should be kept in security cordon for the safety of personal.

**36. Which is true regarding CO<sub>2</sub> extinguisher?**

- (a) Carbon dioxide is filled in it at 2 bar pressure  
(b) It produces CO<sub>2</sub> by chemical reaction  
(c) It extinguishes fire by displacing the air from the surrounding  
(d) It can not be used for fire caused due to electrical equipments

**NLC Technician 24-09.2022**

**JMRC Maintainer (Fitter) 05-02-2021**

**Ans. (d) : CO<sub>2</sub> extinguisher** work by displacing the air from surrounding. As carbon dioxide is also very cold as it comes out of the extinguisher, so it cools the fuel as well.

**37. To extinguish fire due to flammable liquids which type of extinguishing agent is used?**

- (a) Foam  
(b) Water  
(c) Carbon Tetra Chloride  
(d) None of the above

**ISRO Technician B (RAC) 03-11-2022**

**Ans. (a) :** Foam fire extinguishers are suitable to fight burning solids such as wood as liquid fires such as burning petrol. The foam has the ability to creep over the burning liquid or to soak into burning.

**38. The fuel involved Class 'D' fire is**

- (a) Flammable Liquid (b) Wood/Paper  
(c) Metals (d) Liquefied Gas

**ISRO Technician B (Fitter) 03-11-2022**

**Ans. (c) :** The fuel involved class 'D' fire is metals

Classes of fire	Types of fires
Class 'A'	Ordinary combustibles such as wood, paper, cloth, rubber, and some plastics.
Class 'B'	Flammable liquids such as gasoline, petroleum, greases, tars, oils, oil based paints, solvents, alcohols. Flammable gases such as propane and butane.
Class 'C'	Energized electrical equipment such as computers, servers, motors, transformers and appliance
Class 'D'	Combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium

**39. The safe way of working is**

- (a) An effective and right way of working  
(b) An ancient way of working  
(c) A way of handling the work in a hurry  
(d) A way of normal working

**UPSSSC Tubewell Operator, 02-09-2018**

**Ans. (a) :** The safe of working is an effective and right way of working.

**57. Fire is a combination of**

- (a) Fuel, light and oxygen  
(b) Fuel, heat and oxygen  
(c) Fuel, heat and carbon dioxide  
(d) Fuel, light and nitrogen

**ISRO Technician-B Turner 21.05.2015**

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

**40. What is the CTC found in a fire extinguishers mean-**

- (a) Carbon Tetra chloride  
(b) Chromium Try chloride

- (c) Chloride Tetra calcium  
(d) Calcium Telurium chlorine

**DMRC Maintainer Fitter, 20-04-2018**  
**NMRC 15.09.2019**

**Ans. (a) :** CTC found in fire extinguishers means it is carbon tetra chloride. Also called halon type fire extinguisher, this type of fire extinguisher is specially suitable for electrically fire. Generally CTC is used as fire extinguisher for all type of fire classes (Class-A, Class-B, Class-C and Class-D).

**41. \_\_\_\_\_ is used for the fire caused by electricity in a factory.**

- (a) Water (b) Soil  
(c) CTC extinguisher (d) All of these

**NMRC, 15-09-2019**

**Ans. (c) :** CTC (Carbon Tetra chloride) is used for the fire caused by electricity in a factory.

- CTC type fire extinguisher, it is also called halon type fire extinguisher.
- In this carbon tetra chloride ( $\text{CCl}_4$ ) or Bromo chloro di-fluoromethane (BFC) filled with air pressure.
- The vapor generated by this device is poisonous so that it is kept only open place.

**42. Class D fire extinguishers are commonly found in a chemical laboratory. They are for fires that involve combustible metals, such as magnesium, titanium potassium and sodium. the geometric symbol for class D fire extinguishers is a/an.**

- (a) Yellow Star (b) Red Square  
(c) Green Triangle (d) Blue Circle

**Tubewell Operator, 12-01-2019**

<b>Ans. (a)</b>	
<b>Fire class</b>	<b>Geometrical symbol</b>
Class-A	Green Triangle
Class-B	Red Square
Class-C	Blue Circle
Class-D	Yellow Star

**43. Fire class in which the fuel is gas or liquefied gas is**

- (a) Class A (b) Class B  
(c) Class C (d) Class D

**NFC Stipendiary Trainee Maintainer 2021**  
**ISRO Technician-B Turner 25.09.2016**

<b>Ans. (c) :</b>	
<b>Fire class</b>	<b>Type of fire</b>
Class-A	Solid fuel/carbonaceous fire
Class-B	Liquid fuels
Class-C	Gases fuels
Class-D	Electrical fire/metallic fire

**44. Full form of MCB used in electrical wiring for protection purpose–**

- (a) Miniature Circuit Breaker  
(b) Mean Circuit Breaker  
(c) Minimum Current Breaker  
(d) Maximum Current Booster

**BARC Stipendiary Trainee Maintainer 2021**  
**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (a) :** Full form of MCB used in electrical wiring for protection purpose is miniature circuit breaker.

**Miniature circuit breaker (MCB)**–MCB is an automatically operated electrical switch used to protect low voltage electrical circuits from damage caused by excess current from an overload or short circuit. MCBs are typically rated up to a current upto 125 Amp.

**Fuse Vs MCB**–Now days miniature circuit breakers (MCBs) are much more commonly used in low voltage electrical networks instead of fuse.

**45. Which gas is filled in a extinguisher cylinder–**

- (a) Air (b) Carbon di-oxide  
(c) Hydrogen (d) Helium

**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (b) :** Carbon dioxide gas is filled in a extinguisher cylinder.

Carbon dioxide is used in extinguishing a fire because it neither burns nor does it help in burning. It is also heavier than air, it insulators the burning substance by cutting the supply of oxygen.

**46. Which of the following is not being included in the hand book?**

- (a) Fundamental information's  
(b) Directional details  
(c) General defects  
(d) Factories act

**RRCAT Stipendiary Trainee Maintainer 2019**  
**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans: (d)** Factories act is not being includes in the hand book.

**Hand book included following factors–**

- Fundamental information's
- Directional details
- General defects

**47. Match the following given lists :**

<b>List-I</b>	<b>List-II</b>
<b>(Type of fire)</b>	<b>(Fuel)</b>
A. Class A fire	1. Gas & liquefied gas
B. Class B fire	2. Wood
C. Class C fire	3. Metals
D. Class D fire	4. Flammable liquids
(a) A–2, B–4, C–1, D–3	
(b) A–1, B–2, C–3, D–4	
(c) A–3, B–4, C–1, D–2	
(d) A–3, B–4, C–2, D–1	

**UPRVUNL Technician Grade II Fitter 22-09-2015**

<b>Ans : (a)</b>	
<b>(Type of fire)</b>	<b>(Fuel)</b>
Class-A	Wood
Class-B	Flammable liquid
Class-C	Gas and liquid gas
Class-D	Metals/Electric

**48. According to the factories act 1948, section 23. Which machine is not a dangerous machine?**

- (a) Circular saw  
(b) Milling machine used in metal trades  
(c) Power press other then hydraulic press  
(d) Grinding machine

**UPRVUNL Technician Grade II Fitter 22-09-2015**



**Ans: (d) Factory Act 1948, section 23**—This section states that the factory owners or managers can not allow any worker to work any machine without instruction to him/her about the dangerous outer comes the relevant. pre cautions.

The dangerous machine which are included in this section –

- Circular saw
- Milling machine used in metal trades
- Power press other than hydraulic press

**49. What is the range of electric current causes a heart condition which results in instant death?**

- (a) 10-20 mA (b) 50-100 mA  
(c) 100-110 mA (d) 20-50 mA

**NLC Technician 24-09.2022**

**UPRVUNL Technician Grade II Fitter 22-09-2015**

<b>Ans. : (a)</b>	
<b>Current</b>	<b>Effect of its</b>
1 to 8 mA	It gives a feeling of shock, but it is not painful that is man can bear it.
8-15 mA	It gives a painful shock, but the control of the nervous, nervous persists, there fore its tolerance do human personality dependent.
15-20 mA	It gives a painful shock, muscle control of the related nerve is not maintained lives, so humans can't bear it can and dies instantly.

**50. Which information sheet should be used as a safety standard while doing electrical work–**

- (a) Extremely hot-do not come in contact  
(b) Extremely dangerous  
(c) Strictly prohibited area  
(d) do not touch hot

**Noida Metro Maintainer Fitter 2017**

**Ans : (b)** As a safety standard when doing electrical work uses extremely dangerous notice boards.

**51. The heat energy released is measure with the help of :**

- (a) Energy meter (b) Thermometer  
(c) Calorimeter (d) Anemometer

**ISRO Diesel Mechanic 27-11- 2016**

<b>Ans : (c)</b>	Energy meter	–	Electrical energy
	Thermometer	–	Temperature
	Calorimeter	–	Heat energy
	Anemometer	–	Air velocity

**52. According to the definition of "week" under the Factory Act, 1948, it is a period of 7 days beginning at midnight on**

- (a) Sunday (b) Monday  
(c) Saturday (d) Friday

**(HAL Fitter, 2015)**

**Ans : (b)** According to the definition of "week" under the factory act, 1948, it is a period of 7 days beginning at midnight on Monday.

**53. Which of the followings, leads to industrial hazards and causes accidents?**

- (a) Noise and vibrations  
(b) Poor lighting and Poor ventilation

- (c) Heat and Humidity  
(d) All of these

**(IOF Fitter, 2015)**

**Ans : (d)** Factor leading to industrial hazards and causes of accidents are–

- Noise and vibrations
- Poor lighting
- Poor ventilation
- Heat and humidity

**54. Indian Boiler Act, 1923 is applicable to**

- (a) all boilers  
(b) boilers more than 100 litres capacity  
(c) boilers more than 1000 litres capacity  
(d) None of the above

**(MAZAGON DOCK Ltd. Fitter, 2013)**

**Ans : (b)** Indian boiler act, 1923 is applicable to boilers more than 100 liters capacity.

- Thickness of the boiler shell should not be less than 7 mm.

**55. Which of the following safety measures is used to promote the safety?**

- (a) Excessive fine (b) Writing slogans  
(c) Stopping the work (d) All of these

**BRO Vehicle Mechanic 2021**

**(MES Fitter Tradesman, 2015)**

**Ans: (b)** Writing slogans is used to promote the safety best way.

**Safety symbols– 4 types–**

- Prohibition symbols
- Mandatory symbols
- Warning symbols
- Information symbols

**56. In how many classes is the fire placed–**

- (a) Two (b) One (c) Four (d) Three

**(IOF Fitter, 2016)**

**Ans : (c)** There are four classes of fires–

1. Class A – Solid fuels
2. Class B – Liquid fuels
3. Class C – Gases fuels
4. Class D – Electric fires or metallic

**57. What is used to extinguish a gas fire–**

- (a) Dry powder fire extinguisher  
(b) C.T.C. fire extinguisher  
(c) Water  
(d) All of above

**(IOF Fitter, 2014)**

**Ans : (a) Dry powder type fire extinguisher–**

- In this type of machine powder is filled with air pressure instead of water.
- This powder is neither flammable nor an aid in ignition.
- It is used to extinguish class 'C' and class 'D' fires.



**Dry Powder Extinguishers**

58. What should be done in case of fire in the workshop–

- (a) Watch silently
- (b) Try to get out immediately
- (c) Switch off the electric main supply
- (d) Information fire brigade immediately

(Sail Bokaro Steel Plant 2016)

**Ans : (c)** In case of fire in the workshop, immediately pull the main, to closed the supply. After that go out and call the fire brigade immediately.

59. What to do if it becomes dark due to power outage at work place–

- (a) do not create panic
- (b) provide alternative lighting
- (c) Use the stairs to get out
- (d) All of above

(IOF Fitter, 2013)

**Ans : (d)** If work place become dark due to power outage we should do–

- do not create panic
- provide alternative lighting.
- use the stairs to get out.

60. What do you use for respiratory protection–

- (a) Exhaust Fan
- (b) Ceiling Fan
- (c) Filter respirators
- (d) None of the above

(IOF Fitter, 2013)

**Ans : (c) Respiratory protection–**

- Gas respirators
- Positive pressure respirators
- Automated respirators etc.

**Artificial respiration**–There are four types of artificial respiration.

1. Sylvester method
2. Shafer method
3. Mouth to mouth respiration
4. Artificial respiration devices

61. Which fire extinguisher is used to put out the fire of oily substances–

- (a) Foam
- (b) Soda acid
- (c) C.T.C.
- (d) None of above

NALCO Operator Boiler 2021

(IOF Fitter, 2014)

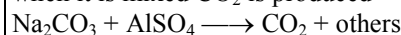
**Ans : (a)** Foam type fire extinguisher should be used to put out the fire of oily substances (liquids fuels).

62. What chemicals are used in foam type fire extinguishers–

- (a)  $\text{Na}_2\text{CO}_3 + \text{AlSO}_4$
- (b)  $\text{AlSO}_4 + \text{NHCO}_3$
- (c)  $\text{NaOH} + \text{HCl}$
- (d) None of above

(Sail Bokaro Steel Plant 2016)

**Ans : (a)** Foam type fire extinguisher : mixture of sodium bicarbonate and powder of aluminium sulphate, when it is mixed  $\text{CO}_2$  is produced



63. Soda acid fire extinguisher is used for which fire–

- (a) Wooden fire
- (b) Petrol fire
- (c) Electric fire
- (d) None of above

(Sail Bokaro Steel Plant 2016)

**Ans : (a)** Soda Acid Fire Extinguisher is used for solid fuels like wood, coal, paper, clothes etc.

### iii. Symbols

64. In order to prevent accidents caused by dangerous electric current and damage caused by shocked, what is mainly needed to provide an extinguishing alternate path to this flow of electric current?

- (a) Resistance
- (b) Earthing
- (c) Ammeter
- (d) Diode

RRB ALP TECH. 8-2-2019 Shift-I

**Ans : (b)** To provide an alternating route to this flow of extinguishing electric current to prevent accidents used by dangerous electric current and damage caused by electric shocks earthing is mainly required.

65. Identify the Warning Sign



- (a) Risk of Electric Shock
- (b) Risk of Fire
- (c) Risk of Ionizing Radiation
- (d) Laser Beam

ISRO Technician B (Fitter) 03-11-2022

**Ans. (d) :**



66. Match the following given lists :

COLOUR                      SYMBOL TYPE

- |                        |                     |
|------------------------|---------------------|
| A. Red                 | 1. Warning          |
| B. Yellow              | 2. Mandatory        |
| C. Blue                | 3. Prohibition      |
| D. Green               | 4. Emergency escape |
| (a) A-3, B-1, C-2, D-4 |                     |
| (b) A-1, B-2, C-4, D-3 |                     |
| (c) A-2, B-3, C-4, D-1 |                     |
| (d) A-1, B-2, C-3, D-4 |                     |

IOCL 2020

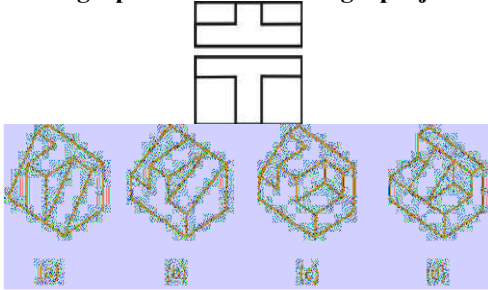
UPRVUNL Technician Grade II Fitter 22-09-2015

**Ans : (a)**

(Colour)                      (Symbol type)

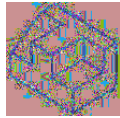
- |           |                  |
|-----------|------------------|
| A. Red    | Prohibition      |
| B. Yellow | Warning          |
| C. Blue   | Mandatory        |
| D. Green  | Emergency escape |

67. Isometric view corresponding to this orthographic view in first angle projection is:

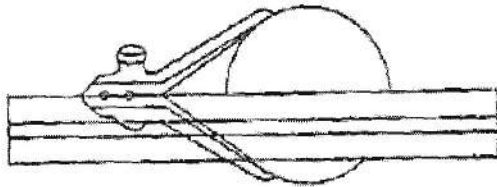


**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (c)** The projection given in the question is the first angle orthographic view corresponding isometric view of-



68. State the procedure shown in the diagram of the attachment-



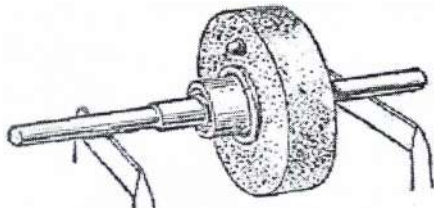
- (a) Diameter of the cylindrical object is being measured.  
(b) Verticality of the object is being measured.  
(c) Height between two surfaces is being measured.  
(d) Flatness of the object is being measured.

**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans. : (a)** It is used to find the centre of circular workpiece.

• In this figure, & question it is measuring the diameter of the cylindrical object, so that the centre of that object can be found.

