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with Tips to crack
CDS Exam in the
first attempt

5

**Examination
Analysis**

with Last 5 Years'
Chapter-wise Trend
Analysis

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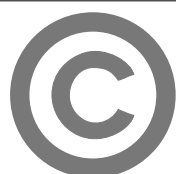
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**SYLLABUS
COVERED**

CDS (Combined Defence Services)



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PREFACE

Welcome to the world of Combined Defence Services (CDS) entrance examination. The CDS exam is one of the most sought-after competitive exams in India, as it paves the way for candidates to join the prestigious Indian Army, Navy, and Air Force as officers.

This book, “CDS Chapter-wise & Topic-wise Solved Papers - General Knowledge,” aims to facilitate your exam preparation by providing you with a wide range of solved papers from previous years, giving you a clear understanding of the exam’s complexity and scope. Each Chapter is accompanied by Concept Revision Notes & detailed explanations to help you grasp the concepts and techniques required to solve the questions effectively.

Some benefits of studying from Oswaal CDS Solved papers are:

1. **100% updated** with Fully Solved April & September 2023 Papers.
2. **Concept Clarity** with detailed explanations of 2014 to 2023 Papers
3. **Extensive Practice** with 1200+ Questions and Two Sample Question Papers.
4. **Crisp Revision** with Concept Based Revision Notes, Mind Maps & Mnemonics.
5. **Expert Tips** helps you get expert knowledge master & crack CDS in first attempt.
6. **Exam insights** with 5 Year-wise (2019-2023) Trend Analysis, empowering students to be 100% exam ready.

This book has been developed with the highest editorial standards, keeping in mind the rigor and meticulousness required of an exam resource catering to CDS. The features of the book make it a must-have for anyone preparing for CDS 2024. We hope it will help students to supplement their CDS preparation strategy and secure a high rank.

We wish the readers great success ahead!

All the Best!

Tips to Crack Combined Defence Services (CDS) in the First Attempt

The CDS Exam is conducted by the Union Public Service Commission or UPSC for recruitment of commissioned officers in the Indian Military Academy, Officers Training Academy, Indian Naval Academy & Indian Airforce Academy. CDS is recognised as one of the reputed National level Examinations in India. Cracking the CDS Exam in the very first attempt, given the difficulty level, can be a laborious task but is quite attainable if done diligently as well as smartly. Here are some tips that you must follow by heart to crack the exam in the very first attempt:

1 Think Right

Calming yourself and thinking positive is the first and the best course of action that one is required to take. Think and believe that the exam goal is achievable if worked upon smartly.

2

Start studying from the beginning

All the aspirants are aware of how vast, comprehensive and detailed the syllabus of the CDS exam is. To crack the exam in the first attempt you have to start preparing for the exam from the beginning of your 10th class. It is only then that you will be able to complete the entire syllabus. Following this approach will also allow you plenty of time to revise.

3

Respect the syllabus and arrange the materials accordingly

While preparing for the CDS exam nothing can be labelled as less important. Questions can come from the most unexpected topics too. Laying down your whole syllabus in front of you will help you to decide on the study material you require.

4

Get the right tools and study material

Gathering and preparing from the appropriate study material is something you cannot be ignorant towards. You can refer to Oswaal Books CDS Year-wise 12 Solved Papers along with Question Banks to enhance your preparation. Both the reference books are on the lines of the current syllabus and can be entrusted upon before the examination.

5

Schedule total time for each subject

Creating a schedule which gives due time to all the subjects is a must. Giving proper time to all the subjects daily will help you cover the syllabus on time, giving you enough time for revision.

6

Understand the concepts

No one can crack the CDS exam just by mugging up all the concepts and topics. The syllabus of the exam is in-depth such that you need to understand every concept.

7

Practice a lot of Sample Papers

Year-wise Question Bank will not only help you in understanding the examination pattern, but they will also help you in figuring out the questions that come up every year and this might give you an edge over other students. You can refer to Oswaal CDS 12 Solved Papers, as they include all the typologies of Questions asked in the Examination, Previous Years Papers with solutions, Mind Maps, etc. Referring to various sample papers might also help you in comprehending the areas which require more work.

8

Revise whenever you get time

Make sure you revise as much as possible. The revision will help you in keeping the concepts fresh in your mind.

9

Analysing your performance

While you are solving papers, make sure you keep a track of time i.e. how much time does it take to solve one section or one question? Make a report of the sections and type of questions which take minimum and maximum time.



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Latest Syllabus

This paper has been divided into 12 sections to understand the complications of the General Knowledge syllabus.

Economics	Physics	Current Affairs
Chemistry	Sociology	Modern & Medieval History
Geography	Environment and Biodiversity	Polity and Governance
Biology	Miscellaneous	Defence-related

CDS General Knowledge – General Information

- The total marks of this paper are **100 marks** consisting of **120 questions**.
- Candidates will get **2 hours** to complete this paper.
- Each question carries **0.83 marks**.
- For each wrong answer, there will a deduction of **-0.27 marks**.
- Questions will be asked in both **English and Hindi**.

CDS General Knowledge: Expected Number of Questions & Difficulty Level

Topics	Number of Questions	Difficulty Level
History	23 - 18	Moderate
Geography	15 - 17	Moderate to Difficult
Polity	13 - 17	Moderate
Economy	12 - 14	Moderate
Current Affairs	20 - 23	Easy to Moderate
Physics	8 - 10	Moderate to Difficult
Chemistry	8 - 10	Moderate
Biology	9 - 10	Moderate
Defence News	9 - 11	Moderate
Static GK	15 - 17	Easy to Moderate

□□□

NDA vs CDS: Know All the Similarities & Differences

The National Defence Academy (NDA) and the Combined Defence Services (CDS) Exams are gateways to tri-services of the Indian Armed Forces. Though both the exams are conducted by the Union Public Service Commission, i.e. UPSC, there are many similarities and differences in the recruitment, training, salary, perks and promotion opportunities, etc.

For those who are planning to join Indian Army, Navy or Air Force, it is essential to know the differences and similarities in NDA and CDS. The similarities are given below:

Parameter	NDA	CDS
Age	16.5-19.5 Years	19-25 Years
Eligibility	Men only	Men & Women
Educational Qualification	10+2	Degree
Scheme of Examination	Written + SSB	Written + SSB
Frequency of the Exam	Twice/Year	Twice/Year
Duration of Training	4-4.5 Years 3 Yrs. at NDA and 1 Yr. at IMA (For Army cadets) 3 Yrs. at NDA and 1 Yr. at Naval Academy (For Naval cadets)/ 3 Yrs. at NDA and 1 & 1/2 Yrs. at AFA Hyderabad (For AF cadets)	18 months for IMA Cadets 37-40 months for Navy Officers 74 months for Air Force Officers
Training Centres	National Defence Academy, Khadakwasla, Pune Indian Military Academy, Dehradun Indian Naval Academy, Ezhimala Indian Air Force Academy, Hyderabad	Indian Military Academy (IMA), Dehradun for Army Cadets Indian Naval Academy, Ezhimala for Navy Cadets Indian Air Force Academy, Hyderabad for Air Force Officers Officers Training Academy (OTA), Chennai
Degrees awarded	Army Cadets - B.Sc./B.Sc. (Computer)/BA /B.Tech. degree Naval Cadets - B.Tech. degree Air Force Cadets - B.Tech. degree	Army Cadets in IMA - PG Diploma in 'Military and Defence Management OTA Chennai – Post Graduate Diploma in Defence Management and Strategic Studies
Rank assigned after training	Lieutenant	Lieutenant
Stipend during training	Rs. 21,000/- p.m. (fixed)	Rs. 21,000/- p.m. (fixed)

Promotional Avenues

Rank	Min. Commissioned Service for Promotion	
	NDA Officer	CDS Officer
Lieutenant	On Commission	On Commission
Captain	02 Years	02 Years
Major	06 years	06 years
Lieutenant Colonel	13 years	13 years
Colonel(Selection)	15 years	15 years
Colonel (Time Scale)	26 years	26 years
Brigadier	On Selection	23 years
Major General	On Selection	25 years
Lieutenant General	On Selection	28 years
General	On Selection	No restrictions

□□□

APPENDIX-I

A. SCHEME OF EXAMINATION

1. The Competitive examination comprises:
 - (a) Written examination as shown in para 2 below.
 - (b) Interview for intelligence and personality test (vide Part 'B' of this Appendix) of such candidates as may be called for interview at one of the Services Selection Centres.
2. The subjects of the written examination, the time allowed and the maximum marks allotted to each subject will be as follows:
 - (a) For Admission to Indian Military Academy, Indian Naval Academy and Air Force Academy:—

Subject	Duration	Maximum Marks
1. English	2 Hours	100
2. General Knowledge	2 Hours	100
3. Elementary Mathematics	2 Hours	100

- (b) For Admission to Officers' Training Academy :—

Subject	Duration	Maximum Marks
1. English	2 Hours	100
2. General Knowledge	2 Hours	100

The maximum marks allotted to the written examination and to the interviews will be equal for each course i.e. the maximum marks allotted to the written examination and to the interviews will be 300, 300, 300 and 200 each for admission to the Indian Military Academy, Indian Naval Academy, Air Force Academy and Officers' Training Academy respectively.