69. State the procedure shown in the figure-



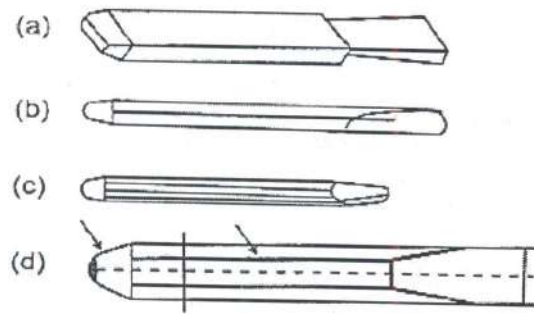
- (a) Wheel grinding (b) Wheel balancing  
(c) Crank grinding (d) Tap grinding

**BHEL 2020**

**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans. : (b)** Before fixing any grinding wheel on the machine spindle. It is necessary to balance it. Otherwise, even a slight lack of balance has very bad effect on the bearing of the machine.

70. Identify the correct sequence of chisels shown in the figure-



- (a) (a) Web (b) Cross cut (c) Flat (d) Half round  
(b) (a) Web (b) Flat (c) Cross cut (d) Half round  
(c) (a) Web (b) Half round (c) Cross cut (d) Flat  
(d) (a) Cross cut (b) Web (c) Flat (d) Half round

**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans. : (c)**

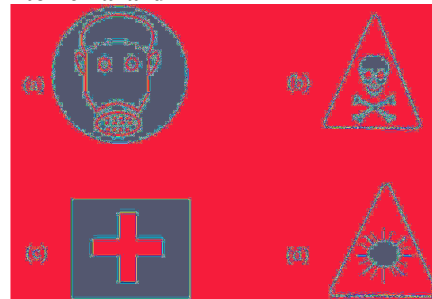
**(a) Web Chisel-** This chisel is used to remove the metal between holes after drilling them.

**(b) Half Round Chisel-** This chisel is used for cutting key-ways in hubs etc. or for making oil grooves in brass.

**(c) Cross Cut Chisel-** By this chisel the key in the shaft or hum are cut. Half round groove can also be made by making one end of this chisel in roundness.

**(d) Flat Chisel-** This is the most commonly used chisel, it is used for chipping.

71. Which of these symbol is used for showing toxic hazard-



**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans : (b)**

→ Respiration protection wear (Mandatory)/Poisson danger (Warning sign)

→ Toxic hazards (Warning)/Wear breathing protection (Mandatory sign)

→ First aid (Information)/First aid available (Informative sign)

→ Laser beam (Warning)/Laser beam hazard (Warning sign)

72. Which notation is used to denote a regulator unit-


- (a) 3 (b) 0.003  
(c) 0.3 (d) 3.0

**Noida Metro Maintainer Fitter 2017**

**Ans : (c)** 0.3 notation to represent a regulator unit.















73. What is the welding symbol for fillet weld?

- (a)  (b)   
 (c) V (d) II

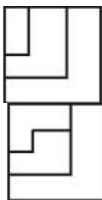
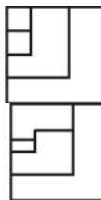
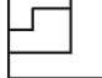
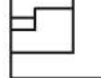
ISRO Technician-B Fitter 20-11-2016

Ans : (a) Various basic symbols and sectional representation symbols of welding are as follows.

Form of Weld	Sectional Representation	Symbol
Fillet		
Square Butt		
Single-V Butt		
Double-V Butt		
Single-U Butt		
Double-U Butt		

74. Select the correct front view for this object:

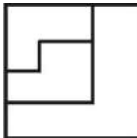


- (a)  (b)   
 (c)  (d) 





IGCAR Stipendiary Trainee Maintainer 2021

ISRO Technician-B Carpenter 27-11-2016

Ans : (c) The correct front view option of the given object is (c).



75. Which of the following is precise but not accurate:

- (a)  (b)   
 (c)  (d) 

ISRO Grinder 27-11-2016

Ans : (d) The figure given in option (d) is not accurate while it is precise.

- The figure given in option (c) is both precise and accurate.

76. Which class does the symbol shown in the picture belong to–



- (a) Information sign (b) Warning Sign  
 (c) Prohibition Sign (d) Mandatory Sign

(CRPF Constable Tradesman, 2016)

Ans : (c) Symbol given in the question is used for prohibition.

**Prohibition symbols**–Such signs advise not to do any wrong during, which reduces accidents in factories.

Shape – Circular

Outer roundness of circle – Red colour

and cross bar – Red colour

Background – White colour

Special sign made (action not do) – black colour



77. One of the symbols show in the figure ..... comes in the category–



- (a) Mandatory Sign (b) Warning Sign  
 (c) Information Sign (d) Prohibition Sign

BDL Technician 2022

VIZAAG Steel Fitter, 2015

Ans : (b) Symbol given in the figure categorised in the class.

**Warning symbols**–Through these signs, the trainee is warned before working, that is warned so, so that he does not suffer any physical damage while working

Shape – triangular

Background – Yellow colour

Special sign (Figure) – Black colour

Border – Black colour



78. Which class does the symbol shown in the picture belong to–



- (a) Mandatory Sign (b) Information Sign  
 (c) Prohibition Sign (d) Warning Sign

(IOF Fitter, 2016)

**Ans: (a) Mandatory symbols**—Safety instructions are given to the worker before work through mandatory signs. So that the workers can understand these signs easily and easily can work.

Shape – Circular

Background – Blue colour

Special sign – White colour



79. Which class does the symbol shown in the figure belong to—



- (a) Prohibition Sign (b) Warning Sign  
(c) Mandatory Sign (d) Information Sign  
(IOF Fitter, 2016)

**Ans : (d) Information symbols**—This signs are information resulted, by these signs a variety of notifications are given.

Shape – Square

Background – Green colour

Sign made of – White colour

Background – White colour

Sign made of – Red colour



80. The following safety sign (white symbol on a blue background) is an example of a:

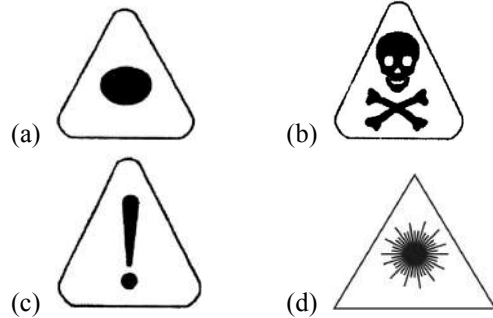


- (a) Prohibition sign  
(b) Mandatory sign  
(c) Warning sign  
(d) Information sign

HAL Apprentice 10.11.2022

**Ans. (b) :** Safety sign (White symbol on a blue background) is an example of a mandatory sign.

81. Which of the following is the sign of danger on an electrical panel ?



BPCL Operator (Field) 2016

**Ans. (b) :**



This sign (figure) of danger on an electrical panel.

82. Identify the method of artificial respiration shown in the figure.



- (a) Labord method  
(b) Silvester's method  
(c) Schafer's method  
(d) Mouth to mouth method

BEML 2022

**Ans. (c) :** Schafer's method is artificial respiration method shown in the figure.



83. Among the below colours, which color is used for prohibition sign?

- (a) White symbol on blue background  
(b) Yellow background with black border and symbol  
(c) White symbols on green back ground  
(d) Red border and cross bar, black symbol on white backgrounds

NTPC Fitter 2016

**Ans. (d) :** Red border and cross bar, black symbol on white backgrounds is used for prohibition sign.

## 2.

# Measuring Device and Tools

i. Different Types of Rule	
<p>1. Which of the following is a direct measuring tool?</p> <p>(a) try square (b) steel rule (c) straight edge (d) ring gauge</p> <p><b>NFC Stipendiary Trainee Maintainer 2021 HPSSC Jr. Technician (Fitter) 30-08-2018</b></p>	<p><b>Ans. (d) : Steel rule–</b></p> <ul style="list-style-type: none"> <li>It is a direct reading measurement instrument.</li> <li>It is graduated in 10 mm, 5 mm, 1 mm and 0.5 mm in metric system.</li> <li>Measuring with a graduated rule is commonly called direct measurement.</li> <li>Used for linear measurement and marking.</li> </ul>
<p><b>Ans. (b) :</b> Direct measuring instrument determine the actual dimension and size of a workpiece. Example–Steel rule, vernier caliper, micrometer etc.</p>	<p>6. For TIG welding, commonly used gas is :</p> <p>(a) Acetylene (b) Hydrogen (c) Argon (d) All of these</p> <p><b>ISRO Technician-B Fitter 22-12-2012</b></p>
<p>2. The value of one thimble scale division in metric micrometer is</p> <p>(a) 1 mm (b) 0.5 mm (c) 0.02 mm (d) 0.01 mm</p> <p><b>HPSSC Jr. Technician (Fitter) 30-08-2018</b></p>	<p><b>Ans. (c) : TIG welding–</b></p> <ul style="list-style-type: none"> <li>Commonly used gas as shielding gas = Argon.</li> <li>Shielding gas serves to blanket the weld and excludes the active properties in surrounding air.</li> <li>It is a process that produces an electric arc maintained between a non consumable tungsten electrode and part to be welded.</li> </ul>
<p><b>Ans. (d) :</b> The micrometer is a precision instrument used to measure a job, generally within an accuracy of 0.01 mm.</p> <ul style="list-style-type: none"> <li>The micrometer works on the principal of screw and nut. The longitudinal movement of the spindle during one rotation is equal to the pitch of the screw.</li> </ul>	<p>7. The reading accuracy of Engineers steel rules is.....</p> <p>(a) 1.0mm (b) 0.5mm (c) 1.5mm (d) 2.0mm</p> <p><b>UPRVUNL (FITTER) 05.04.2021, 9:00AM-12:00PM ISRO Technician Plumber 27-11-2016</b></p>
<p>3. The least count of steel rule in inch is _____.</p> <p>(a) 1/8 (b) 1/16 (c) 1/24 (d) None of above</p> <p><b>ISRO Technician B (Fitter) 21-10-2018</b></p>	<p><b>Ans : (b)</b></p> <ul style="list-style-type: none"> <li>It is used for linear measurement and marking.</li> <li>Reading accuracy of engineering steel rule = 0.5 mm</li> </ul>
<p><b>Ans. (d) : Steel rule</b> is used to measure distances or to rule straight lines.</p> <ul style="list-style-type: none"> <li>Its sides are right angled &amp; parallel to each other.</li> <li>Its least count is 0.5 mm or 1/64 inch.</li> </ul>	<p>8. A linear measurement device _____</p> <p>(a) Steel rule (b) Sine bar (c) Spirit level (d) Bevel protractor</p> <p><b>DMRC Maintainer Fitter 2017</b></p>
<p>4. Least count of an Engineer's steel rule is</p> <p>(a) 1 mm (b) 0.5 mm (c) 0.1 mm (d) 0.01 mm</p> <p><b>ISRO Technician-B Fitter 02-06-2019</b></p>	<p><b>Ans : (a) Steel rule–</b></p> <ul style="list-style-type: none"> <li>It is used as linear measurement.</li> <li>It is made up of wood, steel, celluloid or plastic.</li> <li>It is available in different range from 150 mm to 1000 mm.</li> <li>Least count = 0.5 mm.</li> </ul>
<p><b>Ans. (b) :</b></p> <ul style="list-style-type: none"> <li>Least count of engineering steel rule = 0.5 mm.</li> <li>It is used to measure the linear dimension of a component with limited accuracy.</li> <li>It works on the basic measuring technique of comparing an unknown length to the one previously calibrated.</li> </ul>	<p>9. Sensor meter is used in which work ?</p> <p>(a) To check the difference between two mating parts (b) To check the accuracy of holes (c) To check the accuracy of holes (d) To check the diameter of cylindrical parts</p> <p><b>UPRVUNL TG II FITTER 09-11-2016</b></p>
<p>5. Which of the following statements is TRUE for a steel rule?</p> <p>(a) Marking instrument (b) Precision instrument (c) Checking instrument (d) Direct reading measuring instrument</p> <p><b>NALCO Jr. Operative Trainee 2021 ISRO Technician-B Fitter 23-02-2020</b></p>	<p><b>Ans : (a)</b> Sensor meter is used to check the difference between two mating parts.</p>

10. A scale in which the distance between graduations is proportional to the value of that graduation is called :
- regular scale
  - Linear scale
  - Line scale
  - Equidistant scale

**LMRC Maintainer Fitter 2016**

**Ans : (b) Linear scale**– A scale in which the distance between graduations is proportional to the value of that graduation is called linear scale.

11. Shrink rule is used :
- In sheet metal work
  - In smith work
  - Pattern maker
  - Die maker

**(IOF Fitter, 2015)**

**Ans : (c) Shrink rule**–

- It is a special type of rule which is used to ease pattern making.
- It looks like a simple rule, just the graduation on it is bigger than a simple rule because shrinkage allowance is added to each division of the shrink rule.

12. Which rule is used to check the zig-zag surfaces:

- Scale
- Shrink rule
- Steel tape
- None

**(IOF Fitter, 2016)**

**Ans : (c) Steel tape**–

- It is used to check the zig zag surfaces.
- It is flexible.
- It can give you accurate results at any temperature & its designed to withstand more wear and tear than fibre glass tapes.

13. During marking reference surfaces met by–

- Surface gauge
- Work piece
- For drawing work
- Marking table is surface

**HAL Apprentice 10.11.2022**

**(MES Fitter Tradesman, 2015)**

**D.M.R.C. Maintainer Technician 2006**

**Ans : (d)** A marking table is used as a reference surface for marking on work-pieces.

- Marking table are made of cast iron, or granite and are available in various sizes.
- These tables are also used for setting measuring instruments, and for checking sizes, parallelism and angles.

14. Steel rule is a-

- measuring tool
- marking tool
- cutting tool
- striking tool

**RRCAT Stipendiary Trainee Maintainer 2019**

**Ans. (a) :** Steel rule is a measuring tool.

- It is used to measure distance or to rule straight lines.
- Least count of steel rule is 0.5 mm.
- It is a straightedge with equally spaced markings along its length.
- It is available in different length, the common sizes being 150 mm, 300 mm and 600 mm.

15. The sensitiveness of the spirit level depends upon the....

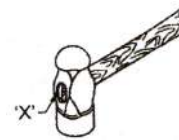
- size of the bubble
- length of the glass tube
- type of liquid filled in the glass tube
- curvature of the glass tube

**NLC Technician 24-09.2022**

**Ans. (d) :** The sensitive of the spirit level depends upon the–

- The radius of curvature of the glass tube.
- Length of the bubble.
- Diameter of the bubble.
- Viscosity and surface tension of the liquid.
- Smoothness of the finish of the tubes internal surface.
- Length of one division.

16. Name the part marked 'X' in the figure.



- Ball peen
- Eye hole
- Face
- Left soft

**BRO Vehicle Mechanic 2021**

**Ans. (b) :** The part marked 'X' in the figure is eye hole.

**Parts of a hammer–**

- Face
- Ball peen
- Cheek
- Eye hole.

**1. Face** – It is the striking portion. A slight convexity is given to it to avoid digging of the edge.

**2. Peen**– It is used for shaping and forming work.

**3. Cheek**– It is the middle part of the hammer head.

**4. Eye hole**– The eye hole is meant for fixing the handle.

17. Steel rule is made of :

- Forged steel
- Spring steel
- High carbon steel
- Alloys

**NALCO Operator Boiler 2021**

**UPRVUNL (FITTER) 05.04.2021, 9:00AM-12:00PM**

**Ans : (b) Steel rule**–

- It is used to measure linear dimension of a component with limited accuracy.
- It works on basic measuring technique of comparing an unknown length to the one previously calibrated.
- It is made up of spring steel or stainless steel.

18. Which type of rule is used for marking and measuring during working on hot job and pattern by blacksmith?

- Narrow rule
- Shrink rule
- Hook rule
- Short rule

**(CRPF Constable Tradesman, 2016)**

**Ans : (b) Shrink rule**–

- It is a special type of rule which is used to ease pattern making or case box.
- It looks like a simple rule, just the graduation on it is bigger than a simple rule because shrinkage allowance is added to each division of the shrink rule.



**ii.****Marking Tool**

19. Following the reference surface is provided by:

- (a) Workpiece (b) Marking off table  
(c) By sketch of job (d) Bore gauge

**RRB ALP Fitter 23-01-2019, Shift-III**

**Ans : (b) Marking off table–**

- It is used as a reference surface for marking on workpieces.
- It is made of cast iron or granite and are available in various sizes.
- These tables are also used for setting measuring instruments and for checking sizes, parallelism and angles.

20. Parallel block is used for :

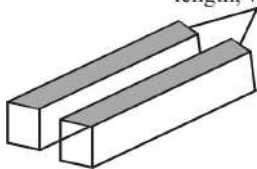
- (a) For cutting parallel keyways  
(b) For horizontal setting of workpiece  
(c) For levelling of machine tools  
(d) For marking parallel lines of any edges

**RRB ALP Fitter 23-01-2019, Shift-III**

**Ans : (b) Parallel block–**

- Parallel block is used for horizontal setting of workpiece.
- It is made of carbon steel or tool steel.
- These are also useful for raising the workpiece held in vices or machine tables to provide better observation of the machining process.

Parallel block of equal  
length, width & thickness



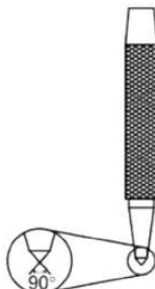
21. Centre punch is used :

- (a) For drilling in base plate  
(b) For cutting metals  
(c) For marking  
(d) For chipping of metal

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (c) : Centre punch–**

- It is used to locate or mark the centres of holes or to deepen the focal point.
- The point angle of it is kept 90°
- Length of this punch is 100 mm & diameter is 10 mm.



22. Why surface plate is used for marking?

- (a) Because it provides datum surface  
(b) Because marking table is put over it  
(c) Because it wears job having heavy weight  
(d) Because its surface area is more

**RRB ALP Fitter 21-01-2019, Shift-I**

**Ans : (a) Surface plate–**

- It is a solid flat plate used as the main horizontal reference plane for precision inspection marking out & tooling setup.
- It is generally made of good quality cast iron which is stress relieved to prevent distortion.

23. Which marking medium is used for marking related to casting?

- (a) Red lead  
(b) Copper  
(c) Chalk powder  
(d) Persian blue oil paint

**RRB ALP Fitter 23-01-2019, Shift-II**

**Ans. (c) :** Chalk powder is used for casting related marking. It is not recommended for workpieces of high accuracy.

Persian blue is used on field or machine finished surfaces. This will give very clear lines but takes more time for drying than marking media.

24. The tool, which is used for laying out diameter is–

- (a) Scriber (b) Divider  
(c) Outside micrometer (d) Try square

**RRB ALP Heat Engine 23-01-2019, Shift-III**

**Ans. (b) : Divider–**

- It is used for scribing circles, arcs and for transferring & stepping of distances.
- The measurements are set on the dividers with a steel rule.
- Size of dividers ranges between 50 to 200 mm.

25. Which of the following is not a marking media?

- (a) White wash  
(b) Copper sulphate  
(c) Black polish  
(d) Lay out die

**NFC Stipendiary Trainee Maintainer 2021**

**Ans : (c)** Black polish is not a marking media. Marking place will not appear by it.

26. Marking media used for casting & forging surface :

- (a) Chalk powder (b) Persian blue  
(c) Copper sulphate (d) Red vermilion

**BARC Stipendiary Trainee Maintainer 2021**

**Ans : (a)** Chalk powder is used for casting related marking. It is not recommended for workpieces of high accuracy.

27. Witness marks are made using \_\_\_\_\_ punch.

- (a) 0° prick (b) Centre punch  
(c) 60° prick (d) 90° prick

**UPRVUNL TG-2 Fitter 22.12.2022**

<b>Ans. (c) :</b> Witness marks are made using 60° prick punch.		
Punch	Point angle	Application
Centre punch	90°	This is used for locating the centre of the holes
Prick punch	30°	It is used for making light punch marks needed to positive dividers
Dot punch	60°	These punches are used to make witness marks on scribed lines.

**28. Which one of the following is not a type of punch?**

- (a) Dot punch (b) Centre punch  
(c) Prick punch (d) Porph punch

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (d) :** Porph punch is not a type of punch.

**Dot punch–**

- It is moulded of cast steel and its pointer has 60° angle.
- It is used to make witness mark for the permanent marking.

**Centre punch–**

- The angle of point is 90°.
- It is used to located the centre of hole in wide and deep shape and also used for drilling centres.

**Prick punch–**

- The point angle of prick punch is 30° or 60°.
- 30° point angle prick punch is used for marking light marks and draw a curve.
- 60° point angle prick punch is used for marking witness marks.

**29. \_\_\_\_\_ is the point angle for a centre punch.**

- (a) 25° or 35° (b) 10° or 20°  
(c) 60° or 90° (d) 45° or 55°

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (c) :** Centre punch is used to locate the centre of holes in wide and deep shape.

- It is also used for drilling centres.
- The point angle for a centre punch is 60° or 90°.

**30. Tools used for the marking of any job, are known as :**

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

**BECIL NE07 Maintainer (Fitter) 2019**

**Ans. (d) :** Tools used for the marking of any job are known as marking tools.

- Some marking tools are scribe, marking table, surface plate, angle plate, V block, divider etc.

**31. Which of the following is a type of divider?**

- (a) Firm joint type divider  
(b) Spring type divider

(c) Spring type divider and firm joint type divider both

(d) None of these

**BECIL NE07 Maintainer (Fitter) 2019**

**Ans. (c) :** Spring type divider and firm joint type divider both are types of divider.

- A divider is an important instrument used for marking a work
- It is similar to calipers but its legs have sharp point.

**32. Which of the following is an indirect measuring tool?**

- (a) inside caliper  
(b) vernier caliper  
(c) universal bevel protractor  
(d) inside micrometer

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**BPCL Operator (Field) 2016**

**Ans. (a) :** Indirect measuring tool transfer the measurement from the workpiece to the direct measuring instrument then the comparison is made.

Example–Divider, calipers, surface gauge.

Direct measuring tool determine the actual dimension and size of the workpiece.

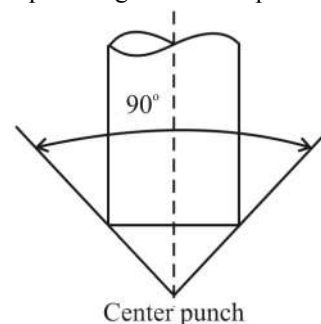
Example–Steel rule, vernier caliper, micrometer, compass, French curve etc.

**33. The point angle of center punch is**

- (a) 30° (b) 60°  
(c) 90° (d) 120°

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (c) :** The point angle of center punch is 90°.



The point angle of center punch a hand punch consisting of a short steel bar with a hardened conical point at one end used for marking the center of holes to be drilled.

**34. 'V' block are available in grade of**

- (a) 0 and 1 (b) 1 and 2  
(c) A1 and A2 (d) A and B

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**HPSSC (Fitter) 20-10-2019**

**Ans. (d) :** V-block are available in grade A and B.

- A grade V block are made from high quality steel. B grade V block are made from closed grain cast iron.
- V block of grade A is more accurate and grade B is used for general work.

- V block are used to hold the workpiece during drilling and it is made of cast iron.
- V blocks are generally used for cylindrical workpieces to check their roundness or marking centres.

**35. Scribe is made of**

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

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (b) :** A scribe is a hand tool used in metal working to mark lines on workpiece, prior to machining scribe is made of high carbon steel.

**36. Surface plates are made of**

- (a) high grade cast steel  
(b) fine grained cast iron  
(c) alloy steel  
(d) wrought iron

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (b) :** Surface plates are made of fine grained cast iron.

Surface plate is used to fact the flatness of other surface or to provide a truly flat datum surface in making off work for machining.

**37. 'V' block is used to hold round bar. It has a 'V' groove which is usually**

- (a) 30° (b) 60°  
(c) 90° (d) 120°

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (c) :** V-blocks are precision metal working jig typically used to hold around metal rod for performing drilling or milling operations.

- V-block are made of cast iron.
- V groove which is usually angle 90°.

**38. Which scraper is also called bearing scraper?**

- (a) triangular (b) half round  
(c) flat (d) hook

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (b) :** Scraper are mostly used in the manufacturing industry for removing unnecessary material from workpiece.

**Types of scraper–**

Flat scraper  
Half round scraper  
Three square scraper  
Bull nose scraper  
Two handle scraper  
Hook scraper

- Half round scraper is also called bearing scraper, as it scraps the surface of bearing.
- Half round scraper is found in a semicircular.

**39. The instrument used for big circle marking is :**

- (a) divider (b) trammel  
(c) height gauge (d) ring gauge

**BEML 2022**

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (b) :** A trammel point set used for laying out circle that arc too large.

- Trammel are used for measure distance between two point that are too great to be reached with divider.

**40. Which system is a system of marking?**

- (a) Media (b) Dating  
(c) Zeting (d) Lay-out

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (d) :** Layout system is a system of marking.

- A layout indicates where a structure need to be placed on your plot.

**41. Sine bar is made of–**

- (a) hard carbon steel  
(b) high speed steel  
(c) nickel steel  
(d) stabilized chromium steel

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (d) :** Sine bar is made of stabilized chromium steel.

A sine bar consist of a hard, precision ground body with two precision ground cylinder fixed at the ends.

- Sine bar is used measure angle very accurately.

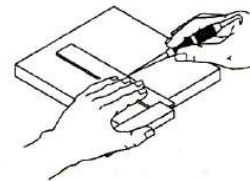
**42. The angle point of the scribe is :**

- (a) 5 to 10 degree (b) 15 to 20 degree  
(c) 25 to 30 degree (d) None of these

**Cochin Shipyard Fitter (Sheet metal) 13-06-2022**

**Ans. (b) :** The angle point of the scribe is 15 to 20 degree.

A scribe is a hand tool used in metal work to mark lines on workpiece, prior to machining. The process of using a scribe is called as scribing. It is used instead of pencils or ink lines, because the letter are hand to see, easily erased. They are a rod with a tip made of cast steel.

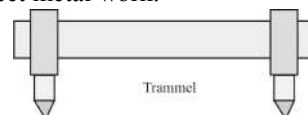


**43. The tool used for laying out large circles is:**

- (a) Trammel (b) Divider  
(c) Jenny calipers (d) Scriber

**ISRO Technician B (Machinist) 03-11-2022**

**Ans. (a) :** Trammel:- In trammel consist of a bar with two movable head. It is used to draw large circles or arcs that are beyond the limit of the divider. It is used mostly in sheet metal work.



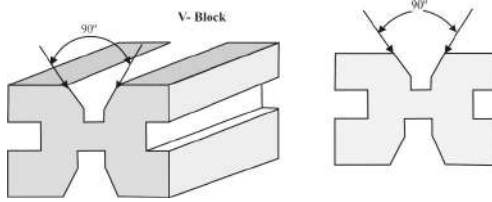
**44. V- Block usually has an angle of:**

- (a) 30° (b) 60°  
(c) 90° (d) 120°

**ISRO Technician B (Machinist) 03-11-2022**

**Ans. (c) :** V- block usually has an angle of  $-90^\circ$

- V- Block is a supporting device which used to hold round rods or pipes for performing drilling. or milling operation
- V- Block is also used to check roundness.



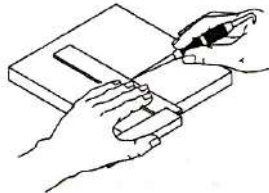
**45. The point angle of a scriber is:**

- (a)  $30^\circ$  (b)  $60^\circ$   
(c)  $5^\circ$  to  $10^\circ$  (d)  $12^\circ$  to  $15^\circ$

**ISRO Technician B (Machinist) 03-11-2022**

**Ans. (d) :** The point angle of a scriber is  $12^\circ$  to  $15^\circ$

- Scriber are used in metal working, to mark lines on work piece before manufacturing.
- Scriber tip should be sharp and fine, so that thin and accurate scribe line can be drawn on work piece.



**46. A 100 mm long (nominal size) 'V' Block capable of clamping workpieces between 5 to 90 mm in diameter and of Grade A will be designated as**

- (a) 'V' Block 100/5-90 A I.S. 2949  
(b) 'V' Block M 100/5-90 I.S. 2949  
(c) 'V' Block 100/5-90 I.S. 2949  
(d) 'V' Block M 100/5-90 I.S. 2949

**ISRO Technician B (Fitter) 03-11-2022**

**Ans. (a) :** A 100 mm long (nominal size) 'V' Block capable of clamping workpieces between 5 to 90 mm in diameter and of Grade A will be designated as 'V' Block 100/5-90 A I.S. 2949.

Where,  $l = 100$  mm

$d = 5$  to  $90$  mm

$A =$  Grade A.

**47. For a vernier caliper, the main scale reading is 20 mm and the least count is 0.02 mm. The total reading when vernier division is matched with the main scale in 26th division.**

**What will happen?**

- (a) 26.04 mm (b) 20.26 mm  
(c) 20.02 mm (d) 20.52 mm

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**BPCL Operator (Field) 2016**

**Ans. (d) :** Main scale division (MSD) = 20 mm

Vernier caliper least count (LC) = 0.02 mm

Vernier scale reading (VSD) = 26 mm

Total reading = MSD + LC  $\times$  VSD

$$= 20 + 0.02 \times 26$$

$$= 20.52 \text{ mm}$$

**48. What is the angle of point of dot punch?**

- (a)  $10^\circ$  (b)  $45^\circ$   
(c)  $60^\circ$  (d)  $90^\circ$

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (c) : Dot punch–**

- It is similar to centre punches but have a sharper point ground to an angle of  $60^\circ$  by holding it tangentially.
- It is used basically to mark the centre of a hole to be drilled either by hand or drilling machine.

**49. What is sharp point angle of scriber?**

- (a)  $5^\circ$  to  $10^\circ$  (b)  $0^\circ$  to  $5^\circ$   
(c)  $45^\circ$  to  $90^\circ$  (d)  $15^\circ$  to  $20^\circ$

**DMRC Maintainer Fitter, 19-04-2018**

**Ans. (d) : Scriber–**

- It is a hand tool used in metal work to mark lines on work piece, prior to machining.
- They are rod with a tip made of cast steel that has been hardened & tempered.
- The point is sharpened at an angle of  $15$  to  $20^\circ$ .

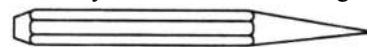
**50. The  $60^\circ$  dot punch is used for.....**

- (a) witness marks (b) position of dividers  
(c) accuracy punching (d) wide punching

**DMRC Maintainer Fitter, 20-04-2018**

**Ans. (a) : Dot punch–**

- It is similar to centre punches but have a sharper point ground to an angle of  $60^\circ$  by holding it tangentially to a tool.
- It is normally used to mark the centre of a hole to be drilled either by hand or on the drilling machine.



**Dot punch**

**51. Which of the following is a type of divider?**

- (a) Firm joint type divider  
(b) Spring type divider  
(c) Spring type divider and Firm joint type divider both  
(d) None of these

**NMRC, 15-09-2019**

**Ans. (c) : • Divider is a type of marking tool.**

- It is used to drawn an arc or circle on the surface of a job.

**Type of divider–**

- (i) Rivet type divider  
(ii) Spring type divider and firm joint divider.

**52. The sine bar of 100 mm is placed at an angle of  $30^\circ$  on the gauge block. What will be the height of the gauge block?**

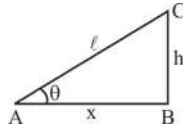
- (a) 25 mm (b) 75 mm  
(c) 100 mm (d) 50 mm

**BEML 2022**

**UPRVUNL Fitter, 09-05-2015**



**Ans. (d) :** Hypotenuse (H) = 100 mm  
 Perpendicular (P) = ?  
 angle ( $\theta$ ) =  $30^\circ$



$$\sin \theta = \frac{P}{H}$$

$$\Rightarrow P = H \sin \theta$$

$$= 100 \times \sin 30^\circ$$

$$P = 50 \text{ mm}$$

**53. Which angle of the prick punch is used to mark the witness mark:**

- (a)  $90^\circ$  (b)  $30^\circ$   
 (c)  $45^\circ$  (d)  $60^\circ$

**UPRVUNL Fitter, 09-05-2015**

**Ans. (d) :**

- $60^\circ$  angle of the prick punch is used to mark the witness mark.
- $30^\circ$  angle of the prick punch is used to put the divider in proper position.
- Prick punch is a short length punch. It is made of high carbon steel.
- It is used to draw curves.

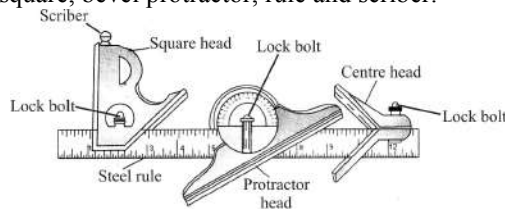
**54. Combination set is used to:**

- (a) In checking the flatness of surface  
 (b) To draw a circle  
 (c) To draw a line  
 (d) To check angular surface

**UPRVUNL Fitter, 09-05-2015**

**Ans. (d) : Combination set–**

- It can be used for different types of work, like layout work, measurement and checking of angle.
- It has a–  
 (i) Centre head and a rule  
 (ii) Protractor head  
 (iii) Square head.
- It is a instrument that has all the features of try square, bevel protractor, rule and scribe.



**Combination set**

**55. What is determined while measuring a component :**

- (a) Nominal size (b) Actual size  
 (c) Specific size (d) Scale size

**UPSSSC Tubewell Operator, 02-09-2018**

**Ans. (b) :**

- During measurement of component, actual size is determined.