3. The papers in all the subjects will consist of objective type questions only. The question papers (Test Booklets) of General Knowledge and Elementary Mathematics will be set bilingually in Hindi as well as English.
4. In the question papers, wherever necessary, questions involving the metric system of Weights and Measures only will be set.
5. Candidates must write the papers in their own hand. In no circumstances will they be allowed the help of a scribe to write answers for them.
6. The Commission have discretion to fix qualifying marks in any or all the subjects of the examination.
7. The candidates are not permitted to use calculator for answering objective type papers (Test Booklets). They should not therefore, bring the same inside the Examination Hall.

Height requirement varies as per the stream of entry. Weight should be proportionate to height as per the chart given below:-

Age (yrs)	Minimum weight for all ages	Age: 17 to 20 yrs	Age: 20 + 01 day - 30 yrs	Age : 30 + 01 Day - 40 yrs	Age: Above 40 yrs
Height (cm)	Weight (Kg)	Weight (Kg)	Weight (Kg)	Weight (Kg)	Weight (Kg)
140	35.3	43.1	45.1	47.0	49.0
141	35.8	43.7	45.7	47.7	49.7
142	36.3	44.4	46.4	48.4	50.4
143	36.8	45.0	47.0	49.1	51.1
144	37.3	45.6	47.7	49.8	51.8
145	37.8	46.3	48.4	50.5	52.6
146	38.4	46.9	49.0	51.2	53.3
147	38.9	47.5	49.7	51.9	54.0
148	39.4	48.2	50.4	52.6	54.8
149	40.0	48.8	51.1	53.3	55.5
150	40.5	49.5	51.8	54.0	56.3
151	41.0	50.2	52.4	54.7	57.0
152	41.6	50.8	53.1	55.4	57.8
153	42.1	51.5	53.8	56.2	58.5
154	42.7	52.2	54.5	56.9	59.3
155	43.2	52.9	55.3	57.7	60.1
156	43.8	53.5	56.0	58.4	60.8
157	44.4	54.2	56.7	59.2	61.6
158	44.9	54.9	57.4	59.9	62.4
159	45.5	55.6	58.1	60.7	63.2
160	46.1	56.3	58.9	61.4	64.0
161	46.7	57.0	59.6	62.2	64.8
162	47.2	57.7	60.4	63.0	65.6
163	47.8	58.5	61.1	63.8	66.4
164	48.4	59.2	61.9	64.6	67.2
165	49.0	59.9	62.6	65.3	68.1
166	49.6	60.6	63.4	66.1	68.9
167	50.2	61.4	64.1	66.9	69.7
168	50.8	62.1	64.9	67.7	70.6
169	51.4	62.8	65.7	68.5	71.4
170	52.0	63.6	66.5	69.4	72.3
171	52.6	64.3	67.3	70.2	73.1
172	53.3	65.1	68.0	71.0	74.0
173	53.9	65.8	68.8	71.8	74.8
174	54.5	66.6	69.6	72.7	75.7
175	55.1	67.4	70.4	73.5	76.6
176	55.8	68.1	71.2	74.3	77.4
177	56.4	68.9	72.1	75.2	78.3
178	57.0	69.7	72.9	76.0	79.2
179	57.7	70.5	73.7	76.9	80.1

Contd.....

Age (yrs)	Minimum weight for all ages	Age: 17 to 20 yrs	Age: 20 + 01 day - 30 yrs	Age : 30 + 01 Day - 40 yrs	Age: Above 40 yrs
Height (cm)	Weight (Kg)	Weight (Kg)	Weight (Kg)	Weight (Kg)	Weight (Kg)
180	58.3	71.3	74.5	77.8	81.0
181	59.0	72.1	75.4	78.6	81.9
182	59.6	72.9	76.2	79.5	82.8
183	60.3	73.7	77.0	80.4	83.7
184	60.9	74.5	77.9	81.3	84.6
185	61.6	75.3	78.7	82.1	85.6
186	62.3	76.1	79.6	83.0	86.5
187	62.9	76.9	80.4	83.9	87.4
188	63.6	77.8	81.3	84.8	88.4
189	64.3	78.6	82.2	85.7	89.3
190	65.0	79.4	83.0	86.6	90.3
191	65.7	80.3	83.9	87.6	91.2
192	66.4	81.1	84.8	88.5	92.2
193	67.0	81.9	85.7	89.4	93.1
194	67.7	82.8	86.6	90.3	94.1
195	68.4	83.7	87.5	91.3	95.1
196	69.1	84.5	88.4	92.2	96.0
197	69.9	85.4	89.3	93.1	97.0
198	70.6	86.2	90.2	94.1	98.0
199	71.3	87.1	91.1	95.0	99.0
200	72.0	88.0	92.0	96.0	100.0
201	72.7	88.9	92.9	97.0	101.0
202	73.4	89.8	93.8	97.9	102.0
203	74.2	90.7	94.8	98.9	103.0
204	74.9	91.6	95.7	99.9	104.0
205	75.6	92.5	96.7	100.9	105.1
206	76.4	93.4	97.6	101.8	106.1
207	77.1	94.3	98.6	102.8	107.1
208	77.9	95.2	99.5	103.8	108.2
209	78.6	96.1	100.5	104.8	109.2
210	79.4	97.0	101.4	105.8	110.3

(a) Weight for height charts given above is for all categories of personnel. This chart is prepared based on the BMI. The chart specifies the minimum acceptable weight that candidates of a particular height must have. Weights below the minimum specified will not be acceptable in any case. The maximum acceptable weight of height has been specified in age wise categories. Weights higher than the acceptable limit will be acceptable only in the case of candidates with documented evidence of body building, wrestling, and boxing at the National level. In such cases the following criteria will have to be met.

(i) Body Mass Index should be below 25.

(ii) Waist Circumference should be less than 90 cm for males and 80 cm for females.

(iii) All biochemical metabolic parameters should be within normal limits. Note: The height and weight for candidates below 17 yrs will be followed as per guidelines by 'Indian Academy of Paediatrics growth charts for height, weight and BMI for 05 yrs to 16 yrs old children'.

(b) The minimum height required for male candidates for entry into the Armed Forces is 157 cm or as decided by the respective recruiting agency. Gorkhas and candidates belonging to Hills of North Eastern region of India, Garhwal and Kumaon, will be accepted with a minimum height of 152 cm.

- (c) The minimum height required for female candidates for entry into the Armed Forces is 152 cm. Gorkhas and candidates belonging to Hills of North Eastern region of India, Garhwal and Kumaon will be accepted with a minimum height of 148 cm. Note: An allowance for growth of 02 cm will be made for both male and female candidates below 18 years of age at the time of examination. The minimum height requirement for the Flying Branch is 163 cm. Anthropometric standards like sitting height, leg length and thigh length are also required by the flying Branch.
8. Following investigations will be carried out for all officer entries and for pre-commission training academies. However examining medical officer/ medical board may ask for any other investigation deemed fit.
- Complete haemogram
 - Urine RE
 - Chest X-ray
 - USG abdomen and Pelvis.
9. Certain standards vary depending on age and type entry viz stds for vision as follows:-

Parameter	Standards : 10+2 entries, NDA(Army), TES and equivalent	Graduate & equivalent entries: CDSE, IMA, OTA, UES, NCC, TGC & equivalent	Post graduate & equivalent entries: JAG, AEC, APS, RVC, TA, AMC, ADC, SL & equivalent
Uncorrected vision (max allowed)	6/36 & 6/36	6/60 & 6/60	3/60 & 3/60
BCVA	Rt 6/6 & Lt 6/6	Rt 6/6 & Lt 6/6	Rt 6/6 & Lt 6/6
Myopia	< -2.5 D Sph (including max astigmatism \leq +/- 2.0 D Cyl)	< -3.50 D Sph (including max astigmatism \leq +/- 2.0 D Cyl)	< -5.50 D Sph (including max astigmatism \leq +/- 2.0 D Cyl)
Hypermetropia	< +2.5 D Sph, (including max astigmatism \leq +/- 2.0 D Cyl)	< +3.50 D Sph (including max astigmatism \leq +/- 2.0 D Cyl)	< +3.50 D Sph (including max astigmatism \leq +/- 2.0 D Cyl)
Lasik/equivalent surgery	Not permitted	Permitted*	Permitted*
Colour perception	CP-II	CP-II	CP-II

***LASIK or Equivalent kerato-refractive procedure**

- Any candidate who has undergone any kerato-refractive procedure will have a certificate from the centre where he/she has undergone the procedure, specifying the date and type of surgery.
- In order to be made FIT, the following criteria will have to be met:
 - Age more than 20 yrs at the time of surgery
 - Minimum 12 months post LASIK
 - Central corneal thickness equal to or more than 450 μ
 - Axial length by IOL Master equal to or less than 26 mm
 - Residual refraction of less than or equal to +/- 1.0 D incl cylinder, (provided acceptable in the category applied for).
 - Normal healthy retina.
 - Corneal topography and ectasia markers can also be included as addl criteria.