**Actual size–** It is the size of the component by actual measurement after it is manufactured.

**56. Divider is used for which of the following :**

- (a) Drawing the circle  
 (b) Drawing the arc  
 (c) For transferring and stepping the distances  
 (d) All of the above

**UPSSSC Tubewell Operator, 02-09-2018**

**Ans. (d) : Divider–**

- It consist of two straight adjustable legs hinged together and ending in sharp points.
- It is made of high carbon steel point of it is hardened & tempered.
- It is used for–  
 (i) To draw the circles  
 (ii) To draw the arcs  
 (iii) For stepping and transferring the distances etc.

**57. The tool, which is used for laying out large circle is :**

- (a) Trammel (b) Divider  
 (c) Jenny Caliper (d) Scriber

**ISRO Technician-B Fitter 04-03-2018**

**Ans. (a) : Trammel–**

- Trammel are used in layout work to scribe circles and arcs that are too large to be drawn with divider or compass.
- It can also be used to bisect lines & angles.

**58. Permanent marks made by placing punch marks at convenient intervals along a marked line is known as :**

- (a) Punch marks (b) Witness marks  
 (c) Line marks (d) Drill marks

**ISRO Technician-B Fitter 10-12-2017**

**Ans. (b) :** Permanent marks made by placing punch marks at convenient intervals along a marked line is known as witness marks.

**59. Which of the following is used to drive dowels and rivets out of their holes?**

- (a) Centre punch (b) Prick punch  
 (c) Pin punch (d) Hollow punch

**ISRO Technician-B Fitter 10-12-2017**

**Ans. (c) : Pin punch–**

- Pin punch is not used for marking, but for removing a dowel pin or taper pin stuck in the job.
- This punch does not have a tip but instead has a cylindrical pin, the length of which meets the requirement of the job.

**60. .... is used for making very large radius.**

- (a) Divider (b) Caliper  
 (c) Trammel (d) Vernier

**ISRO Technician-B Fitter 21-02-2015**

**Ans. (c) : Trammel–**

- It is used to draw large circles or arcs that are beyond the limit of the dividers.
- It consists of a bar with two movable heads.

**61. What is the use of trammel?**

- (a) Laying out a large circle  
 (b) Scribing straight line  
 (c) Digging bulk materials  
 (d) Checking gaps between two mating surface

**ISRO Technician-B Fitter 23-02-2020**

**Ans. (a): Trammel–**

- It is used to draw large circles or arcs that are beyond the limit of the dividers.
- It consists of a bar with two movable heads.
- It is found from 15 cm to 50 cm
- Its scribes should be sharp.

**62. The angle of prick punch is :**

- (a) 60° (b) 30°  
(c) 90° (d) 120°

**ISRO Technician-B Fitter 22-12-2012**

**Ans. (b) : Prick punch–**

- The angle of prick punch is 30°.
- It is made of high carbon steel.
- Due to its law angle, the tip of the divider gets a very accurate position.
- It is used to draw curves on the surface.

**63. Purpose of hollow punch is :**

- (a) Deepen a drill point  
(b) Making the marked line firm  
(c) Determining the centre of a round job  
(d) For making holes in thin metallic, leather or hard board sheets

**NTPC Fitter 2016**

**ISRO Technician-B Fitter 28-06-2016, Shift-I**

**Ans. (d) : Hollow punch–**

- It is designed to puncture a surface, such as sheet metal or leather in order to create a hole.
- It is easily identified by its exit hole located near the working end.
- The exit hole allows the punched material to be removed and discarded.



**64. The measurements are set on the dividers usually with**

- (a) Jenny Caliper (b) Vernier Caliper  
(c) Steel rule (d) Micrometer

**IOCL 2020**

**ISRO Technician-B Fitter 21-04-2018, Shift-III**

**Ans. (c) : Steel rule–**

- With a steel ruler usually set the measurement to the divider.
- It is 1/2 mm or 1 mm of steel.
- It is in the form the thick bond.
- Its working edge is straight and parallel in length. In this mm or cam or inch or both marks are made.

**65. Scribes are made of**

- (a) Cast iron (b) Mild steel  
(c) High carbon steel (d) Stainless steel

**ISRO Technician-B Fitter 25-09-2016**

**DMRC Maintainer Fitter, 20-04-2018**

**SAIL Bokaro Steel Plant 2016**

**UPRVUNL Technician grade II Fitter 22-09-2015**

**Ans. (c) : Scriber–**

- It is hand tool used in metal work to mark lines on work pieces, prior to machining.
- It is a rod with a tip made of high carbon steel that has been hardened & tempered.

**66. Select the punch used for making witness marks from the following**

- (a) 60° Prick Punch (b) 30° Prick Punch  
(c) Centre Punch (d) 90° Centre Punch

**ISRO Technician-B Fitter 02-06-2019**

**ISRO Technician-B Fitter 25-09-2016**

**Ans. (a) :**

- 60° angle of the prick punch is used to mark the witness mark.
- 30° angle of the prick punch is used to put the divider in proper position.
- Prick punch is a short length punch. It is made of high carbon steel.

**67. Markings on the work piece is made by using**

- (a) Punch (b) Scribes  
(c) Calipers (d) Steel rules

**ISRO Plumber 02.06.2019**

**Ans. (b) : Scriber–**

- It is a marking tool.
- It is a hand tool used in metal work to mark on work piece, prior to machining.
- They are rod with a tip made of cast steel that has been hardened & tempered.
- The point is sharpened at an angle of 15 to 20°.

**68. Trammel is used :**

- (a) For marking the angles  
(b) For making polygons  
(c) For marking parallel lines  
(d) For marking circles

**BHEL 2020**

**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (d) : Trammel–**

- It is used to draw large circles or arcs that are beyond the limit of dividers.
- It consists of bar with two movable heads.
- It is found from 15 to 50 cm.
- Its scribe should be sharp.

**69. Which instrument is used to draw parallel lines?**

- (a) Universal surface gauge  
(b) Divider  
(c) Micrometer screw gauge  
(d) Trammel

**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (a) : Universal surface gauge–**

- It is used for drawing parallel lines.
- It can be set at any angle.
- Base of it is made of cast iron.

**70. A divider is not used for**

- Transferring dimensions
- Scribing circles
- General layout circles
- Measuring distance between two points

**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans. : (d)** A divider is used for transferring and stepping of distances, scribing circles and general layout circles.

**71. Which compass is used to draw a large diameter circle or arc?**

- Simple compass
- Wing compass
- Trammel compass
- Spring compass

**DMRC Maintainer Fitter 15-2-2017 8.30 am**

**Ans : (c) Trammel–**

- It is used to draw large circles or arcs that are beyond the limit of dividers.
- It consists of a bar with two movable heads.
- It is found from 15 cm to 50 cm.
- Its scribe should be sharp.



**72. Which of the following can be used to scrape lines parallel to a part?**

- Vernier calipers
- Divider
- Hermaphrodite caliper
- Screw gauge

**DMRC Maintainer Fitter 20-07-2014**

**Ans : (c) Hermaphrodite caliper–**

- It is tool used to layout lines that are parallel with the edges of the workpiece.
- It can also be used to locate the center of cylindrical shaped workplaces.

**73. State the use of Plumb bob:**

- More accurate replacement for the vertical spirit level and also to transfer points down vertically in marking
- More accurate replacement for the Horizontal spirit level and also to transfer points down Horizontally in marking

- More accurate replacement for the Inclined spirit level and also to transfer points down Angled in marking
- None of the above

**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (a) Plumb Bob–** It is in the shape of a bob made of brass or steel. Its lower part is sharp. This string is usually threaded into a wooden bar. The length of the strip is equal to maximum diameter of the bob.

Plumb is used to check the straightness of vertical surfaces.

**74. Which of the following is proper instrument for dividing straight lines and curves into equal parts?**

- Divider
- Protractors
- Try square
- Templates

**IGCAR Stipendiary Trainee Maintainer 2021**

**UPRVUNL TG II FITTER 09-11-2016**

**Ans : (a) Divider–**

- It consists of two straight adjustable legs hinged together and ending in sharp points.
- It is made of high carbon steel. Its point tip is hardened & tempered.
- It is used for dividing straight lines and curves into equal parts.



**Divider**

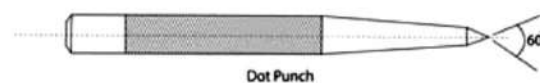
**75. Which is used for dot punch?**

- For marking lines
- Marking for memory
- For holding jobs
- For finding holes

**DMRC Maintainer Fitter 2017**

**Ans : (b) Dot punch–**

- It is similar to centre punches but have a sharper point ground at an angle of 60°.
- The dot punch is lighter and thinner version of the centre punch and is basically for the same job. However, it is more accurately as the dot produced is smaller.



**Dot Punch**

**76. What is point angle of center punch?**

- 55°
- 70°
- 30°
- 90°

**(IOF Fitter 2017)**

**UPRVUNL TG II FITTER 09-11-2016**

**(IOF Fitter, 2013)**

**UPRVUNL (FITTER) 05.04.2021, 9:00AM-12:00PM**

**ISRO Technician-B Fitter 10-12-2016, Shift-II**

**Ans : (d) Centre punch–**

- It is used to locate or mark the centers of holes or to deepen the focal point.
- The point angle is kept at 90°.
- Length of this punch is 100 mm & diameter is 10 mm.

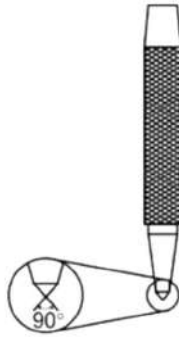
**77. Centre punch is used for which of the following?**

- For marking the lines
- For locating and marking holes
- To mark for memory
- For holding jobs

*DMRC Maintainer Fitter 15-2-2017 8.30 am  
ISRO Technician-B Carpenter 27-11-2016*

**Ans : (b) Centre punch–**

- It is made of high carbon steel.
- It is used to locate or mark the centres of holes or to deepen the focal point.
- The point angle of its is kept is 90°.
- Length of this punch is 100 mm & diameter is 10 mm.



**78. Marking tables are made up of:**

- Concrete
- Aluminum
- Granite
- None of the above

*ISRO Technician-B Turner 2016*

*UPRVUNL (FITTER) 05.04.2021, 9:00AM-12:00PM  
ISRO Technician-B Turner 27.11.2016*

**Ans : (c) Marking table–**

- It is used as a reference surface for marking on workpieces.
- It is made of cast iron or granite and available in various sizes.
- These tables are also used for setting measuring instruments, and for checking sizes, parallelism and angles.

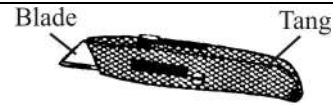
**79. State the use of Marking Knife:**

- Used for marking only
- Used for marking and scribing
- Used for Scribing only
- None of the above

*ISRO Technician-B Carpenter 27-11-2016*

**Ans : (b) Marking knife–** It is used for marking & scribing.

- A marking knife is also called striking knife.
- It is used for accurately marking workpieces.



**80. Trammel is a type of ..... tool.**

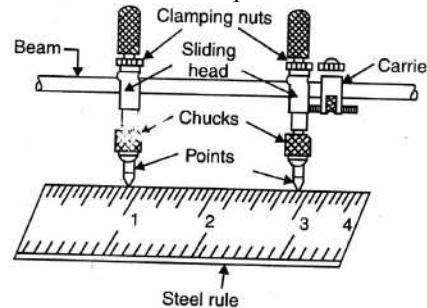
- Multi purpose
- Marking
- Outer measurement
- Inside measurement

*(HAL Fitter, 2015)*

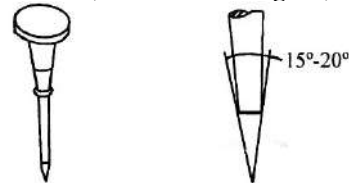
**Ans : (a) Trammel–**

- It is a multipurpose tool are beyond the limit of dividers.

- It consist of bar with two movable heads.
- It's scriber should be sharp.



**81. Scratch awl, shown in the figure, is used -**



- to draw deeper lines
- to firm up the drawn lines
- to make circles or impressions
- to draw ordinary lines

*IOCL 2020*

**Ans. (a) : Scratch awl is used to draw deeper lines.**

- Scratch awl is a wood working layout and point making tool.
- The scratch awl is basically a steel spike with its tip sharpened to a fine point.
- Carpenters will use this scratch awl results to create lines that guide a hand saw or a chisel.

**82. The marking tool shown in the following figure, is used to mark impressions up to 20 mm radius on sheet metal. Identify.**



- Scratch awl
- Trammel
- Making Punch
- Divider

*NTPC Fitter 2016*



**Ans. (d) :** Divider is a type of marking tool.

- It is used to draw an arc or circle on the surface of a job.
- It is used to mark impressions up to 20 mm radius on sheet metal.

**Type of divider–**

1. Rivet type divider
2. Spring type divider.

**83. Which of the following angle plates is most commonly used in workshops?**

- (a) Slotted type angle plate
- (b) Box angle plate
- (c) Solid angle plate
- (d) Adjustable angle plate

**BHEL 2020**

**Ans. (c) : Types of angle plate–**

**1. Solid angle plate–** It is most commonly used plate in workpiece.

**2. Adjustable angle plate–** This angle plate is available to support job at different angles.

**3. Box angle plate–**

- It has four faces.
- This plate has all the faces at 90° to each other.

**4. Slotted type angle plate–**

- This type angle plate has slots on both surfaces.
- It is used when the support is needed while marking on the job.

**84. The length of the scriber varies from –**

- (a) 150 mm to 200 mm
- (b) 200 mm to 250 mm
- (c) 100 mm to 150 mm
- (d) all of the above

**IGCAR Stipendiary Trainee Maintainer 2021**

**Ans. (a) :** Scribe is a tool used for marking.

- Length of scriber varies from 150 mm to 200 mm.
- Scriber point is varies from 12° to 15°.
- While scribing line, the scriber is used as a pencil so that, the line drawn are closed to the straight edge.
- The point of the scriber should be ground and hardened.

**85. A hollow punch is used for making hole in soft materials, like –**

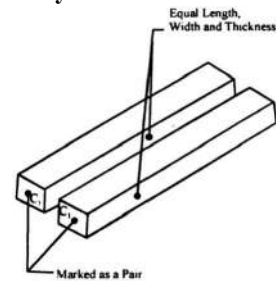
- (a) leather
- (b) gas cutting sheet
- (c) non-ferrous metal
- (d) all of the above

**BDL Technician 2022**

**Ans. (d) :** A hollow punch is used for making hole in soft materials, like leather, gas cutting sheet and non-ferrous metals.

- It is easily identified by its exit hole located near the working end.
- The exit hole allows the punched material to be removed and discarded.

**86. These are used for setting a job in machine shop. Identify.**



- (a) Adjustable parallel block
- (b) Solid type parallel block
- (c) Fixed surface gauge
- (d) Universal surface gauge

**NFC Stipendiary Trainee Maintainer 2021**

**Ans. (b) :** Solid type parallel blocks are used for setting a job in machine shop.

- They are available in a set of two, having same length, breadth and height.
- Solid parallel blocks are available in two grades– grade A and grade B.
- A grade is used in tool room and B grade in machine shop.

**87. Match the following punches with their usage.**

Punch	Usage
1. Centre punch	(A) Punching of observed points
2. Dot punch	(B) To mark light lines for giving right position to the divider leg.
3. Prick punch	(C) To mark extra thick marks for giving better position to drill point.

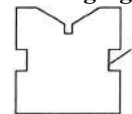
(a) 1(C), 2(A), 3(B) (b) 1(C), 2(B), 3(A)

(c) 1(A), 2(C), 3(B) (d) 1(B), 2(A), 3(C)

**BARC Stipendiary Trainee Maintainer 2021**

Ans. (a) :	
Punch	Usage
Centre punch	To mark extra thick marks for giving better position to drill point.
Dot punch	Punching of observed points
Prick punch	To mark light lines for giving right position to the divider leg.

**88. What is the purpose of label 'B' in the V-block shown in the following figure?**

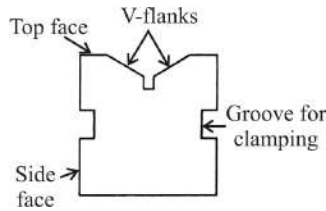


- (a) For taking measurement
- (b) For measuring angle
- (c) For clamping
- (d) For supporting

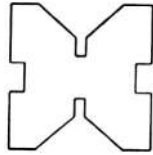
**RRCAT Stipendiary Trainee Maintainer 2019**

**Ans. (c):** The purpose of label 'B' in the V-block shown in the above figure is for clamping.

- V-blocks are used to hold the cylindrical or circular job for marking and setting the job on machines.
- The angle of V-block remains  $90^\circ$ .



**89. Which type of V-block is shown in the following figure?**



- (a) Single level, single groove
- (b) Single level, double groove
- (c) Double level, single groove
- (d) Double level, double groove

**NLC Technician 24-09.2022**

**Ans. (c) :** V-block shown in the figure is double level single groove.

- Double level single groove V-blocks will have two grooves on the top and bottom.
- A single groove for clamping on either side.

**90. Why end stop is used with any V-block?**

- (a) To stop disfiguring of the job on the V-block
- (b) To stop the circular movement of the job in the V-block
- (c) For indicating and machining
- (d) To prevent the fall of V-block lobe and axial movement

**BRO Vehicle Mechanic 2021**

**Ans. (d) :** End stop is used with any V-block to prevent the fall of V-block lobe and axial movement.

- The U-clamps are used to fix the job tightly in the V-block for machining purpose.
- V-blocks are finished to a high accuracy in respect to dimension, flatness and squareness.

**91. Arms of solid angle plate are made at an angle of –**

- (a)  $60^\circ$
- (b)  $90^\circ$
- (c)  $45^\circ$
- (d)  $110^\circ$

**NALCO Jr. Operative Trainee 2021**

**Ans. (b) :** Angles plates are suitable for supporting workpiece during layout work.

- They are comparatively smaller in size.
- Slots are provided to clamp the workpiece.
- Arms of solid angle plate are made at an angle of  $90^\circ$ .
- Swivel base angle plate can be set at any angle easily.

**92. Which work holding devices support the round job, while drilling the job on a drilling machine?**

- (a) 'V block and clamps, bolts, packing piece
- (b) The machine vice and bolts, packing piece
- (c) The hand vice with clamps, bolts
- (d) The pin vice with clamp, bolts

**NALCO Operator Boiler 2021**

**Ans. (a) :** V-block and clamps, bolts, packing piece support the round job, while drilling the job on a drilling machine.

**93. The recommended cutting angle of a flat scraper is in between.....**

- (a)  $70^\circ$  to  $75^\circ$
- (b)  $75^\circ$  to  $80^\circ$
- (c)  $80^\circ$  to  $85^\circ$
- (d)  $85^\circ$  to  $90^\circ$

**HAL Apprentice 10.11.2022**

**Ans. (a) :** The recommended cutting angle of a flat scraper is in between  $70^\circ$  to  $75^\circ$ .

- The flat scraper is used for removing slight irregularities on a flat surface.
- Its edge is made slightly convex.
- Its length is 100 mm to 300 mm.

### iii. Different Types of Calipers

**94. Hermaphrodite Calipers are also known as \_\_\_\_.**

- (a) Spin up calipers
- (b) Sectional calipers
- (c) Multiple leg calipers
- (d) Odd leg calipers

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (d) :** Hermaphrodite calipers are also known as odd leg calipers.

**Hermaphrodite caliper–** Jenny caliper is used in marking and layout work. It has one leg with an adjustable divider, and the other leg is bent both legs of the caliper are joined together with a firm joint.

Hermaphrodite calipers as known by following names–

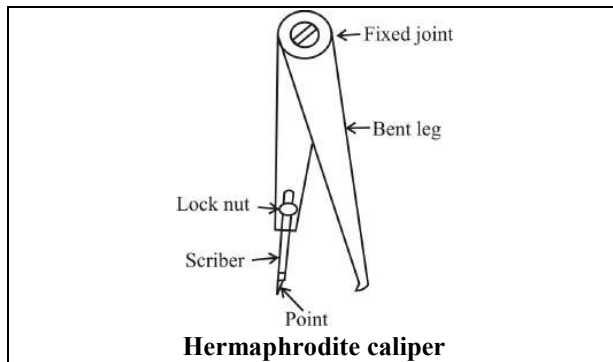
- (i) Jenny caliper
- (ii) Odd leg calipers
- (iii) Leg and point caliper.

**95. The caliper useful for scribing lines parallel to the edge of the work and for finding the centre of cylindrical work is:**

- (a) Outside caliper
- (b) Transfer caliper
- (c) Inside caliper
- (d) Hermaphrodite

**UPRVUNL TG-2 Fitter 22.12.2022**

**Ans. (d) :** A hermaphrodite caliper is a tool used to layout lines that are parallel with the edges of the workpiece. It, can also be used to locate the center of cylindrical shaped workpiece.



96. The main scale is on which part of Vernier height gauge?

- (a) movable (b) mass  
(c) Vernier scale (d) beam

**NLC Technician 24-09-2022**

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (d) :** The main scale in vernier height gauge is beam.

- A vernier height gauge the following parts–

Beam

Base

Main side

Measuring Jaw

Jaw clamp

Vernier scale

Main scale

Locking screw

Scriber blade

- A vernier depth gauge is a precision instrument use to measure depth of holes.

97. On which part the main scale graduated on Vernier height gauge?

- (a) beam (b) base  
(c) vernier scale (d) scriber

**BRO Vehicle Mechanic 2021**

**HPSSC Jr. Technician (Fitter) 30-08-2018**

**Ans. (a) :** The vernier height main scale graduation are graduated on beam.

- A scriber is a hand tool used in metal work to mark lines on workpiece, prior to machining.

98. What is the measuring device used to measure both internal and external diameter?

- (a) Plug gauge  
(b) Feeler gauge  
(c) Vernier caliper  
(d) Ring gauge

**HPCL Maintenance and Technician 07-08-2022**

**NALCO Jr. Operative Trainee 2021**

**Ans. (c) :** The Vernier calipers work on the basic principle of alignment of measurement marking on the vernier scale and main scale.

- Vernier caliper used to measure both internal and external diameter.

- The least count of Vernier caliper 0.02 mm.

99. From the following select the commonly used tool for laying out large circles

- (a) Divider  
(b) Hermaphrodite caliper  
(c) Trammel  
(d) Scriber

**ISRO VSSC (Fitter) 14-07-2021 (4:30-6:30 pm)**

**Ans. (c) :** A trammel point set is used for transferring measurement, scribing arcs and laying out circle that are too big for a conventional compass or divider.

- Hermaphrodite caliber used for scribing parallel line to an edge.

- Divider, instrument for measuring transferring or making off distance.

- A scriber is a hand tool used in metal work to mark lines on workpiece, prior to machining.

100. Which caliper is used to find the centre of round bars?

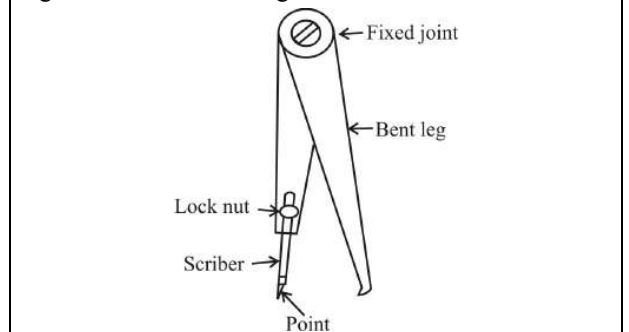
- (a) Inside caliper (b) Jenny caliper  
(c) Vernier caliper (d) Outside caliper

**HSSC Fitter 09-08-2021**

**Ans. (b) :** Jenny caliper is used to find the centre of round bars.

- Jenny caliper is also known as odd-leg caliper or hermaphrodite caliper.

- This is used for marking parallel lines from a finished edge and also for locating the centre of round bars.



101. The calipers used for finding the centre of round bars is called

- (a) Firm Joint Calipers  
(b) Spring Joint Calipers  
(c) Jenny Calipers  
(d) All the above

**ISRO Technician B (Fitter) 03-11-2022**

**Ans. (c) :** The calipers used for finding the centre of round bars is called jenny calipers.

102. Error in squareness can be determined by using the following–

- (a) try square and slip gauge  
(b) try square and filler gauge  
(c) bevel edge try square  
(d) none of the above

**HAL Apprentice 10.11.2022**

**Ans. (a) :** Error in squareness can be determined by using the try square and slip gauge.

- Try square is a checking tool that is used to check the flatness of the job and the right angle (angle of 90°) between two surfaces.
- Slip gauge or gauge blocks are used as standard for precision length measurement.
- Wringing is the act of joining the slip gauges together.

**103. The caliper meant for measuring the diameter of shaft is \_\_\_\_\_**

- (a) jenny caliper
- (b) outside caliper
- (c) inside caliper
- (d) odd leg caliper

**NALCO Operator Boiler 2021**

**Ans. (b) :** The caliper meant for measuring the diameter of shaft is outside caliper.

- The caliper is used for measuring the outer length, width and diameter.
- These are available in 100 mm, 150 mm, 200 mm and 300 mm size.
- There are two types of outside caliper such as simple outside caliper and spring outside caliper.

**104. In which caliper rack & pinion setup is used for operation of sliding unit?**

- (a) Vernier height gauge
- (b) Vernier caliper & micrometer
- (c) Micrometer
- (d) Vernier calipers

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**IGCAR Stipendiary Trainee Maintainer 2021**

**Ans. (a) : Vernier height gauge–**

- It is used to measure vertical dimension from reference ground.
- It consist of a graduated scale or bar is held in a vertical position by a finely ground fixed base.
- The graduated scale has least count of 0.02 mm.
- For operation of sliding unit rack & pinion arrangement is used.

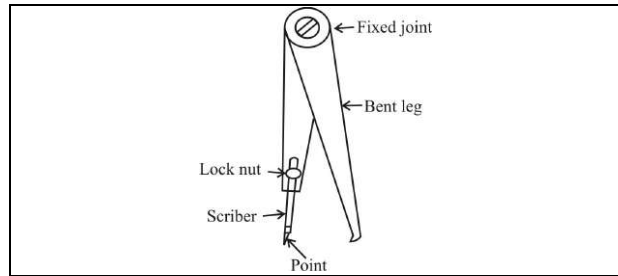
**105. Calipers which are available with the heel or usual bent leg are known as:**

- (a) firm joint calipers
- (b) firm and spring joint calipers
- (c) spring joint calipers
- (d) hermaphrodite calipers

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (d) : Hermaphrodite calipers–**

- It has one leg bent inward and one straight leg ending in a sharp point.
- It can also be used to locate the center of cylindrical shaped workplaces.
- It is tool used to layout lines that are parallel with the edges of the workpiece.



**106. Which measurement is done by vernier bevel protractor?**

- (a) Angle
- (b) Cutter diameter
- (c) Inside diameter
- (d) Thickness

**BDL Technician 2022**

**DMRC Maintainer Fitter, 19-04-2018**

**Ans. (a) : Vernier bevel protractor–** It is a precision instrument meant for measuring angles to an accuracy of 5 minutes.

**107. One main scale division in a Vernier calipers is 1 mm and there are 20 equal divisions on the Vernier scale which match with 16 main scale divisions. What will be the least count for this Vernier calipers.**

- (a) 0.02 mm
- (b) 0.2mm
- (c) 0.05 mm
- (d) 0.1 mm

**Tubewell Operator, 12-01-2019**

**Ans. (b)** Value of 1 part of main scale (MSD) = 1 mm  
No. of division on vernier scale = 20

Value of 1 division of vernier scale =  $\frac{16}{20}$  mm

Least value of vernier caliper = MSD – VSD

$$= 1 - \frac{16}{20}$$

$$= \frac{4}{20}$$

$$= \frac{1}{5} = 0.2\text{mm}$$

**108. The reading given by a spectrometer, when it is used to measure the angle of a prism is as follows:–**

**Main Scale reading = 58.5 degree,**

**Vernier Scale reading = 9 divisions,**

**1 division on main scale corresponds to 0.5 degree.**

**30 is the total division on the vernier scale and it matches with 29 divisions of main scale.**

**What is the angle of the prism?**

- (a) 59 degree
- (b) 58.77 degree
- (c) 58.59 degree
- (d) 58.65 degree

**BARC Stipendiary Trainee Maintainer 2021**

**Tubewell Operator, 12-01-2019**

**Ans. (d)** Main scale reading = 58.5°

Vernier scale reading = 9 division

1 division on main scale = 0.5° = 30 minutes

30 division on vernier scale (VSD) = 29 division on main scale (MSD)



$$1 \text{ VSD} = \frac{29}{30} \text{ MSD}$$

$$\text{LC} = 1 \text{ MSD} - 1 \text{ VSD}$$

$$= 1 - \frac{29}{30}$$

$$= \frac{1}{30} \times \left( \frac{1}{2} \right)^{\circ}$$

$$= \left( \frac{1}{60} \right)^{\circ}$$

$$\text{Total reading} = \text{MSD} + (\text{VSD} \times \text{LC})$$

$$= 58.5^{\circ} + 9 \times \left( \frac{1}{60} \right)^{\circ}$$

$$= 58.5^{\circ} + 0.15$$

$$\text{Total reading} = 58.65^{\circ}$$

$$\text{Prism's angle} = \text{total reading} = 58.65^{\circ}$$

109. Match the following items in List-I with their properties or description in List-II.

List – I	List – II
A) Vernier caliper measures	i) U-shaped frame fitted with a screwed spindle which is attached to a thimble
B) Degree of repetitiveness	ii) Angle
C) Sine bar measures	iii) Diameter
D) Screw gauge	iv) Precision

- (a) (A)-(iii), (B)-(iv), (C)-(ii), (D)-(i)  
 (b) (A)-(iv), (B)-(ii), (C)-(i), (D)-(iii)  
 (c) (A)-(iv), (B)-(iii), (C)-(i), (D)-(ii)  
 (d) (A)-(ii), (B)-(iii), (C)-(iv), (D)-(i)

NFC Stipendiary Trainee Maintainer 2021  
 Tubewell Operator, 12-01-2019

Ans. (a)

(A) **Vernier caliper**– It is used for measuring linear dimensions. It is also used for measuring diameter of round objects with the help of the measuring jaws.

(B) **Precision**– Degree of repetitiveness.

(C) **Sine bar**– It is used for measuring angles. It can not be used for measuring angle more than  $45^{\circ}$ .

(D) **Screw gauge**–

- U shaped frame fitted with a screwed spindle which is attached to a thimble.
- It is a mechanical tool that allows precise measurement of the diameter, radius or thickness of a thin wire.

110. Least count of an inside caliper is :

- (a) 1 mm (b) 2 mm  
 (c) 0.1 mm (d) 0.5 mm

ISRO Technician-B Fitter 10-12-2017

Ans. (d) : Inside caliper–

- It is used for measuring slot width and inside diameter.
- Least count = 0.5 mm
- It is available in size of 75,100,150,200 & 300 mm.

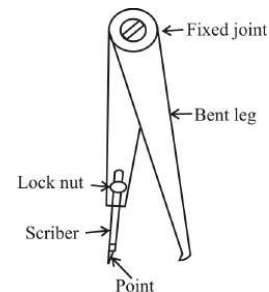
111. Which of the following is TRUE for a Jenny Caliper?

- (a) To draw a line at a set distance from the edge of the work  
 (b) To check the diameter of an internal groove  
 (c) To check the concentricity of the outside diameter  
 (d) To check the angle for a taper

ISRO Technician-B Fitter 23-02-2020

Ans. (a) : Jenny caliper–

- It is also known as hermaphrodite or add leg caliper.
- It has one leg bent inward and one straight leg ending in a sharp point.
- It can be used to locate the centre of cylindrical shaped workpieces.
- It is used to draw a line at a set distance from the edge.



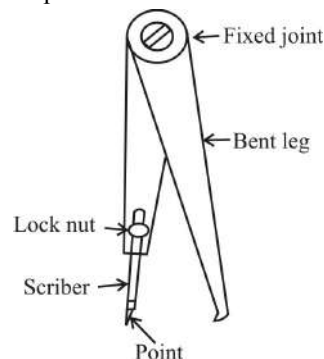
112. Hermaphrodite caliper is also called as

- (a) Odd leg caliper (b) Outside caliper  
 (c) Inside caliper (d) Spring caliper

ISRO Technician-B Fitter 10-12-2016, Shift-II

Ans. (a) : Hermaphrodite caliper–

- It is also known as Jenny or odd leg caliper.
- It has one leg bent inward and one straight leg ending in a sharp point.
- It is a tool used to layout lines that are parallel to the edges of workpieces
- It can be used to locate the centre of cylindrical shaped workpiece.



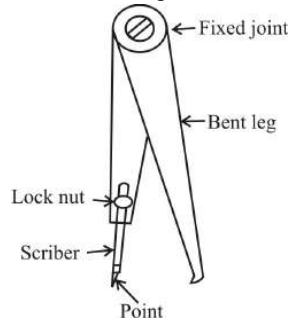
113. Which is used to draw parallel lines on job :

- (a) Gauge (b) Caliper  
(c) Divider (d) Jenny caliper

NLC Technician 24-09.2022  
(BHEL Hyderabad Fitter, 2014)

Ans : (d) Jenny caliper–

- It is also known as hermaphrodite or add leg caliper.
- It has one leg bent inward and one straight leg ending in a sharp point.
- It is used to scribes lines parallel to edge of a part.



114. By which instrument line is drawn on the edge of round rod?

- (a) Vernier height gauge  
(b) Jenny caliper  
(c) (a) and (b) both  
(d) None of these

NALCO Jr. Operative Trainee 2021  
(Coal India Fitter, 2013)

Ans : (c) Line is drawn on the edge of sound rod with the help of both vernier height gauge and jenny caliper.

**Vernier Height Gauge**– It is a precision instrument used to measure depth of holes, recesses, slots and steps within an accuracy of 0.02 mm.

**Jenny caliper**–

- It has one leg bent inward and on straight leg ending in sharp point.
- It is a tool used to layout lines that are parallel with the edges of the workpieces.