Trend Analysis 2019 to 2023

Subjects	2023	2022		2021		2020		2019	
	I	I	II	I	II	I	II	I	II
Chemistry	11	9	9	11	11	13	9	13	13
Physics	10	11	10	11	10	10	11	5	8
Biology	8	13	9	9	9	11	10	9	10
Polity	10	17	11	15	16	14	16	30	21
Geography	13	10	16	14	16	11	11	14	14
Modern History	10	11	4	16	9	9	14	11	9
Medieval History	6	9	9	5	9	6	4	2	7
Current Affairs	22	13	23	17	21	18	27	20	18
Static GK	16	17	17	12	13	18	14	6	16
Economic	14	10	10	10	6	10	4	10	4
Total	120	120	120	120	120	120	120	120	120

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GUWAHATI	ASSAM Book Emporium, 9675972993, 6000763186, Ashok Publication, 7896141127, Kayaan Enterprises, (0361) 2630443, Orchid Book house, 9864624209, Newco, 9864178188	SAGAR	Princi Book Depot, Sagar, 9977277011
PATNA	BIHAR Nova Publisher & Distributors, (0612) 2666404, Shri Durga Pustak Mandir, 9334477386, Sharda Pustak Bhandar, 9334259293, Vikas Book Depot, 9504780402, Alka Book Agency, 9835655005, Metro Book(E&C), Ishu Pustak Bhandar, 8294576789, Gyan Ganga Limited, 6203900312, Ishu Pustak Bhandar, (E & C), 9334186300/8294576789	KATNI	Shri Mahavir Agency, 9425363412
MUZAFFARPUR	CHATTISGARH Pustak Bhandar, 7870834225	UJJAIN	Shreenath Book Depot, 9827544045
AMBIKAPUR	Saini Brothers, 9425582561, M.P Department Stores, 9425254264	BHOPAL	Gupta Brother, 9644482444
BOKARO	Bokaro Student Friends Pvt. Ltd, Bokaro, 7277931285		MAHARASHTRA
BHILAI	Anil Book Depot, 9425234260	PUNE	Natraj Book Depot, (020) 24485054, 9890054092, Vikas Book House, 9921331187, Pravin Sales, 9890683475, New Saraswati Granth Bhandar, 9422323859, Akshar Books & Stationary, 7385089789, Vardhaman Educational, 9860574354, Yash Book Centre, 9890156763, Pragati Book Centre, (ISC), 9850039311, Praveen Sales, Pragati Book Centre, Pune (E & C), 9850039311
DURG	Bhagwati Bhawani Book Depot, 0788-2327620, 9827473100	AURANGABAD	Shree Sainath Agencies, 7350294089, Maya Book Centre, (ISC), 9372360150
KORBA	Kitab Ghar, Korba (E & C), 9425226528	MUMBAI	Vidarthi Sales Agencies, 9819776110, New Student Agencies, 7045065799, Shivam Books & Stationery, 8619805332
RAIPUR	Shri Ramdev Traders, 9981761797, Gupta Pustak Mandir, 7974220323, Anil Publication, 9691618258/7999078802	JALGAON	Sharma Book Depot & Stat. (ISC), 9421393040
RAIGARH	Sindhu Book Deopt, 9981935763	LATUR	Yash Book House, 9637936999, Shri Ganesh Pustakalay, 9730172188
DELHI	DELHI Mittal Books, (011) 23288887, 9899037390, Singhania Book & Stationer, 9212028238, AoneBooks, New Delhi, 8800497047, Radhey Book Depot, 9818314141, Batheja Super Store, 9871833924, Lov Dev & Sons, Delhi (E & C), 9811182352, Zombozone, 9871274082, LDS Marketing, 9811182352/9999353491	KOLHAPUR	Granth the Book World, 9922295522
AHMEDABAD	GUJARAT Patel Book, 9898184248, 9824386112, 9825900335, Zaveri Agency, 9979897312, 9979890330, Hardik Book Agency, (ISC) 079-24110043, 9904659821	NAGPUR	Laxmi Pustakalay and Stationers, (0712) 2727354, Vijay Book Depot, 9860122094
BHAVNAGAR	Samir Book Stall, Bhavnagar (ISC) 9586305305		Renuka Book distributor, 9765406133, Novelty Book Depot, 9657690220, Karamveer Book Depot, 9923966466, Arun Book & Stationers, 9423110953
DAHOD	Collegian Book Corner, 9925501981	NANDED	Abhang Pustakalaya, 9823470756/9175940756
VAPI	Goutam Book Sellers, 9081790813	NASHIK	Rahul Book Centre, 9970849681, New India Book House, 9623123458
VALSAD	Mahavir Stationers, 9429474177	DHULE	Navjeevan Book Stall, 7020525561
NAVSAARI	College Store, (ISC) NO CALL 02637-258642, 9825099121	YAVATMAL	Shri Ganesh Pustkalaya, 9423131275
SURAT	Shopping Point, 9824108663	VASAI	Prime Book Centre, Vasai, 9890293662
VADODARA	Umakant Book Sellers & Stationer, 9624920709		ODISHA
ROHTAK	HARYANA Manish Traders, 9812556687, Swami Kitab Ghar, 9355611088, Babu Ram Pradeep Kumar, 9813214692	CUTTACK	A. K. Mishra Agencies, 9437025991, 9437081319
REWARI	Sanjay book depot, 9255447231	BHUBANESHWAR	M/s Pragnya, 8847888616, 9437943777, Padmalaya, 9437026922, Bidyashree, 9937017070, Books Godown, 7894281110
BALLABGARH	Kashi Ram Kishan lal, 9289504004, 8920567245	BARIPADA	Trimurti Book World, 9437034735
HISAR	Natraj Book Distributors, 7988917452	KEONJHAR	Students corner, 7008435418
BHUNA	Khurana Book Store, 9896572520		PUNJAB
JAMMU	Sahitya Sangam, 9419190177	AMBALA	Bharat Book Depot, 7988455534
JHARKHAND	JHARKHAND Bokaro Student Friends, (0654) 2233094, 7360021503, Bharati Bhawan Agencies, 9431740797	PATIALA	Goel Sons, 9463619978, Adarsh Enterprises, 9814347613
BOKARO	Crown Book Distributor & Publishers, (0651) 2213735, 9431173904, Pustak Mandir, 9431115138,	JALANDHAR	Cheap Book Store, 9872223458, 9878258592, City Book Shop, 9417440753, Subhash Book Depot, 9876453625, Paramvir Enterprises, 9878626248
RANCHI	Vidarthi Pustak Bhandar, 9431310228	FEROZPUR	Sita Ram book Depot, 9463039199, 7696141911
DUMKA		LUDHIANA	Amit Book, 9815807871, Gupta Brothers, 9888200206, Bhatia Book Centre, 9815277131
HUBLI	KARNATAKA Renuka Book Distributor, (0836) 2244124, Vidyamandir Book Distributors, 9980773976	CHANDIGARH	Mohindra Book Depot, 9814920226
BANGLORE	Krishna book house, 9739847334, Hema Book Stores, 9986767000,		RAJASTHAN
BELLERI	Sapna Book House Pvt. Ltd., 9980513242, Hema Book World, (Chamrajpet) (ISC) 080-40905110, 9945731121	AJMER	Laxmi General Store, Ajmer, 0145- 2428942 9460652197
ERNAKULAM	Chatinya book centre, 9886064731	KOTA	Vardhman Book Depot, 9571365020, 8003221190 Raj Traders, 9309232829
KOTTAYAM	KERALA Academic Book House, (0484) 2376613, H & C Store, 9864196344, Surya Book House, 9847124217, 9847238314	BHILWARA	Nakoda Book Depot, (01482) 243653, 9214983594, Alankar Book Depot, 9414707462
TRIVANDRUM	Academic Book House, (0471) 2333349, 9447063349, Ponni Book Stall, 9037591721	JAIPUR	Ravi Enterprises, 9829060694, Saraswati Book House, (0141) 2610823, 9829811155, Goyal Book Distt., 9460983939, 9414782130
CALICUT	Aman Book Stall, (0495) 2721282,	UDAIPUR	Sunil Book Store, 9828682260
CHHINDWARA	MADHYA PRADESH Pustak Bhawan, (E & C), 8982150100	JODHPUR	Second Hand Book Stall, 9460004745
GWALIOR	Agarwal Book Depot, 9425116210		TRIPURA
		AGARTALA	Book Corner, 8794894165, 89846577146, Book Emporium, 9089230412
			TAMIL NADU
		COIMBATORE	Majestic Book House, (0422) 2384333, CBSC Book Shop, 9585979752
		CHENNAI	Arraba Book Traders, (044) 25387868, 9841459105, M.R. Book Store (044) 25364596, Kalaimagal Store, (044) 5544072, 9940619404, Vijaya Stores, 9381037417, Bookmark It-Books & Stat. Store, 7305151653, M.K. Store, 9840030099, Tiger Books Pvt. Ltd., 9710447000, New Mylai Stationers, 9841313062, Prince Book House, Chennai, 0444-2053926, 9952068491, S K Publishers & Distributors, 9789865544, Dharma Book Shop, 8667227171
		PUDUCHERRY	Sri Lakshmi Book Seller, 7871555145
		SALEM	Pattu book centre, 9894816280
		TRICHY	P.R.Sons Book Seller, 9443370597, Rasi Publication, 9894816280
		THENI	Maya Book Centre, 9443929274
		MADURAI	Selvi Book Shoppe, 9843057435, Jayam Book Centre, 9894658036
		VELLORE	G.K book centre and collections, 9894517994
			TELANGANA
		HYDERABAD	Sri Balaji Book Depot, (040) 27613300, 9866355473, Shah Book House, 9849564564
			Vishal Book Distributors, 9246333166, Himalaya Book World, 7032578527

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	UTTARAKHAND		GORAKHPUR	Central Book House, 9935454590, Friends & Co., 9450277154, Dinesh book depot, 9125818274, Friends & Co., 9450277154
DEHRADUN	Inder Book Agencies, 9634045280, Amar Book Depot , 8130491477, Goyal Book Store, 9897318047, New National Book House, 9897830283/9720590054		JHANSI	Bhanu Book Depot, 9415031340
MUSSORIE	Ram Saran Dass Chanda kiran, 0135-2632785, 9761344588		KANPUR	Radha News Agency, 8957247427, Raj Book Dist., 9235616506, H K Book Distributors, 9935146730, H K Book Distributors, 9506033137/9935146730
	UTTAR PRADESH		LUCKNOW	Vyapar Sadan, 7607102462, Om Book Depot, 7705871398, Azad Book Depot Pvt. Ltd., 7317000250, Book Sadan, 9839487327, Rama Book Depot(Retail), 7355078254, Ashirwad Book Depot, 9235501197, Book.com, 7458922755, Universal Books, 9450302161, Sheetla Book Agency, 9235832418, Vidyarthi Kendra Publisher & Distributor Pvt Ltd, (Gold), 9554967415, Tripathi Book House, 9415425943 Ideal Book Depot, (0121) 4059252, 9837066307
AGRA	Sparsh Book Agency, 9412257817, Om Pustak Mandir, (0562) 2464014, 9319117771, Sanjay Publication, 8126699922 Arti book centre, 8630128856, Panchsheel Books, 9412257962, Bhagwati Book Store, (E & C), 9149081912		MEERUT	
ALLAHABAD	Mehrotra Book Agency, (0532) 2266865, 9415636890		NOIDA	Prozo (Global Edu4 Share Pvt. Ltd), 9318395520, Goyal Books Overseas Pvt.Ltd., 1204655555 9873387003
AZAMGARH	Sasta Sahitya Bhandar, 9450029674		PRAYAGRAJ	Kanhaiya Pustak Bhawan, 9415317109
ALIGARH	K.B.C.L. Agarwal, 9897124960, Shaligram Agencies, 9412317800, New Vimal Books, 9997398868, T.J.C Book centre, 9808039570		MAWANA	Subhash Book Depot, 9760262264
BULANDSHAHAH	Rastogi Book Depot, 9837053462/9368978202			WEST BENGAL
BALRAMPUR	Universal Book Center, 8933826726		KOLKATA	Oriental Publishers & Distributor (033) 40628367, Katha 'O' Kahini, (033) 22196313, 22419071, Saha Book House, (033), 22193671, 9333416484, United Book House, 9831344622, Bijay Pustak Bhandar, 8961260603, Shawan Books Distributors, 8336820363, Krishna Book House, 9123083874
BAREILLY	Siksha Prakashan, 9837829284		RENUKOOT	Om Stationers, 7007326732
HARDOI	Mittal Pustak Kendra, 9838201466		COOCH BEHAR	S.B. Book Distributor, Cooch behar, 9002670771
DEORIA	Kanodia Book Depot, 9415277835		KHARAGPUR	Subhani Book Store, 9046891334
VARANASI	Gupta Books, 8707225564, Bookman & Company, 9935194495/7668899901		SILIGURI	Agarwal Book House, 9832038727, Modern Book Agency, 8145578772
MATHURA	Sapra Traders, 9410076716, Vijay Book House , 9897254292		DINAJPUR	Krishna Book House, 7031748945
FARRUKHABAD	Anurag Book Agencies, 8844007575		MURSHIDABAD	New Book House, 8944876176
NAJIBABAD	Gupta News Agency, 8868932500, Gupta News Agency, (E & C), 8868932500			
DHAMPUR	Ramkumar Mahaveer Prasad, 9411942550			

Entrance & Competition Distributors

	BIHAR		CUTTAK	A.K.Mishra Agencies, 9437025991
PATNA	Metro Books Corner, 9431647013, Alka Book Agency, 9835655005, Vikas Book Depot, 9504780402		BHUBANESHWAR	M/s Pragnya, 9437943777
	CHATTISGARH		PUNJAB	
KORBA	Kitab Ghar, 9425226528, Shri Ramdev Traders, 9981761797		JALANDHAR	Cheap Book Store, 9872223458, 9878258592
	DELHI		RAJASTHAN	
DELHI	Singhania Book & Stationer, 9212028238, Radhey Book depot, 9818314141, The Book Shop, 9310262701, Mittal Books, 9899037390, Lov Dev & Sons, 9999353491		KOTA	Vardhman Book Depot, 9571365020, Raj Traders, 9309232829
NEW DELHI	Anupam Sales, 9560504617, A ONE BOOKS, 8800497047		JAIPUR	Goyal Book Distributors, 9414782130
	HARYANA		UTTAR PRADESH	
AMBALA	Bharat Book Depot, 7988455354		AGRA	BHAGWATI BOOK STORE, 9149081912, Sparsh Book Agency, 9412257817, Sanjay Publication, 8126699922
	JHARKHAND		ALIGARH	New Vimal Books, 9997398868
BOKARO	Bokaro Student Friends Pvt. Ltd, 7360021503		ALLAHABAD	Mehrotra Book Agency, (532) 2266865, 9415636890
	MADHYA PRADESH		GORAKHPUR	Central Book House, 9935454590
INDORE	Bhaiya Industries, 9109120101		KANPUR	Raj Book Dist, 9235616506
CHHINDWARA	Pustak Bhawan, 9827255997		LUCKNOW	Azad Book Depot PVT LTD, 7317000250, Rama Book Depot(Retail), 7355078254 Ashirwad Book Depot , 9235501197, Book Sadan, 8318643277, Book.com , 7458922755, Sheetla Book Agency, 9235832418
	MAHARASHTRA		PRAYAGRAJ	Format Center, 9335115561, Garg Brothers Trading & Services Pvt. Ltd., 7388100499
NAGPUR	Laxmi Pustakalay and Stationers, (0712) 2727354		UTTAR PRADESH	
PUNE	Pragati Book Centre, 9850039311		DEHRADUN	Inder Book Agencies, 9634045280
MUMBAI	New Student Agencies LLP, 7045065799		WEST BENGAL	
	ODISHA		KOLKATA	Bijay Pustak Bhandar Pvt. Ltd., 8961260603, Saha Book House, 9674827254 United Book House, 9831344622, Techno World, 9830168159
BARIPADA	Trimurti Book World, 9437034735			

Time Allowed : 2 Hours

M M. : 100

Instructions

1. This Test Booklet contains **120** items (questions). Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
2. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See directions in the Answer Sheet.
3. All items carry equal marks.
4. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

1. A sprinter feels cramps and pain in the thigh muscles after a run. This is due to accumulation of
 - (a) lactic acid
 - (b) CO_2
 - (c) pyruvic acid
 - (d) ethanol
2. A leaf was plucked from a plant on a sunny day and kept for 2 minutes in boiling water. It was subsequently immersed in boiling alcohol and treated with iodine solution. What will be the final colour of the leaf after the test?
 - (a) Colourless
 - (b) Green
 - (c) Blue
 - (d) White
3. If the red blood cells (RBCs) of human blood are isolated and are diluted in normal saline (an isotonic solution to blood), what will happen to the RBCs?
 - (a) The RBCs will swell
 - (b) The RBCs will swell and burst
 - (c) The RBCs will shrink
 - (d) No change in the diameters of the RBCs
4. Which one of the following statements regarding bile secreted by liver is **not** correct?
 - (a) Bile contains enzymes for digestion of lipids.
 - (b) Bile facilitates emulsification of fats.
 - (c) Bile neutralizes the acidic pH of the food coming from stomach.
 - (d) Bile makes the pH of the food alkaline and facilitates action of pancreatic enzymes.
5. The blood pressure of a normal human being is found to be 120/80 mmHg. These 'numbers' represent the blood pressure at
 - (a) ventricular contraction and ventricular relaxation, respectively
 - (b) ventricular relaxation and ventricular contraction, respectively
 - (c) auricular contraction and auricular relaxation, respectively
 - (d) ventricular contraction and auricular contraction, respectively
6. A person burned a firecracker in front of a cliff and heard its echo 5 s after it burst. The distance of the cliff from the person, if the speed of the sound is 340 m/s, is close to
 - (a) 1700 m
 - (b) 170 m
 - (c) 85 m
 - (d) 850 m
7. Consider the following statements about the microphone and the speaker of a mobile phone :