115. .... measured by simple caliper.

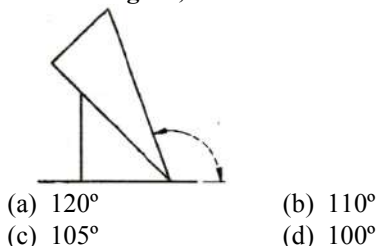
- (a) Indirect (b) Direct  
(c) Comparison (d) All of these

BRO Vehicle Mechanic 2021

Ans : (a) Simple caliper–

- It is an indirect measuring tool.
- It is used to measure the length, width thickness & diameter of job with the help of steel rule.

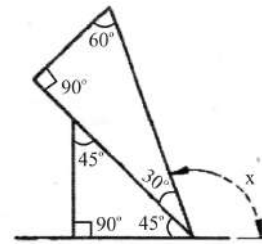
116. In a combination set- square arrangement shown in figure, the value of obtuse angle is .....



- (a) 120° (b) 110°  
(c) 105° (d) 100°

BHEL 2020

Ans. (c) : In a combination set-square arrangement–



According to trigonometry rules–

$$45 + 30 + x = 180$$

$$x = 180 - 75$$

$$= 105$$

$$x = 105^\circ$$

- The value of obtuse angle (x) is 105°.

117. The spring type outside calipers are used along with steel rule

The accuracy of caliper is ....

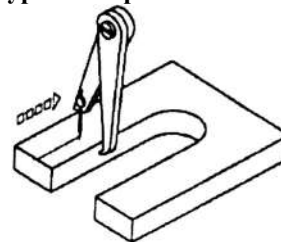
- (a) 0.25 mm (b) 0.50 mm  
(c) 0.75 mm (d) 1.00 mm

MP ITI Training Officer 08.11.2016 (Shift-I)  
IOCL 2020

Ans. (b) : Accuracy of caliper is 0.5 mm.

- Calipers are indirect measuring instrument used for transferring measurements from a steel rule to a job and vice-versa.
- Spring joint calipers have the advantage of a quick setting with the help of an adjusting nut.
- For setting a form joint caliper, tap the leg lightly on a wooden surface.

118. Which type of caliper is shown in the figure ?



- (a) Jenny caliper (b) Inside caliper  
(c) Outside caliper (d) Vernier caliper

BPCL Operator (Field) 2016

Ans. (a) : Caliper shown in the figure is jenny caliper or odd leg caliper or harmapholite caliper.

- In jenny caliper, its one leg bent inside and other pointed.
- Jenny caliper is used to find out the centre of parallel lines or circular shaft.
- According to need, its legs can be turn outside.

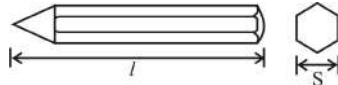
#### iv. Different Types of Tools

119. What is the use of Diamond point chisel?

- (a) Forming square groove on metal surfaces  
(b) Chipping on metal surfaces  
(c) Forming "V" groove on metal surfaces  
(d) Forming semi-circle groove on metal surfaces

RRB ALP RAC 23.01.2019, Shift-I

**Ans : (c) Diamond point chisel**– These chisels are used for removing unwanted materials and debris from corners and other hard-to-access area.



**120. Prick punch having 60° taper angle is used for :**

- (a) For removing cut thread
- (b) For making punching marks for holes to be drilled
- (c) For marking at hole position
- (d) To make divider point

**RRB ALP Fitter 23-01-2019, Shift-III**

**Ans : (b)** 60° prick punch is used for making witness mark.

- It is a short length punch.
- It is made of high carbon steel.
- It is used to draw curves.

**121. Why small convexness is provided on cutting edge of flat chisel?**

- (a) To cut curved surfaces
- (b) To cut the cutting edges corners
- (c) To cut sharp corner
- (d) To provide space to enter lubricant

**RRB ALP Fitter 23-01-2019, Shift-III**

**Ans : (b) Flat chisel**–

- This chisel is made from high carbon steel by forging.
- While cutting, the shearing edge is provided with a slight convexity so that it does not penetrate deeply while grinding the metal.
- Its length is kept 10 to 40 cm and cutting edge is kept at 1.6 to 3.2 cm.
- It is used to save the cutting edge corner from cutting.

**122. Which gauge is used for measuring diameter of cylinder bore :**

- (a) Screw pitch gauge
- (b) Barometer
- (c) Telescopic gauge
- (d) Taper plug gauge

**RRB ALP Fitter 23-01-2019, Shift-III**

**Ans : (c) Telescopic gauge**– It is indirect measuring devices used to measure the internal diameter of a bore, hole, groove, slot etc.

- This T-shaped tool consists of a handle, two telescopic rods and a locking screw.

**123. C clamp is used for**

- (a) Holding material in tight position
- (b) Measuring length
- (c) Drawing circular shape on materials
- (d) Drilling hole

**RRB ALP Heat Engine 08-02-2019**

**Ans. (a) : C clamp**– A C-clamp or G-clamp is a type of clamp device typically used to hold a wood or metal workpiece and often used in, but are not limited to carpentry and welding.

**124. Torque wrench is used for :**

- (a) Tightening wires
- (b) Tightening bolt and nut

- (c) Adjusting bolt and nut
- (d) Tightening broke

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (b) : Torque wrench**–

- It is used where the tightness of screw & bolt is crucial.
- It allows the operator to set the torque applied to fastener, so it can be matched to specifications for particular application.

**125. Sharp flat chisel is used :**

- (a) For cutting nut
- (b) For removing unwanted material
- (c) For providing finishing to metal
- (d) For cutting wires

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (b) :**

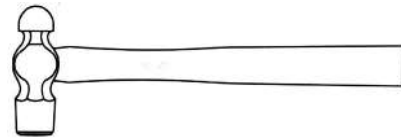
- This width of sharp flat chisel is smaller than its thickness.
- For convenience in cutting slight soundness is provided to cutting edge.
- Forging angle of the chisel is 25° to 30°.
- It is used for removing or chipping unwanted metal

**126. Which part of ball peen hammer is used for shaping & forming functions?**

- (a) Peen
- (b) Check
- (c) Face
- (d) Wedge

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (a) : Ball peen hammer**– It is type of peening hammer used in metal working. It has two heads, one flat and the other called the peen rounded. Peen is used for shaping & forming functions.



**127. What is the point angle of center punch?**

- (a) 60°
- (b) 45°
- (c) 30°
- (d) 90°

**RRB ALP Mechanic Diesel 23-01-2019, Shift-I**

**Ans. (d) : Centre punch**–

- It is made of high carbon steel.
- It is used to locate or mark the centres of holes or to deepen the focal point.
- It's point angle is kept 90°.

**128. An air chisel is used to break or cut metal object apart. How is it operated?**

- (a) Hydraulically
- (b) Frictionally
- (c) Magnetically
- (d) Pneumatically

**RRB ALP 23-1-2019, Shift-II**

**Ans. (d) : Air chisel**– It is a pneumatic hand tool used to carve in stone and to break or cut metal objects apart. It is designed to accept different tools depending on required function.

129. Which one of the following is not used for cutting metals?

- (a) Circular disk saw
- (b) Power saw
- (c) Horizontal saw
- (d) Hammer saw

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (d) :** Hammer saw is not used for cutting metals.

- It is used for general carpentry framing, nail pulling cabinet making, assembling furniture.
- Hammer saw are designed according to the intended purpose.

130. Dowel pins are used for \_\_\_\_\_ of two or more components.

- (a) Cleaning drilled holes
- (b) Accurate positioning
- (c) Machining surface
- (d) Permanent joining

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (b) :** Dowel pins are used for accurate positioning of two or more components.

- Dowel pins used in machine fabrication are metal cylindrical fasteners that retain parts in a fixed position or keep part aligned.
- General depending on the function of the part, one or two dowel pins are sufficient for holding adjacent part.

131. Frosting is usually done with the help of a \_\_\_\_.

- (a) Hand scrapper
- (b) Chromium plates
- (c) Tongs
- (d) Drill bits

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (a) :** Frosting–

- The frosting is a process in which scraped metal surface is decorated with the use of hand scrapper.
- Frosting can also be called as flaking or flowering.

132. \_\_\_\_\_ is a holding device especially for cylindrical objects.

- (a) Steel rule
- (b) Surface plate
- (c) Calipers
- (d) V-Block

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (d) :** V-block is a holding device especially for cylindrical objects.

- It is also used to measure the roundness of the cylindrical job.
- The included angle of V-block is 90°.
- For special purpose such as checking the triangle effect or for tap and other three fluted tools, 60° V-block can be secured.

133. The head of \_\_\_\_\_ hammer is generally made up of wood/rubbet.

- (a) Claw
- (b) Ball peen
- (c) Sledge
- (d) Mallet

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (d) :** Mallet is used to light strike on metal for bending and winding.

- It is made up of hard wood or hard rubber (Teak, shisam, kiker etc.)

134. All hard hacksaw blades are made up of \_\_\_\_\_ material.

- (a) Zinc
- (b) High speed steel
- (c) Titanium
- (d) Copper

UPRVUNL TG-2 Fitter 22.12.2022

**Ans. (b) :** All hard hacksaw blade–

- It is made up of the carbon steel or high speed steel.
- It is hard, tempered and has a easily broken tendency because, it has no flexibility.

**Half hard hacksaw blade–**

- This type of blade has only half teeth hard and tempered so that, it is flexible.
- It is not broken easily and teeth have a short age.

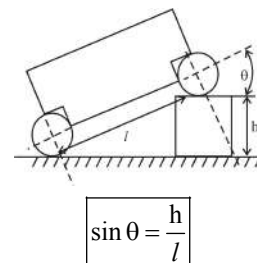
135. Sine bar is made of

- (a) High speed steel
- (b) Chrome alloy
- (c) Stabilized chromium steel
- (d) High carbon steel

NALCO Operator Boiler 2021

HPSSC Fitter 20-10-2019

**Ans. (c) :** Sine bar is a instrument used for measuring angle. It is specified by distance between rollers. It is made of stabilized chromium steel.



136. Sine bar is measurement distance between

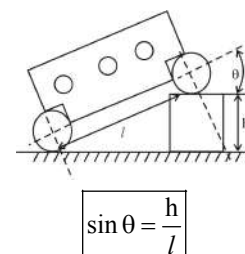
- (a) width
- (b) length
- (c) middle of roller
- (d) height

MP ITI Training Officer 08.11.2016 (Shift-I)

HPSSC Fitter 20-10-2019

**Ans. (c) :** Sine bar is specified by centre distance between two roller.

- It is used for measuring angle
- It's working principle is based on trigonometric function.





137. End of spanner set make an angle of \_\_\_\_ with axis.

- (a) 15°
- (b) 20°
- (c) 30°
- (d) 60°

HAL Apprentice 10.11.2022  
HPSSC Fitter 20-10-2019

**Ans. (a) : Spanner**—It is a tool used to provide grip and mechanical advantage in applying torque to turn objects.

- End of spanner set make an angle of 15°.

138 The size of screw driver is measured from

- (a) Body
- (b) Weight
- (c) Tip
- (d) Shank

HPSSC Fitter 20-10-2019

**Ans. (d) :** Screw driver is a tool used for turning screws. The size of screw driver is measured from shank.

139. Sine bar is made of :

- (a) Stabilized Nickel Steel
- (b) Stabilized Chromium Steel
- (c) Stabilized Carbon Steel
- (d) Stabilized Tungsten Steel

ISRO Technician B (Turner) 14-07-2021

**Ans. (b) :** Sine bar made of stabilized chromium steel. A Sine bar consist of hardened, precision ground body two precision ground cylinder fixed at ended. Sine bar measure angle.

140. A Sine Bar is specified by

- (a) Distance between the roller centers
- (b) Length of datum surface
- (c) Length of the rollers
- (d) Length of the bar

ISRO Technician B (Turner) 14-07-2021

**Ans. (a) :** A sine bar is specified by distance between the roller centers.

- They are made corrosion resistance, hardened, ground and stabilized.
- A sine bar measure angle based on sine rule principal.

141. To measure a hole of diameter 2 mm, which of the following instrument is used?

- (a) Pin gauge
- (b) Internal micrometer
- (c) Bore gauge
- (d) Slip gauge

ISRO Technician B (Fitter) 21-10-2018

**Ans. (a) :** • Pin gauge can be used to measure a hole of diameter 2 mm.

- Pin gauge works on 'Go' and 'No Go' principle.
- 'Go' and 'No Go' principle is that the Go end of the gauge must go into the feature of the component being checked & the 'No go' end must not go into the same feature.

142. A hand tool is used for closing and locking of seams in sheet metal work.

- (a) Groover
- (b) Trammel
- (c) Riveting hammer
- (d) Stakes

ISRO Technician B (Fitter) 03-11-2022

**Ans. (a) :** • A hand groover is used to lock the sheet metal seams, as shown is the figure.

- Seams made this way are known as grooved seams—the kind used on buckets, air ducts, tin cans, etc.

143. The purpose of using bar is to \_\_\_\_

- (a) Measure the length of job
- (b) Measure the diameter of job
- (c) Find the angle of tap job
- (d) Check the level of the job

BPCL Operator (Field) 2016

**Ans. (c) :** The purpose of using bar is to find the angle top job.

The required angle is obtained when the difference in height between the two rollers is equal to the sine of angle multiplied by the distance between the centre of the rollers.

144. Identify the tool used to protect the workpiece from being damaged due to frequent use of wrenches.

- (a) Stillson pipe wrench
- (b) Chain wrench
- (c) Strap wrench
- (d) Footprint wrench

IOCL 2020

**Ans. (c) :** Strap wrench is used on finished tubular surfaces to avoid marking or damaging. These wrenches have metallic straps by which the surfaces can be tightly gripped.

**Foot print wrench**— It is used for gripping and turning pipes and round stocks in confined places.

145. The spirit level is used for checking the level of machine when

- (a) lifting the machine
- (b) erecting the machine
- (c) shifting the machine
- (d) grouting the machine

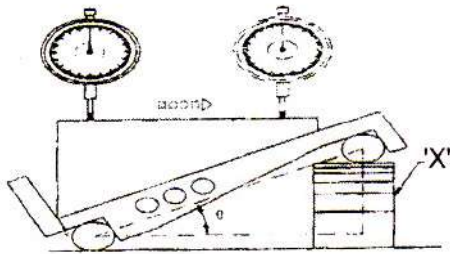
NTPC Fitter 2016

**Ans. (b) :** Spirit level, bubble level, or simply a level is an instrument design to indicate whether a surface is horizontal (level) or vertical (plumb).

There are different types of spirit level for different uses:

- Surveyor's leveling instrument
- Carpenter's level (either wood)
- Aluminium or composite materials
- Mason's level
- Torpedo level
- Post level
- Line level
- Engineer's precision level
- Electronic level
- Inclinator
- Slip or skid indicator
- Bull's eye level.

146. The figure shows the setup of a sine bar for taper angle checking. Name the item marked 'X' in the figure



- (a) Stopper (b) Slip gauges  
(c) Sine bar (d) Job

**IGCAR Stipendiary Trainee Maintainer 2021**

**Ans. (b) :** Slip gauge are made in sets and consists of a number of hardened blocks made of high grade steel with low thermal expansion.

**They are used for two purpose—**

For direct precise measurement where the accuracy of the workpiece demand it.

- For use with high magnification comparator to establish the size of the gauge blocks in general use.
- For checking an accuracy of measuring instrument.

147. The main characteristic of ceramic cutting tool is:

- (a) High compressive strength  
(b) High tensile strength  
(c) Low brittleness  
(d) Cannot be operated on high speeds

**BDL Technician 2022**

**Ans. (a) :** The main characteristic of ceramic cutting tool is—

- High impact strength
- High compressive strength
- High yield strength at operating temperature.
- High toughness and bending strength.
- Excellent conductivity, low thermal expansion for good dimensional stability.

**Note—** Ceramic cutting tools are very brittle.

- They can be used only on machines which are extremely rigid and free of vibration.
- Used in machining of hard ferrous material and cast iron.

148. Dovetails are provided on guideway of machine tools. The clearance between dovetails are adjusted by—

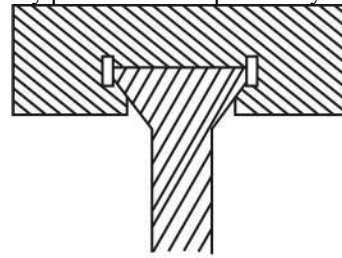
- (a) Keeper plate (b) Locking screw  
(c) Taper wedge (d) Gib

**BARC Stipendiary Trainee Maintainer 2021**

**Ans. (d) :** Dovetail type guideways are preferred when the location of the moving part is considered essential.

- These are generally used for milling machine tables, saddles, and knees.

- In dovetail type guideways adjustment for wear can be made by parallel blocks pushed by set screws.



**Dovetail type**

- It features extremely rigidity and alignment characteristic. It is an expensive guide way to produce.

149. High speed steel contains tungsten vanadium, chromium and cobalt in the composition of 18 : 4 : 1 Which one is 4% in the composition?