- The microphone converts sound to a mechanical signal.
 - The microphone converts sound to an electrical signal.
 - The speaker converts a mechanical signal to sound.
 - The speaker converts an electrical signal to sound.
- Which of the statements given above are correct?
- (a) 1 and 3 (b) 1 and 4
(c) 2 and 3 (d) 2 and 4
- A 100 W electric bulb is used for 10 hours a day. How many units of electrical energy are consumed by the bulb in 3 days? (1 unit = 1 kWh)

(a) 3.00 (b) 1.08
(c) 2.16 (d) 0.33
 - The area under the velocity-time graph for a particle moving in a straight line with uniform acceleration gives

(a) its average velocity
(b) its net displacement
(c) the distance travelled by it
(d) its average speed
 - The power of a lens of focal length 10 cm is

(a) 0.1 dioptre (b) 1 dioptre
(c) 10 dioptre (d) 100 dioptre
 - Consider the following statements regarding burning of magnesium ribbon in air :
 - White powder of MgO is formed.
 - It is an example of combustion reaction.
 - Heat and light are produced.

Which of the statements given above are correct?

(a) 1 and 2 only (b) 1 and 3 only
(c) 2 and 3 only (d) 1, 2 and 3
 - Which of the following statements with regard to the reaction given below are correct?
 $\text{CaO(s)} + \text{H}_2\text{O(l)} \rightarrow \text{Ca(OH)}_2\text{(aq)} + \text{Heat}$
 - Quicklime is used for white-washing of walls.
 - The solution of slaked lime is used for whitewashing of walls.
 - CaO reacts slowly with CO_2 in air to form a thin layer of CaCO_3 on walls.
 - Calcium hydroxide called 'slaked lime' is an inorganic compound.

Select the correct answer using the code given below.

(a) 1 and 4 only (b) 2 and 4
(c) 2 and 3 (d) 1, 3 and 4
 - Which of the following statements with regard to heating of lead nitrate powder over a flame are correct?
 - Brown fumes of NO are released.
 - Colourless O_2 gas is released.
 - It is an example of oxidation reaction.
 - It is an example of thermal decomposition used for the production of NO_2 gas.

Select the correct answer using the code given below.

(a) 1 and 2 (b) 2, 3 and 4
(c) 1, 3 and 4 (d) 2 and 4 only
 - Which one of the following is *not* an oxidation reaction?

(a) Rusting of iron
(b) Opening of soda bottle
(c) Rancidity
(d) Combustion
 - Consider the following clues about a State of India :
 - It is known as land of red river and blue hills'.
 - It contains three of the six physiographic divisions of India.
 - It covers about 2.39 percent of total areas of the country.

Identify the State on the basis of the given clues.

(a) Karnataka (b) Andhra Pradesh
(c) Assam (d) Chhattisgarh
 - Which of the following sets of States shares boundary with Telangana?

(a) Odisha, Andhra Pradesh, Karnataka, Maharashtra

- (b) Chhattisgarh, Andhra Pradesh, Karnataka, Madhya Pradesh
- (c) Odisha, Andhra Pradesh, Karnataka, Madhya Pradesh
- (d) Chhattisgarh, Andhra Pradesh, Karnataka, Maharashtra
17. Rani told her friends that last year she did boating in four different lakes, namely, Loktak, Barapani, Kolleru and Pulicat. Which of the following States did she visit?
- (a) Manipur, Meghalaya, Kerala, Tamil Nadu
- (b) Manipur, Meghalaya, Andhra Pradesh, Tamil Nadu
- (c) Mizoram, Assam, Kerala, Tamil Nadu
- (d) Mizoram, Assam, Andhra Pradesh, Tamil Nadu
18. According to the Census 2011, which of the following statements is/are correct?
1. A person who can only read but cannot write, is not literate.
 2. A person aged seven years and above, who can both read and write with understanding in any language is treated as literate.
- Select the correct answer using the code given below.
- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2
19. The Tropic of Cancer passes through how many coastal and landlocked States of India, respectively?
- (a) 1 and 7 (b) 2 and 6
- (c) 2 and 5 (d) 3 and 5
20. Which one of the following situations can lead to inflation?
- (a) Rapid growth of aggregate demand outweighing supply
- (b) Sluggish growth of aggregate demand
- (c) Reduction in the money supply
- (d) Higher levels of unemployment
21. Which of the following policies help to raise interest rate unambiguously and thereby lead to appreciation of currency?
- (a) Expansionary fiscal and monetary policy
- (b) Contractionary fiscal and monetary policy
- (c) Contractionary fiscal policy and expansionary monetary policy
- (d) Contractionary monetary policy and expansionary fiscal policy
22. The contraction of private investment spending due to deficit spending by the Government is called
- (a) crowding out (b) crowding in
- (c) pump priming (d) dumping
23. Which among the following is/are the objective/objectives of the NITI Aayog?
1. Imposing policies on the States/UTs
 2. Allocation of funds at National and State levels
 3. Design strategies and long-term policies and programme frame-works
- Select the correct answer using the code given below.
- (a) 1 and 2 only (b) 2 and 3 only
- (c) 1, 2 and 3 (d) 3 only
24. The computation of poverty in terms of Monthly Per Capita Consumption Expenditure (MPCE) based on the Mixed Reference Period was recommended by the
- (a) Lakdawala Committee
- (b) Tendulkar Committee
- (c) Dandekar Committee
- (d) Alagh Committee
25. Which of the following is/are the sub-mission/sub-missions of the National Skill Development Mission (NSDM)?
1. Institutional training
 2. Overseas employment
 3. Leveraging of public infrastructure
- Select the correct answer using the code given below.
- (a) 1 only (b) 2 only
- (c) 1, 2 and 3 (d) 2 and 3 only

26. Which of the following strategies is/are adopted for implementing the POSHAN Abhiyaan?
1. Inter-sectoral convergence for better service delivery
 2. Use of technology (ICT) for real-time growth monitoring of women and children
- Select the correct answer using the code given below.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
27. Which of the following conditions is/are necessary for the issue of a writ of certiorari in India?
1. There should be a tribunal or an officer having legal authority to determine questions affecting rights of subjects and having a duty to act judicially.
 2. Such tribunal or officer has acted without jurisdiction.
- Select the correct answer using the code given below.
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
28. Who among the following Chief Justices of India ordered the constitution of a Special Bench called 'Social Justice Bench' ?
- (a) Justice H. L. Dattu
(b) Justice K. G. Balakrishnan
(c) Justice R. M. Lodha
(d) Justice Y. K. Sabharwal
29. Who among the following is the author of the book, Bandi Jivan ?
- (a) Rash Behari Bose
(b) Veer Savarkar
(c) Aruna Asaf Ali
(d) Sachindranath Sanyal
30. In the election held in 1937, in which two provinces was the Indian National Congress not able to emerge as the single largest party?
- (a) Punjab and Sind
(b) Assam and North-West Frontier Province
(c) Punjab and Assam
(d) Assam and Madras
31. Consider the following statements :
- After forming the Indian National Army, Subhas Chandra Bose
1. recruited a large number of soldiers from the Indian Prisoners of War in Japanese camp
 2. introduced a women's detachment named after the Rani of Jhansi
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
32. Which one of the following pairs denoting various forms of 'Bhakti' is *not* correctly matched?
- (a) Saguna : Belief in Gods with attributes
(b) Nirguna : Belief in Gods without attributes
(c) Alvars : Believed in devotion of Shakti
(d) Nayanars : Believed in devotion of Shiva
33. Which two rivers flow in the region between Gulbarga and Vijayanagara Hampi?
- (a) Narmada and Godavari
(b) Mahanadi and Godavari
(c) Kaveri and Periyar
(d) Krishna and Tungabhadra
34. Which of the following is the only paramilitary force with a dual control structure?
- (a) Central Reserve Police Force
(b) Assam Rifles
(c) Indo-Tibetan Border Police
(d) Central Industrial Security Force
35. Which one of the following is an ethnic community of Assam?
- (a) Bhil (b) Gond
(c) Ahom (d) Adi
36. The Chevrons is the name of the cricket team of which one of the following countries?
- (a) Australia (b) The Netherlands
(c) Ireland (d) Zimbabwe
37. Cheetahs, brought from Namibia, were introduced in India to which one of the following National Parks?

- (a) Kaziranga National Park
(b) Keoladeo Ghana National Park
(c) Keibul Lamjao National Park
(d) Kuno National Park
38. Who among the following is *not* a recipient of the Nobel Prize in Physics in 2022?
(a) Alain Aspect
(b) John F. Clauser
(c) Klaus Hasselmann
(d) Anton Zeilinger
39. Reflex arcs are evolved in animals for quick and efficient responses. Which one of the following sequences correctly represents a reflex arc?
(a) Receptor—Sensory neuron—Relay neuron in spinal cord—Brain—Motor neuron—Effector
(b) Receptor—Sensory neuron—Brain—Relay neuron in spinal cord—Motor neuron—Effector
(c) Receptor—Motor neuron—Relay neuron in spinal cord—Sensory neuron—Effector
(d) Receptor—Motor neuron—Brain—Sensory neuron—Effector
40. Which one of the following is essential for thyroid gland to make thyroxine?
(a) NaCl (b) KCl
(c) Cholesterol (d) Iodine
41. In plant cells, RNA is present in
(a) cytoplasm only
(b) nuclei and cytoplasm only
(c) nuclei, cytoplasm, mitochondria, chloroplast and endoplasmic reticulum
(d) nuclei, cytoplasm, mitochondria, chloroplast and ribosomes
42. In grasses, intercalary meristem is usually located at
(a) root tip
(b) lateral sides of stem
(c) base of leaves
(d) shoot tip
43. Xylem is a type of complex tissue in plants for upward conduction of water. Which one of the following xylem tissues consists of living cells?
(a) Tracheid
(b) Vessel
(c) Xylem parenchyma
(d) Xylem fibre
44. Three resistors of resistances $11\ \Omega$, $22\ \Omega$ and $33\ \Omega$ are connected in parallel. Their equivalent resistance is equal to
(a) $66\ \Omega$ (b) $22\ \Omega$
(c) $12\ \Omega$ (d) $6\ \Omega$
45. The r.m.s. potential difference between the red live wire and black neutral wire in Indian domestic electric supply is
(a) 160 V (b) 220 V
(c) 300 V (d) 410 V
46. The hydrogen bomb and the uranium bomb are based, respectively on
(a) nuclear fusion and fission
(b) fission and thermonuclear fusion
(c) geothermal fission and fusion
(d) geothermal fusion and fission
47. Sound and light waves are
(a) respectively longitudinal and transverse in air
(b) respectively transverse and longitudinal in air
(c) both longitudinal in air
(d) both transverse in air
48. A car moving with a speed of 12 m/s is subjected to brakes which produces a deceleration of $n/l\ s^{-2}$. The car takes 2 s to stop after the application of brakes. What is the distance covered by the car after the application of brakes?
(a) 12 m (b) 24 m
(c) 36 m (d) 48 m
49. What is the chemical composition of a soda-acid type fire extinguisher?
(a) Solution of sodium hydrogen carbonate and sulfuric acid

- (b) Solution of sodium carbonate and sulfuric acid
- (c) Solution of carbon dioxide and sulfuric acid
- (d) Solution of sodium chloride and sulfuric acid
50. Consider the following statements :
- While diluting concentrated nitric acid solution
1. the concentration of $[H_3O^+]$ ions/ volume increases
 2. water must be added slowly to concentrated acid
 3. acid must be added slowly to water
- Which of the statements given above is/are correct?
- (a) 1, 2 and 3 (b) 1 and 2 only
- (c) 3 only (d) 2 and 3 only
51. Which one of the following is the correct order of pH for the given substances?
- (a) Coffee < Lemon juice < Milk of magnesia < Blood
- (b) Milk of magnesia < Blood < Coffee < Lemon juice
- (c) Lemon juice < Blood < Coffee < Milk of magnesia
- (d) Lemon juice < Coffee < Blood < Milk of magnesia
52. Which one of the following is not true for anodizing process?
- (a) It makes aluminium corrosion resistant.
- (b) Metals like aluminium, titanium and magnesium can be anodized.
- (c) Clean aluminium article is the anode and oxygen gas is evolved at the cathode.
- (d) It is used in aircraft industry.
53. Naphthalene burns with a yellow sooty flame. This is because
- (a) carbon to hydrogen ratio is low
- (b) there is incomplete combustion
- (c) there is excess supply of air
- (d) of presence of impurities of nitrogen and sulfur
54. Which of the following statements are true for the reaction of Fe_2O_3 with aluminium?
1. It is known as the 'thermite reaction'.
 2. The heat evolved is used for welding purpose.
 3. Aluminium metal acts as an oxidizing agent.
 4. Molten Fe and Al are formed at the end of the reaction.
- Select the correct answer using the code given below.
- (a) 1 and 2 (b) 1 and 3
- (c) 2 and 4 (d) 1 and 4
55. Vicky told his friends about his visit to Stewart Island, Bay of Plenty and Hawke Bay. Which country did Vicky visit?
- (a) Canada (b) Australia
- (c) New Zealand (d) Ireland
56. Manav is planning to visit all UNESCO World Heritage Sites in Delhi. He will be visiting
- (a) Red Fort, Qutab Minar, Jama Masjid
- (b) Red Fort, India Gate, Qutab Minar
- (c) Red Fort, Qutab Minar, Humayun Tomb
- (d) Red Fort, Humayun Tomb, India Gate
57. What will be the correct sequence of cities on the bank of river Ganga if someone moves from west to east?
- (a) Prayagraj, Kanpur, Bhagalpur, Patna
- (b) Prayagraj, Kanpur, Patna, Bhagalpur
- (c) Kanpur, Prayagraj, Bhagalpur, Patna
- (d) Kanpur, Prayagraj, Patna, Bhagalpur
58. Which one among the following States has the longest extension in north-south direction?
- (a) Jharkhand (b) Telangana
- (c) Odisha (d) Chhattisgarh
59. Match List-I with List-II and select the correct answer using the code given below the Lists :
- | List-I
(Day) | List-II
(Date) |
|-----------------------------------|-------------------|
| A. World Wetlands Day | 1. 29 July |
| B. International Tiger Day | 2. 22 April |
| C. World Water Day | 3. 2 February |
| D. International Mother Earth Day | 4. 22 March |

Code :

(a) A B C D
3 4 1 2

(b) A B C D
3 1 4 2

(c) A B C D
2 1 4 3

(d) A B C D
2 4 1 3

60. Which one of the following States/UTs is *not* among the top five in the Performance Grading Index (PGI), published by the Ministry of Education for the year 2020–2021?

- (a) Kerala (b) Punjab
(c) NCT of Delhi (d) Chandigarh

61. Consider the following statements and identify the actress :

She is a renowned film actress, director and producer, and an accomplished Indian classical dancer. She was conferred the Padma Shri in 1992 and has served as the Head of Central Board for Film Certification from 1998 to 2001. In recognition to her exemplary lifetime contribution to Indian Cinema, she was honoured with the prestigious Dadasaheb Phalke Award.

- (a) Vyjayanthimala
(b) Waheeda Rehman
(c) Mala Sinha
(d) Asha Parekh

62. Which one of the following is the venue of the UN 2023 Water Conference?

- (a) Washington, DC
(b) New York
(c) San Diego
(d) New Delhi

63. Which of the following statements is/are correct?

1. *Tomb of Sand*, written by Geetanjali Shree, is the first book originally written in any Indian language to win the International Booker Prize.

2. *Tomb of Sand* is the first novel translated from Hindi to be given the International Booker Prize.

Select the correct answer using the code given below.

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

64. The eighth edition of the Exercise Garuda Shakti, a bilateral military-to-military exercise, was conducted recently between the special forces of India and

- (a) Japan (b) Indonesia
(c) Bhutan (d) Myanmar

65. Which one of the following is a measure that can be used by the Government for combatting inflation?

- (a) Increasing the non-planned expenditure on defence, police, etc.
(b) Providing more subsidies on exports
(c) Increasing the rate of interest on savings and fixed deposits
(d) Reduction in the cash reserve ratio (CRR)

66. The sustained decrease in the general price level is called as

- (a) deflation (b) stagflation
(c) devaluation (d) recession

67. Which one of the following indicators is included in the National Multidimensional Poverty Index (MPI)?

- (a) Years of schooling
(b) Literacy rate
(c) Life expectancy
(d) Per capita income

68. The unemployment that occurs due to changes in the technology or in the demand for particular products is called

- (a) frictional unemployment
(b) structural unemployment
(c) cyclical unemployment
(d) disguised unemployment