- (a) Tungsten (b) Vanadium  
(c) Chromium (d) Cobalt

**NFC Stipendiary Trainee Maintainer 2021**

**Ans. (c) :** High speed steel is special alloy steel which is obtained by alloying tungsten, chromium, vanadium cobalt and molybdenum with steel.

- HSS is an alloy of 18% tungsten, 4% chromium and 1% vanadium.
- High speed steels are used for cutting metals at a much higher cutting speed than ordinary carbon tool steels.

**Note—**

- Chromium is included mainly to enhance hardenability and reduce oxidation damage during heat treatment.

**Chromium—** Improve toughness wear resistance and high temperature strength.

150. .... allows lines to be scribed at a preset distance, from the tables surface.

- (a) Angle plates  
(b) Scriber  
(c) Height gauge or scribing block  
(d) Surface gauge

**RRCAT Stipendiary Trainee Maintainer 2019**

**Ans. (c) :** Scribing block is a gauge consisting of a scriber mounted on an adjustable stand used to test the accuracy of plane surfaces.

- Height gauge may also be used to measure the height of an object by using the underside of the scriber the datum.

151. Straight edges are used to measure—

- (a) Straight length of parts (b) Flatness  
(c) Parallelism (d) Perpendicularity

**NLC Technician 24-09.2022**

**Ans. (b) :** Straight edges are used to measure flatness.

For checking the flatness, single-edged as well as three and four edged straight edge may be used with single edge straight edge, it is applied in different direction at different places on the surface to be tested.

They are available in length from 75 to 175 mm and with one to four working edges.

**Straight edges may be classified as–**

1. Tool makes straight edge
2. Wide edge straight edge
3. Angle straight edge.

**152. For which die stock is used?**

- (a) To produce thread on die
- (b) To produce thread on pipe
- (c) To turn the die
- (d) To hold the pipe

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (c) : Die stock–** Die stock is used while hand threading for managing the die.

- Die stock is used to turn the die.

**Die–** Dies are used to form or cut a male thread on the outside of rods or bars.

**153. What is name of given angular measuring instrument, in a given figure?**



- (a) Vernier bevel protector
- (b) Universal bevel gauge
- (c) Bevel protractor
- (d) Bevel or bevel gauge

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (b) : Universal bevel gauge–**

- It is used for tool makers.
- It measure angles.
- It comes under category of mechanical protractor.

**154. Which one is not a part of ordinary depth gauge?**

- (a) Base
- (b) Graduated beam
- (c) Clamping screw
- (d) Handle

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (d) : Ordinary depth gauge–**

- Handle is not a part of ordinary depth gauge. Whether base, graduated beam and damping screw are part of ordinary depth gauge.
- It is an instrument for measuring depth below reference surface.

**155. Which of the following chisel is used to cut spiral grooves?**

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

**BRO Vehicle Mechanic 2021**

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (b) : Half round nose chisel–**

- It is also known as gauge chisel.
- It is designed to be used for cutting spiral grooves in metal and includes many specialized uses. Such as cutting semicircular grooves for always in bearings.

**156. After taking reading of chisel many times :**

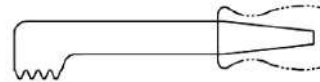
- (a) It's cutting edge becomes thin
- (b) It's case hardening is done before taking its re-reading
- (c) It should be forged before grinding it given.
- (d) It is better for again sharpening

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (c) :** After a number of re-grinding of chisel it should be forged before grinding it again. After repeated use, the cutting edge of the chisel gets spoiled & its head also fails.

Therefore, in order to make good cutting in a right way, there is need to grind to chisel, the cutting edge of chisel should be grinded in a slightly convex instead of grinding at straight.

**157. In the given figure, what the shown figure is :**



- (a) Grinding tool
- (b) Chaser tool
- (c) Drilling tool
- (d) Single point cutting tool

**NALCO Jr. Operative Trainee 2021**

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (b) : Chaser tool–**

- It is a multi point cutting tool which is used to cut 'V' threads.
- It is of two type–
  - (i) Hand chaser
  - (ii) Machine chaser
- Hand chaser is used for cleaning the threads of any bolt etc and for finishing of threads.
- Machine chaser is used to cut threads on capstan, turret or automatic machines.

**158. Cold chisel & wood working tool are made up of which of the following?**

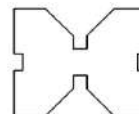
- (a) Medium carbon steel
- (b) Full mild steel
- (c) Mild steel
- (d) High carbon steel

**UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM**

**Ans. (d) :** Cold chisel and wood working tool are made up of high carbon steel.

- The cold chisel is a hand cutting tool used by fitters for chipping and cutting off operations.
- Cold chisel are used to remove waste metal when a very smooth finish is not required or when the work can not be done easily with other tools, such as a hacksaw, file, bench sheers or power tools.

**159. According to the BIS, what is name of V block shown in figure?**



- (a) Matched pair 'V' block
- (b) Single level double groove 'V' block
- (c) Single level single groove 'V' block
- (d) Double level single groove 'V' block

UPRVUNL (Fitter) 05.04.2021, 9:00 AM-12:00 PM

**Ans. (d) : Double level single groove 'V' block**– In these type of block, two grooves are made in top & bottom of the 'V' block and one rectangular groove is made on each side.

While marking & machining round shaped jobs, they require marking and machining by holding them with support.

**160. What is the purpose of surface plate?**

- (a) Measurement of depth of hole
- (b) Testing of flatness of workmanship
- (c) Measurement of inside diameter
- (d) Measurement of length

DMRC Maintainer Fitter, 19-04-2018

**Ans. (b) : Surface plate**–

- It is made up of cast iron.
- It is used to check the straightness of workmanship.
- It can check up to 0.025 mm flatness.
- It can be of square and rectangular shape.
- It is used to check the surface of job for marking on small jobs.

**161. What should be tangent angle of chisel for cutting aluminium?**

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

DMRC Maintainer Fitter, 19-04-2018

**Ans. (c) :**

Material to be cut	Point angle
High carbon steel	65°
Cast iron	60°
Mild steel	55°
Brass	50°
Copper	45°
Aluminium	30°

**162. Which material is used in power hexa-blade?**

- (a) Medium carbon steel
- (b) High speed steel
- (c) High carbon steel
- (d) Mild steel

DMRC Maintainer Fitter, 19-04-2018

**Ans. (b) : Power hexa blade**–

- It is a hand tool used to cut metal.
- It 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 blade depends on the shape & hardness of material to be cut.

**163. The length of the hammer handle for a 500 gm hammer should be about.....**

- (a) 300 mm
- (b) 400 mm
- (c) 350 mm
- (d) 500 mm

NALCO Operator Boiler 2021

DMRC Maintainer Fitter, 20-04-2018

**Ans. (a) :** Length of hammer blade for a 500 gm hammer should be about 300 mm.

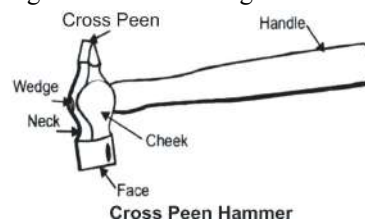
**164. The hammer used for propagating metal in one direction along the line of strike is :**

- (a) Straight peen hammer
- (b) Ball peen hammer
- (c) Cross peen hammer
- (d) Sledge hammer

DMRC Maintainer Fitter, 20-04-2018

**Ans. (c) : Cross peen hammer**–

- This hammer is used for propagating metal in one direction along the line of strike.
- The hammer face is flat and peen is built into the cross of the handle.
- It is mostly used for making grooves in sheet job and for impacting on inner bend of sheet job while folding it.
- This weight is 0.125 to 1.5 kg.



**165. Hammer which are heavier in weight are :**

- (a) Sledge hammer
- (b) Claw hammer
- (c) Hand hammer
- (d) Ball peen hammer

NMRC, 15-09-2019

**Ans. (a) : Sledge hammer**–

- It is tool with a large, flat, often metal head, attached to a long handle. The long handle combined with a heavy head allows the sledge hammer to gather momentum during a swing and apply a large force compared to hammers designed to drive nails.
- It is heavier in weight
- It is available in 2 to 10 kg weight & used for heavy impact in large works.

**166. Is useful gauge for checking the external diameter of shaft:**

- (a) Contour gauge
- (b) Ring gauge
- (c) Plug gauge
- (d) Feeller gauge

HAL Apprentice 10.11.2022

UPRVUNL Fitter, 09-05-2015

**Ans. (b) : Ring Gauge**–

- It is used for checking the external diameter of the shaft.
- Its working process is similar to caliper gauge.
- It is used for checking outer measurement of cylindrical job.
- Outer part of ring gauge is knurled so that gauge can be handled strongly.

**167. Use of V-block:**

- (a) To check the surface roughness
- (b) To hold round rod during marking and drilling
- (c) To mark the center of the round rod
- (d) For estimating flat surfaces

UPRVUNL Fitter, 09-05-2015



**Ans. (b) : V block–**

- V block is used to hold circular and semi circular shapes.
- It is used to hold workpiece properly during drilling, boring operations.
- They consist of a rectangular steel or cast iron block with a 120° channel rotate 45° from the, forming a V shape channel in the top.

**168. V-block 50/5-40 A is used to hold the job whose diameter will be:**

- (a) Between 5 to 40 (b) Between 5 to 50  
(c) 40 mm (d) 50 mm

**UPRVUNL Fitter, 09-05-2015**

**Ans. (a) : V block–**

- It is used to hold circular and semicircular shapes. So that different machining operations can be performed easily.
- V block 50/5-40 A is used to hold the job whose diameter will be between 5 to 40.

**169. Which non ferrous metal's tensile strength can be increased by hammering or rolling?**

- (a) Lead (b) Copper  
(c) Tin (d) Zinc

**UPSSSC Tubewell Operator, 02-09-2018**

**Ans. (c) : Copper–** It is very malleable and ductile. It can be made into sheets or wires. Copper is a good conductor of heat and also highly resistant to corrosion.

- The tensile strength of copper can be increased by hammering or rolling.

**170. Mallet is made of**

- (a) Lead (b) Brass  
(c) Hard wood (d) Cast Iron

**ISRO Technician-B Fitter 04-03-2018**

**Ans. (c) : Mallet is made up of hard wood.**

- It is mostly used in sheet metal work.
- It is used in carpentry work.

**171. What is the clearance angle if the angle of inclination of a chisel, with point angle 60°, is 39.5°?**

- (a) 15° (b) 9.5°  
(c) 20.5° (d) None of the three

**ISRO Technician-B Fitter 02-06-2019**

**Ans. (b) : Given,**

Inclination angle (I) = 39.5°

Point angle (β) = 60°

Therefore,

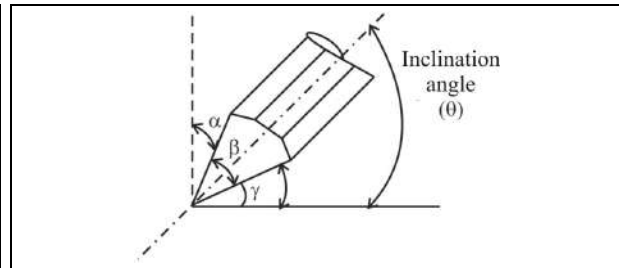
Inclination angle (I) = Clearance angle (α) + Point angle (β)/2

$$39.5 = \alpha + \frac{60}{2}$$

$$39.5 = \alpha + 30$$

$$\alpha = 39.5 - 30$$

$$\alpha = 9.5^\circ$$



**172. Which of the following chisel is used for squaring material at the corners?**

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

**ISRO Technician-B Fitter 02-06-2019**

**BPCL Operator (Field) 2016**

Ans. (c)	
Chisel	Use
Flat chisel	To remove metal from large flat surfaces & chip-off excess metal of welded joints and castings
Cross cut or cape chisel	For cutting flutes, curved grooves (oil grooves)
Diamond point chisel	For squaring materials at corners, joints
Web chisel/punching chisels	For separating metals after chain drilling

**173. Head of a chisel is not hardened. The reason is to :**

- (a) Reduce the cost of chisel  
(b) Avoid damage of head during hammer blow  
(c) Avoid injury to the operator  
(d) Avoid the slippage during hammer blow

**BEML 2022**

**ISRO Technician-B Fitter 23-02-2020**

**Ans. (d) : Head of chisel is not hardened.** The reason is to avoid the slippage during hammer blow. Chisel is a cutting tool which is used to remove unnecessary metals.

It is made up of high carbon steel. It's head is kept at an angle of 40° to 70° and cutting angle at 35° to 70°. It's body is of octagonal shape.

**174. Which of the following is used to check the final fit to mating tapers?**

- (a) Layout die (b) Prussian blue  
(c) Penetrating die (d) Lapping compound

**IOCL 2020**

**ISRO Technician-B Fitter 23-02-2020**

**Ans. (b) : Prussian blue** is used to check the final fit to mating taper parts.

**175. Which of the following hand tool is used to mark the centre of a hole when drilling?**

- (a) Centre Punch (b) Dot Punch  
(c) Drive Punch (d) Both (a) and (b)

**ISRO Technician-B Fitter 23-02-2020**

**Ans. (a): Centre punch–**

- It is used to locate the centre of holes or to deepen the focal point.
- The point angle is 90°.
- They are made of high carbon steel hardened and ground.

**176. Purpose of an angle plate is :**

- (a) Work holding
- (b) Tool holding
- (c) Both (a) and (b)
- (d) Marking lines parallel to the edge of a job

**ISRO Technician-B Fitter 23-02-2020  
NTPC Fitter 2016**

**Ans. (a) : Angle plate–** It is the purpose to hold the workpiece and tool.

- The edges and ends are also machined square. They have ribs on the unmachined part for good rigidity and to prevent distortion.
- The slots are machined on the top plane surfaces for accommodating damping bolts.

**177. Name the hand tool used to remove the high spots of a job after machining :**

- (a) Chisel
- (b) Scriber
- (c) Scraper
- (d) None of the above

**ISRO Technician-B Fitter 23-02-2020**

**Ans. (c) : Scraper–** It is used to remove the high spots of a job after machining.

- It is made up of high grade tool steel or special alloy steel and tungsten carbide tipped tools.

**178. Gauge is used for measuring small air gaps and clearances**

- (a) Ring gauge
- (b) Feeler gauge
- (c) Taper gauge
- (d) No Go gauge

**ISRO Technician-B Fitter 28-06-2016, Shift-I**

**Ans. (b) : Feeler gauge–**

- It is a tool used to measure gap widths.
- It is mostly used in engineering to measure the clearance between two parts.
- They consist of a number of small lengths of steel of different thicknesses with measurements marked on each piece.

**179. .... scraper is used to scrape round or curved surfaces and to remove sharp corners and burrs**

- (a) Flat scraper
- (b) Triangular scraper
- (c) Half round scraper
- (d) None of the above

**IGCAR Stipendiary Trainee Maintainer 2021**

**ISRO Technician-B Fitter 28-06-2016, Shift-I**

**Ans. (b) : Triangular scraper–**

- It is also known as three square scraper.
- Its shape is triangular and has three cutting edges.
- It is used to scrape round or curved surfaces and to remove sharp corners & burrs.

**180. The slots on angle plate provided for**

- (a) Reducing the weight
- (b) Accommodating clamping bolts
- (c) Aligning the work
- (d) Hanging with hooks

**BHEL 2020**

**ISRO Technician-B Fitter 21-04-2018, Shift-III**

**Ans. (b) : Angle plate–** It is made of closely grained cast iron or steel. The edges and ends are also machined square. They have ribs on the unmachined part for good rigidity and to prevent distortion.

The slots are machined on the top plane surfaces for accommodating damping bolts.

**181. Hand tool used for cutting thin sheets is called :**

- (a) Stakes
- (b) Scriber
- (c) Punch
- (d) Sniper

**ISRO Technician-B Fitter 10-12-2016, Shift-II**

**Ans. (d) : Sniper–**

- Hand tool used for cutting thin sheets.
- It is made of high carbon steel.
- It's cutting edges are hardened & tempered.
- It's cutting edges are ground at an angle of 80°.

**182. Cross cut Chisels are used for**

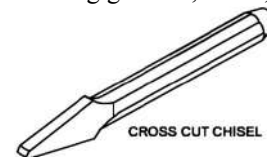
- (a) working on large flat surfaces
- (b) chipping excess metal of castings
- (c) chipping metal of weld joints
- (d) cutting key ways

**MP ITI Training Officer 08.11.2016 (Shift-I)**

**ISRO Technician-B Fitter 25-09-2016**

**Ans. (d) : Cross cut chisel–**

- It is also known as cape chisel.
- It is used for cutting grooves, flutes, keyways etc.