69. Which of the following is/are the objective/objectives of the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY)?
1. Correcting regional imbalances in the availability of tertiary health care services
 2. Providing universal access to public health services and universal immunization
 3. Augmenting facilities for quality medical education in the country
- Select the correct answer using the code given below.
- (a) 1 and 3 only (b) 2 and 3 only
(c) 1 only (d) 1, 2 and 3
70. Who among the following political leaders suggested the dissolution of the Indian National Congress as a political organization and its replacement by a Lok Sevak Sangh?
- (a) Vallabhbhai Patel
(b) Dr. B. R. Ambedkar
(c) M. K. Gandhi
(d) Jawaharlal Nehru
71. India is the first country in the world to deploy an all-woman contingent to a UN Peacekeeping Mission. In which country did this mission operate?
- (a) Liberia (b) Sudan
(c) Burundi (d) Croatia
72. Which one among the following is *not* a part of the SWAYAM programme?
- (a) Video lectures
(b) Classroom lectures
(c) Online discussion forum for clearing doubts
(d) Specially prepared material that can be downloaded/printed
73. Which one among the following Departments/Authorities is *not* under the Ministry of Home Affairs?
- (a) The Department of States
(b) The Department of Official Language
(c) The National Authority Chemical Weapons Convention
(d) The Department of Jammu, Kashmir and Ladakh Affairs
74. Who among the following is given discretionary powers under the Fifth Schedule of the Constitution of India to set up a Tribes Advisory Council in a State which has Scheduled Tribes but not Scheduled Areas?
- (a) The Governor of the concerned State
(b) The President of India
(c) The Inter-State Council
(d) The Parliament of India
75. Which of the following States/UTs are included in the Northern Zonal Council?
- (a) Uttarakhand, Uttar Pradesh, Haryana, Punjab, Jammu and Kashmir
(b) Haryana, Punjab, Himachal Pradesh, Rajasthan and NCT of Delhi
(c) Uttar Pradesh, Uttarakhand, Punjab, Haryana and Rajasthan
(d) Uttarakhand, Uttar Pradesh, Himachal Pradesh, Punjab and Haryana
76. The notion of kinship projected by the Kushana rulers is best evidenced through which of the following?
- (a) Their identification with deities
(b) Grants to religious institutions
(c) Inscriptional panegyrics
(d) Coins and sculpture
77. Who among the following were referred to as the Theris' in ancient India?
- (a) Respected women
(b) Elder nuns in Buddhism
(c) Women denied the Bhikkhuni status
(d) Women expelled from the Buddhist Sangha
78. Which member of the Servants of India Society founded the Seva Samiti at Allahabad in 1914?
- (a) Shri Ram Bajpai
(b) Hriday Nath Kunzru
(c) S. G. Vaze
(d) Srinivas Shastri
79. The First Anglo-Maratha War was concluded by which one of the following?
- (a) The Treaty of Surat

- (b) The Treaty of Purandar
(c) The Convention of Wadgaon
(d) The Treaty of Salbai
80. Name the battle in which the Travancore King defeated the Dutch in 1741.
(a) The Battle of Porto Novo
(b) The Battle of Colachel
(c) The Battle of Pollilore
(d) The Battle of Changanassery
81. In which one of the following revolts did the Koya and Konda tribal chiefs rise against the local overlord from a Mansabdar family?
(a) The Rampa Rebellion, 1879-1880
(b) The Gudem Uprising, 1886
(c) The Rampa Rebellion, 1922-1924
(d) The Telangana Armed Struggle, 1946-1951
82. Which country won the FIFA World Cup (Men) for maximum number of times?
(a) Argentina (b) Brazil
(c) France (d) Spain
83. Who among the following is the author of the famous novel, *City of Joy* ?
(a) Larry Collins
(b) Dominique Lapierre
(c) Rudyard Kipling
(d) Mark Tully
84. Who among the following is honoured with the UN Environment Programme's 2022 Champions of the Earth Award in the Entrepreneurial Vision category?
(a) Ela Bhatt
(b) Amit Dasgupta
(c) Purnima Devi Barman
(d) Vanshika Parmar
85. The theme of India's G20 Presidency "Vasudhaiva Kutumbakam" or 'One Earth-One Family-One Future' is drawn from the
(a) Maha Purana (b) Maha Upanishad
(c) Rig Veda (d) Smriti
86. The 16th edition of Indo-Nepal annual joint training exercise in jungle warfare and counter terrorism operations was held in December 2022 at Nepal Army Battle School, Saljhandi. What is the name of this exercise?
(a) Sampriti (b) Mitra Shakti
(c) Yudh Abhyas (d) Surya Kiran
87. If it is 10:00 a.m. at Greenwich Mean Time (GMT), then what will be the time at 90° E longitude?
(a) 5:00 a.m. (b) 4:00 a.m.
(c) 3:00 p.m. (d) 4:00 p.m.
88. Which of the following groups of planets is termed as 'gas planets' as they are composed primarily of lighter ices, liquids and gases?
(a) Mars, Jupiter, Neptune, Uranus
(b) Jupiter, Uranus, Neptune, Saturn
(c) Saturn, Mars, Jupiter, Neptune
(d) Neptune, Saturn, Mars, Uranus
89. Consider the following characteristics of a soil type :
1. These soils consist of various proportions of sand, silt and clay.
2. These soils contain adequate proportions of potash, phosphoric acid and lime.
3. These soils can be further classified on the basis of their age.
Identify the type of soil on the basis of the given characteristics.
(a) Alluvial (b) Laterite
(c) Arid (d) Black
90. Consider the following statements and identify the correct answer using the code given below :
1. In a thermal power station, fuels such as oil, coal or natural gas are used to generate electricity.
2. Fuels are burned to heat water and turn it into steam, which goes through a turbine, which spins and turns, generating electricity.
Code :
(a) Statement 1 is correct but statement 2 is not correct

- (b) Statement 2 is correct but statement 1 is not correct
- (c) Both the statements are correct and statement 2 explains statement 1
- (d) Both the statements are correct but statement 2 does not explain statement 1
91. Indus river basin is extended up to
- (a) Ladakh, Jammu and Kashmir, Himachal Pradesh, Punjab
- (b) Ladakh, Jammu and Kashmir, Punjab, Haryana
- (c) Ladakh, Jammu and Kashmir, Punjab, Haryana, Rajasthan
- (d) Ladakh, Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan
92. Which one of the following statements about the Solicitor General of India (SGI) is *not* correct?
- (a) The SGI is the Government's chief legal advisor.
- (b) The SGI is the secondary law officer of the country.
- (c) The post of the SGI is a constitutional post.
- (d) The SGI is appointed by the Appointments Committee of the Cabinet.
93. Which one of the following committees does *not* have members from the Rajya Sabha?
- (a) The Public Accounts Committee
- (b) The Committee on Public Undertakings
- (c) The Estimates Committee
- (d) The Committee on the Welfare of Scheduled Castes and Scheduled Tribes
94. Which one of the following statements about the election of the President of India is *not* correct?
- (a) A Union Minister shall not be eligible for election as the President.
- (b) The President is elected by the elected members of the Parliament and the Legislative Assemblies of States and Union Territories.
- (c) The Electoral College does not include elected members of the Legislative Councils.
- (d) The system of proportional representation by means of single transferable vote is followed.
95. The Citizenship Act, 1955 deals with the determination of citizenship on or after
- (a) 26th January, 1950
- (b) 26th November, 1949
- (c) 15th August, 1947
- (d) 14th August, 1947
96. According to the National Multi-dimensional Poverty Index (MPI) constructed by the NITI Aayog, a household is considered deprived if
1. a single member of the household is identified as under-nourished
 2. the body mass index of a woman member, between 15 years and 49 years of age, is below 18.5 kg/m²
- Select the correct answer using the code given below.
- (a) 1 only (b) 2 only
- (c) Both 1 and 2 (d) Neither 1 nor 2
97. The titles of 'Rayagajakesari' and 'Dayagajakesari' were associated with which one of the following dynasties?
- (a) Kakatiya (b) Vijayanagara
- (c) Gajapati (d) Rashtrakuta
98. Name the location of the musical inscription containing groups of musical notes arranged for the benefit of his pupils by a king in the seventh or eighth century CE.
- (a) Ennayiram
- (b) Uttaramerur
- (c) Siyyamangalam
- (d) Kudumiyamalai
99. In the context of eighteenth century India, what was 'Dastak'?
- (a) Signature
- (b) Land document
- (c) Trade permit
- (d) Tax on textiles

100. Which one of the following was primarily associated with Dadni' system?
- Textile production
 - Warfare
 - Payment to officials
 - Revenue collection
101. Consider the following statements about Kanaganahalli archaeological site :
- It is situated on the bank of Bhima river.
 - The remains of the Kanaganahalli Stupa can be dated between 1st and 3rd centuries CE.
 - Emperor Ashoka's image was found at the site.
- Which of the statements given above are correct?
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
102. Which of the following statements about volcanoes are correct?
- The strength of a volcano is measured by the Volcanic Explosive Index.
 - Iceland and Philippines were created by volcanic activity.
 - Volcanic soils are rich, deep and fertile and allow intensive agriculture to take place.
- Select the correct answer using the code given below.
- 1 and 2 only
 - 2 and 3 only
 - 1 and 3 only
 - 1, 2 and 3
103. Consider the following characteristics of a cloud type :
- They are born through convection.
 - Only cloud type that can produce hail, thunder and lightning.
 - They are large cauliflower-shaped towers, often 'anvil tops'.
- Identify the type of cloud on the basis of the given characteristics.
- Stratocumulus
 - Cumulonimbus
 - Cirrocumulus
 - Nimbostratus
104. Meena wants to show diagrammatically how two sets of data, namely, population size and number of services are related to each other. Which one of the following will be the most suitable for the presentation?
- Pie chart
 - Scatter graph
 - Bar chart
 - Triangular graph
105. Which one of the following Indian States has the longest coastline?
- Tamil Nadu
 - Gujarat
 - Maharashtra
 - Andhra Pradesh
106. Which of the following statements is/are correct?
- Visakhapatnam Port is a land-locked harbour.
 - Deendayal Port is a tidal port.
- Select the correct answer using the code given below.
- 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
107. There is an increase in forest cover area of India between 2011 and 2021. However, there is a decrease in forest cover area of India during the same period in
- very dense forest (canopy density of more than 70 percent)
 - moderately dense forest (canopy density between 40-70 percent)
 - open forest (canopy density between 10-20 percent)
 - Both (b) and (c)
108. Consider the following statements concerning the National Education Policy, 2020 :
- At least 50 percent of the learners through school and higher education system to get exposure to vocational education by 2025.
 - Secondary schools should collaborate with ITIs, Polytechnics and local industries.
 - Vocational education to be exclusively provided by NGOs.