**183. Point angle of chisel for aluminium is**

- (a) 65°
- (b) 60°
- (c) 30°
- (d) 55°

**ISRO Technician-B Turner 25.09.2016**

**Ans. (c) :**

Material to be cut	Point angle
High carbon steel	65°
Cast iron	60°
Mild steel	55°
Brass	50°
Copper	45°
Aluminium	30°

**184. Angular contact ball bearings are designed to take**

- (a) Axial and vertical thrust
- (b) Radial load
- (c) Axial thrust
- (d) Axial thrust and radial load

**ISRO Technician-B Turner 25.09.2016**

**Ans. (d) : Angular contact ball bearing**– It can take heavy radial and thrust loads.

**Thrust ball bearing** : It can not take the radial load.

**Taper roller bearing** : It can take heavy radial and thrust load.

**Cylindrical roller bearing** : It can take radial load only.

**Deep groove ball bearing** : It takes load in radial as well as in axial direction.

**185. Which of the following chisel is used for cutting keyways and grooves?**

- (a) Cross-cut chisel
- (b) Flat chisel
- (c) Web chisel
- (d) Punching chisel

**Technician-B Fitter 10-12-2017**

<b>Ans. (a) :</b>	
<b>Chisel</b>	<b>Use</b>
Flat chisel	To remove metal from large flat surfaces & chip-off excess metal of welded joints and castings
Cross cut or cape chisel	For cutting flutes, curved grooves (oil grooves)
Diamond point chisel	For squaring materials at corners, joints

**186. Which of the following chisel is used for separating metals after chain drilling?**

- (a) Half round nose chisel
- (b) Diamond point nose chisel
- (c) Cape chisel
- (d) Web chisel

**BDL Technician 2022**

**Technician-B Fitter 10-12-2017**

**Ans. (d) : Web chisel**–

- It is also known as punching chisel.
- It is used for separating metals after chain drilling.
- Chisel is a tool used for cutting, chopping and shaping wood stone & metals.

**187. Which of the following is not a type of tap wrench?**

- (a) Double-ended adjustable
- (b) T-handle
- (c) Spanner
- (d) Solid type

**ISRO Technician-B Fitter 10-02-2019**

**Ans. (c) : Tap wrench**– It is a hand tool used to turn taps or other small tools, such as hand reamers or screw extractors.

**Types of tap wrench**–

- (i) Solid tap wrench
- (ii) Adjustable tap wrench
- (iii) T handle tap wrench.
- Spanner is not a type of wrench.

**188. Which of the following material is not used for making mallet?**

- (a) cast iron
- (b) Rubber
- (c) Wood
- (d) Plastic

**NFC Stipendiary Trainee Maintainer 2021**

**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (a): Mallet**–

- It is a hammer used to strike an object without damaging it.
- They are typically light weight and made from solid wood, rubber, plastic or leather.

**189. If the handle in a hammer is loose then it :**

- (a) Cause of accident
- (b) Can work properly
- (c) Provides proper grip
- (d) Provides good support

**DMRC Maintainer Fitter 21-2-2020, Shift-I**

**Ans. (a) :**

- If the handle in a hammer is loose then it can be cause of accident.
- It is hand tool mostly used in workshop.
- It is used for operations live forging, banding, chipping, riveting.
- Main parts of hammer are handle, eye hole, face, peen, cheek.

**190. What is the other name for Jenny spanners?**

- (a) Inside caliper
- (b) Outside caliper
- (c) Odd-leg caliper
- (d) Joint spanner

**BARC Stipendiary Trainee Maintainer 2021**

**Ans. (d) : Jenny spanner** is also known as joint spanner.

**191. Chisel for metal cutting are hardened :**

- (a) At tip
- (b) All over
- (c) At the cutting edge
- (d) At middle

**IOF Fitter 10-9-2017**

**Ans : (c) Chisel**–

- It is most commonly used tool for cutting light & thin metals.
- It is made of high carbon steel or chrome vanadium steel.
- It's cutting edge is kept at 35° to 70° angle.
- Chisel for metal cutting are hardened at the cutting edge.

**192. In chipping process, the following chisel is used.**

- (a) Cape chisel
- (b) Hot chisel
- (c) Cold chisel
- (d) Side chisel

**MP ITI Training Officer 20.12.2022**

**RRCAT Stipendiary Trainee Maintainer 2019**

**(IOF Fitter 2017)**

**Ans : (c) Cold chisel**–

- It is a hand cutting tool used by fitters for chipping and cutting off operations.
- It is made from high carbon steel or chrome vanadium steel.

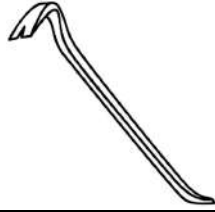
**193. Name the tool, which is used to lift or move heavy loads by leverage affect.**

- (a) Hosting tool
- (b) Crow bar
- (c) Fork lift
- (d) Broaching tool

**ISRO Technician-B Fitter 20-11-2016**

**Ans: (b) Crow bar–**

- It is a first type lever.
- It is used to lift or move heavy loads by leverage affect.
- It is made of medium carbon steel, wrought iron, titanium etc.



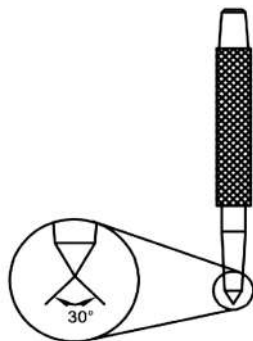
**194. What is the point angle of prick punch which is used for making light punch marks?**

- (a)  $45^{\circ}$  (b)  $100^{\circ}$   
(c)  $75^{\circ}$  (d)  $30^{\circ}$

**ISRO Technician-B Fitter 20-11-2016  
(MAZGAON DOCK Ltd. Fitter, 2013)**

**Ans : (d)**

- $30^{\circ}$  angle of prick punch is used for marking light punch marks.
- Prick punch is a short length punch. It is made of high carbon steel.



**PRICK PUNCH**

**195. During chipping, chisel should kept at an angle of ?**

- (a)  $20^{\circ}$  (b)  $40^{\circ}$   
(c)  $50^{\circ}$  (d)  $60^{\circ}$

**(IOF Fitter, 2015)**

**Ans : (b) Chipping–** It is an operation of removing excess metal with the help of chisel and hammer. During chipping, chisel should kept at an angle of  $40^{\circ}$ .

**196. Choose the bar having forged end used for pulling big nails out of timber and as a tool to move heavy objects. Other uses are to open crates or to loosen boards of concrete forms:**

- (a) Awls  
(b) Crow Bar  
(c) Pincers  
(d) None of the above

**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (b) Crow bar–** It is the bar having forged end used for pulling big nails out of timber and as a tool to move heavy objects. Other uses are to open crates or to open loosen bards of concrete forms.

**197. Correct sequence of processes for producing a cold chisel**

- (a) Forging, Rough grinding, hardening & tempering  
(b) Rough grinding, Forging, hardening and tempering  
(c) Casting, forging, hardening  
(d) Casting, Machining, Rough grounding

**UPRVUNL Technician Grade II Fitter 22-09-2015**

**Ans. : (a) Cold chisel–**

- It is hand cutting tool used by fitters for chipping and cutting off operations.
- It is made of high carbon steel.
- It is made by forging high carbon steel, grinding its cutting edge & then this cutting edge is hardened and tempered.

**198. State the use of Trying plane:**

- (a) Used for producing a rough Surface  
(b) Used for producing a true and Curved Surface  
(c) Used for producing a true and straight surface  
(d) None of the above

**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (c) Trying plane–**

- It is also known as joints plane.
- It is type of hand plane used in wood working to straighten the edges of boards and to flatten the faces of larger boards.

**199. State the use of Rebate planes:**

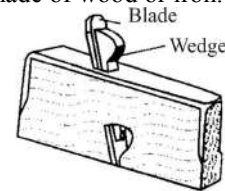
- (a) Used for planning and smoothing rebates  
(b) Used for Planning of Grooves  
(c) Used for Rough Planning  
(d) None of the above

**NLC Technician 24-09.2022**

**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (a) Rebates Planes–**

- It is a hand plane used for planning and smoothing rebates.
- Rebates are made by joining two planks together.
- Its blade is open on both the saw sides of the block, so that the wooden peel can come out on both sides. Its block is made of wood or iron.



**Rebates planes**

**200. State the use of paring chisel:**

- (a) It is most suitable for all paring work such as finishing off joints  
(b) Used for Rough Work  
(c) It is Used for Heavy work  
(d) Both (b) & (c)

**DRDO Machinist.2016**

**ISRO Technician-B Carpenter 27-11-2016**



**Ans: (a) Paring chisel**– It is used for delicately shaving thin silvers of wood. It is most suitable for all paring work such as finishing off joints. They have a long flat thin blade, which provides excellent control for fine work.

**201. Bevel edge firmer chisel is used for:**

- (a) Cleaning up corners & joints
- (b) Heavy work such as mortising
- (c) General chiseling
- (d) All of the above

**ISRO Technician-B Carpenter 27-11-2016**

**Ans : (a)** Bevel edge firmer chisel is used for cleaning up corner and joints.

**202. .... is checked by try square.**

- (a) Round surface
- (b) Groove surface
- (c) Flat surface
- (d) Irregular surface

**BRO Vehicle Mechanic 2021**

**VIZAAG Steel Fitter, 2015**

**Ans : (c) Try square–**

- It is made of hard quality wood such as teak or mahogany etc.
- It consist of two parts–
  - (i) Stock
  - (ii) Blade
- Stock and blade are joined together.
- Used for–
  - (i) Checking flat surface
  - (ii) Draw horizontal & vertical lines.
- It is not used to draw inclined lines.

**203. Plumb bob is made of which metal?**

- (a) Aluminium
- (b) Cast iron
- (c) Brass
- (d) Stainless steel

**(Coal India Fitter, 2013)**

**Ans : (c) Plumb bob**– It is in the shape of bob made of brass its lower part is sharp. This string is usually threaded into a wooden bar. The length of the strip is equal to maximum diameter of the bob.



**Plumb bob**

**204. Which chisel is used for making rectangular slot?**

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

**NALCO Jr. Operative Trainee 2021**

**(IOF Fitter, 2016)**

**Ans : (d) Cross cut chisel–**

- It is also known as cape chisel.
- It is used for cutting keyway and grooves.
- It is available in length of 100 to 400 mm.
- Width of its cutting edge is 4 to 12 mm.

**205. Cutting angle of flat chisel is grind at .... for chipping of cast iron.**

- (a)  $45^{\circ}$
- (b)  $60^{\circ}$
- (c)  $50^{\circ}$
- (d)  $70^{\circ}$

**(Coal India Fitter, 2013)**

**Ans. (b) :**

Material	Cutting angle
High carbon steel	$65^{\circ}$
Cast iron	$60^{\circ}$
Mild steel	$55^{\circ}$
Brass	$50^{\circ}$
Copper	$45^{\circ}$
Aluminium	$30^{\circ}$

**206. Edge of flat chisel is grinded in convex because:**

- (a) Edges will sharpened by it
- (b) Chisel will not jump & also cut will be proper during cutting by it
- (c) Edge will not twist by it
- (d) Grinding of chisel will be easier by it

**(IOF Fitter, 2014)**

**Ans : (b)** Edges of flat chisel is grinded in convex because chisel will not jump & also cut will be proper.

**207. Inclination of chisel during chipping of mild steel–**

- (a)  $37^{\circ}$
- (b)  $32^{\circ}$
- (c)  $35^{\circ}$
- (d)  $34.5^{\circ}$

**(IOF Fitter, 2016)**

**Ans : (d)** During chipping of mild steel–

Inclination angle =  $34.5^{\circ}$

Point angle =  $55^{\circ}$

**208. Chisel used for cutting keyway–**

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

**(Coal India Fitter, 2013)**

**Ans. (c) :**

Chisel	Use
Flat chisel	To remove metal from large flat surfaces & chip-off excess metal of welded joints and castings
Cross cut or cape chisel	For cutting flutes, curved grooves (oil grooves)
Diamond point chisel	For squaring materials at corners, joints
Web chisel/punching chisels	For separating metals after chain drilling

**209. Template is made of which of the following?**

- (a) Sheet
- (b) paper
- (c) Cardboard
- (d) Rubber

**UPSSSC Tracer (Technical) 2015**

**Ans : (b) Template**– If a product has to be made in large number then first a sample is prepared after that by copying it other products like that are prepared. The product which is prepared as this sample is called as template.

- It is mainly made of sheet, cardboard & rubber.

**210. Cross cut chisel is forged at which angle?**

- (a)  $30^{\circ}$  (b)  $45^{\circ}$   
(c)  $60^{\circ}$  (d)  $90^{\circ}$

**HAL Apprentice 10.11.2022**  
**Sail Durgapur Steel Plant. 5.9.2014**

**Ans : (a) Cross-cut chisel–**

- Width of its cutting edge is less than its thickness.
- It is used for cutting flutes, key ways & grooves.
- It is forged at an angle of  $30^{\circ}$ .

**211. Which scrapper is used for cleaning keyway?**

- (a) Hook scrapper  
(b) Half round scrapper  
(c) Flat scrapper  
(d) Triangular scrapper

**DRDO Fitter.2016**

**Ans : (a) Hook Scrapper–**

- It's shape is like a flat scrapper but its point is bent at an angle of  $90^{\circ}$ . Therefore where a flat scrapper can not be used it is used.
- Apart from this, this is used for scraping the central part of large flat surfaces (like key ways, hole etc.)
- It is often used for finishing work.

**212. How much metal is removed by scrapping ?**

- (a) 0.05 to 0.07 mm (b) 0.1 to 0.4 mm  
(c) 0.5 to 0.8 mm (d) None of the above

**DRDO Fitter.2016**

**Ans : (a) Scrapper–**

- It is used to remove the high spots of a job after machining.
- It is made of high grade tool steel or special alloy steel & tungsten carbide tipped tools.
- It scratches metal up to 0.05 to 0.07 mm from surface.
- According to B.I.S. its allowance is 0.01 to 0.4 mm.

**213. Which tool is used for removing high spots of surface?**

- (a) Chisel (b) File  
(c) Scrapper (d) Grinder

**Sail Durgapur Steel Plant. 5.9.2014**

**Ans : (c) Scrapper–**

- It is used to remove the high spots of a job after machining.
- It is made of high grade tool steel or special alloy steel & tungsten carbide tipped tools.
- According to B.I.S. its allowance is 0.01 to 0.4 mm.

**214. Scrapper is made of which metal?**

- (a) Cast iron (b) Mild steel  
(c) Carbon steel (d) None of the above

**(HAL Fitter, 2015)**

**Ans : (c) Scrapper–**

- It is made of tool steel or carbon steel.
- It is used to remove high spots of a job after machining.

**215. Which scrapper is used for scrapping of large bearing?**

- (a) Flat (b) Half round  
(c) Triangular (d) Two hand scrapper

**NALCO Operator Boiler 2021**

**UPSSSC Tracer (Technical) 2015**

**Ans : (d) Two Handle Scrapper–**

- It is used for scrapping of large surfaces & bearing boxes.
- It provides better & faster scrapping as compare to triangular and half round scrapper.

**216. Cutting edge of flat chisel is grinded at which angle for cutting steel?**

- (a)  $35^{\circ}$  (b)  $45^{\circ}$   
(c)  $60^{\circ}$  (d)  $70^{\circ}$

**Sail Durgapur Steel Plant. 5.9.2014**

**Ans : (d)** For cutting steel with flat chisel cutting edge is grind at  $70^{\circ}$  angle. For cutting steel with diamond chisel cutting edge is grind at  $60^{\circ}$  angle.

**217. What is forged angle of hot chisel?**

- (a)  $30^{\circ}$  (b)  $45^{\circ}$   
(c)  $60^{\circ}$  (d)  $90^{\circ}$

**BPCL Operator (Field) 2016**  
**(Coal India Fitter, 2013)**

**Ans : (a) Hot Chisel–**

- It is used to cut metal that has been heated in a forge to soften the metal.
- These chisels are not hardened & tempered.
- Forged angle of hot chisel is  $30^{\circ}$ .

**218. Which type of tool is chisel?**

- (a) Cutting tool (b) Holding tool  
(c) Marking tool (d) Measuring tool

**UPSSSC Tracer (Technical) 2015**

**Ans : (a) Chisel–**

- It is used for cutting thin sheets in two or more parts.
- It is made of high carbon steel which is hardened & tempered.
- Head, body as same & cutting edge are main parts of chisel.

**219. Which tool is used for chipping?**

- (a) Plier (b) Drill  
(c) Hammer (d) Chisel

**Sail Durgapur Steel Plant. 5.9.2014**

**Ans : (d) Chipping–**

- The removal of weld spatter, rust or old point from iron work is called chipping.
- Chisel is used for chipping process.
- Cutting angle of chisel for general purpose is  $60^{\circ}$ .

**220. Why some convexity is provided in cutting edge of flat chisel :**

- (a) For providing convenience for chipping  
(b) For safety of cutting edge  
(c) For saving material from getting stuck into cutting edge  
(d) All above

**Sail Durgapur Steel Plant. 5.9.2014**

**Ans : (c) Flat Chisel–**

- It is used to remove metal from large flat surfaces & chip off excess metal of welded joints and castings.
- Some convexity is provided in cutting edge.
- For saving material from getting stuck into cutting edge.