Which of the statements given above is/are correct?

- (a) 1 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3
109. Which of the following sets of States is at the bottom of the Composite SDG India Index, 2020-2021 as per the NITI Aayog?
- (a) Assam, Jharkhand, Bihar
(b) Uttar Pradesh, Jharkhand, Bihar
(c) Uttar Pradesh, Bihar, Assam
(d) Odisha, Bihar, Jharkhand
110. Which one of the following is not a part of Article 51 of the Constitution of India?
- (a) Promote international peace and security
(b) Maintain just and honourable relations between nations
(c) Use of UN peacekeeping force for resolution of international disputes
(d) Encourage settlement of international disputes by arbitration
111. Who among the following was *not* in the core leadership of the Non-Aligned Movement (NAM) in its formative phase?
- (a) Kwame Nkrumah
(b) Gamal Abdel Nasser
(c) Jawaharlal Nehru
(d) Fidel Castro
112. In respect to Balutedars, which of the statements given below are correct?
1. They were village servants and artisans.
 2. They were employed by individual peasant family.
 3. They existed in the Medieval Deccan and Maharashtra.
- Select the correct answer using the code given below.
- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
113. Which one of the following Viceroys was the first to officially shift his Council to Simla in summer season?
- (a) John Lawrence
(b) Lord Dalhousie
(c) Lord Mayo
(d) William Bentinck

114. Who among the following is the author of Maze Vidyapeeth, the famous poem about the life of working class of Bombay?
- (a) Narayan Surve
(b) Amol Palekar
(c) Bhalchandra Nemade
(d) Narendra Jadhav
115. Who among the following founded the Hindu Dharma Sabha in the 19th century?
- (a) Radhakanta Deb
(b) Ram Mohan Roy
(c) Dwarkanath Tagore
(d) Keshab Chandra Sen
116. The resolution adopted by the United Nations General Assembly on 3 March, 2021 decided to celebrate the year 2023 as the International Year of
- (a) Basic Sciences for Sustainable Development
(b) Glass
(c) Millets
(d) Camelids
117. Karthik Meiyappan, who secured hat-trick in the ICC Men's T20 World Cup, 2022, represents
- (a) Zimbabwe
(b) United Arab Emirates
(c) Sri Lanka
(d) Namibia
118. Which one of the following statements about the Wassenaar Arrangement is *not* correct?
- (a) There are 42 participating nations in the Arrangement.
(b) It is formed primarily as a nuclear weapon overseer.
(c) India is the current Chairman of the Arrangement.
(d) India joined the Arrangement in the year 2017.
119. Who among the following is known as 'Payyoli Express'?
- (a) Hima Das (b) Dutee Chand
(c) P. T. Usha (d) Shiny Abraham

120. Match List-I with List-II relating to Sahitya Akademi Award Winners, 2022 and select the correct answer using the code given below the Lists :

- List-I**
(Title and Genre)
- A. Bhool Satya (Short Stories)
B. Tumadi Ke Shabd (Poetry)
C. Chhe Roopak (Drama)
D. Alekhun Amba (Play)

- List-II**
(Author)
1. Kamal Ranga
2. Veena Gupta
3. Badri Narayan
4. Manoj Kumar Goswami

Code:

(a) A B C D

1 2 3 4

(c) A B C D

4 3 2 1

(b) A B C D

1 3 2 4

(d) A B C D

4 2 3 1

Answers

Q.No.	Answer Key	Topic's Name	Chapter's Name
1	a	Respiration	Life processes
2	c	Nutrition in plants	Life processes
3	d	Osmosis	Transport in plants
4	a	Digestion of food	Digestion and Absorption
5	a	Blood pressure	Body fluids and circulation
6	d	Speed of Sound	Sound
7	d	Sonic Devices	Sound
8	a	Electric Power	Electric current
9	b	Velocity time graph	Motion in one dimension
10	c	Power of Lens	Ray Optics
11	d	Characteristics of Reactions	Chemical Reactions & Equations
12	c	Combustion Reaction	Chemical Reactions & Equations
13	d	Types of Reactions	Chemical Reactions & Equations
14	b	Types of Reactions	Chemical Reactions & Equations
15	c	States of India	General Knowledge
16	d	Indian States	General Knowledge
17	b	Lake and Rivers	General Knowledge
18	b	Concept of literacy	The 2011 Census of India
19	b	Costal and Landlocked states of India	Indian States
20	a	Inflation	Market equilibrium
21	d	Appreciation of currency	Monetary Policy
22	a	crowding out	Fiscal Policy in India
23	d	Niti Aayog Objective	Indian Economic Development
24	b	Tendulkar Committee	Poverty in India
25	c	National Skill Development Mission	Governmental Programmes

Q.No.	Answer Key	Topic's Name	Chapter's Name
26	c	POSHAN Abhiyaan	Governmental Programmes
27	c	Writ of certiorari in India	Indian Judicial System
28	a	42nd Chief Justice of India	Current Affairs
29	d	Bandi Jeevan -	Book and Author
30	a	1937 Indian provincial elections	Indian National Congress
31	c	Formation of Indian National Army	Struggle for Independence
32	c	Match the pair	Bhakti Sant of India
33	d	Krishna and Tungabhadra rivers	Rivers flow in India
34	b	Dual control structure	Paramilitary Force of India
35	c	Ahom ethnic community	Tribal Group in Assam
36	d	Zimbabwe cricket team	World cricket
37	d	Project Cheetah	Current Affairs
38	c	The Nobel Prize in Physics for 2022	Prize/Award
39	a	Reflex Action and Reflex Arc	Neural control and coordination
40	d	Therapeutic Action of different Classes of Drugs	Chemistry in Everyday Life
41	d	Eukaryotic Cells	Cell: The Unit of Life
42	c	Meristematic tissue	Tissues
43	c	Complex permanent tissue	Tissues
44	d	Series and Parallel Combination	Electric Current
45	b	Domestic circuit	AC Current
46	a	Nuclear Energy	Nuclear Chemistry
47	a	Types of Waves	Waves
48	a	Equations of motion	Motion in one dimension
49	a	Properties of Sodium Compounds	s - block elements
50	c	Concentration of Solutions	Some Basic Concepts Of Chemistry
51	d	pH Of Solutions	Ionic Equilibrium
52	c	Uses of Aluminium, Copper, Zinc and Iron	General Principles and Processes of Isolation of Elements
53	a	Unsaturated Carbons	Carbon & Its Compounds
54	a	Uses of Aluminium, Copper, Zinc and Iron	General Principles and Processes of Isolation of Elements
55	c	New Zealand	General Knowledge
56	c	UNESCO sites in Delhi	General Knowledge
57	d	Cities & Rivers	General Knowledge
58	d	Chhattisgarh	Indian States
59	b	Important International Days	Match the pair
60	d	Performance Grading Index (PGI)	Current Affairs
61	d	Case Based Question	Indian Cinema
62	b	The UN 2023 Water Conference	Current Affairs
63	c	Tomb of Sand	Book and Author
64	b	Garuda Shakti Exercise	military exercise

Q.No.	Answer Key	Topic's Name	Chapter's Name
65	c	Inflation	Money and inflation
66	a	Deflation	Money and inflation
67	a	The Multidimensional Poverty Index	Current Affairs
68	b	Structural unemployment	Employment and Unemployment
69	a	Pradhan Mantri Swasthya Suraksha Yojana	Governmental Programmes
70	c	Indian National Congress	Struggle for Independence
71	a	International Relations	Current Affairs
72	b	SWAYAM programme	Governmental Programmes
73	c	Ministry of Home Affairs	Functions of Various Department
74	b	Discretionary powers of President	Constitution of India
75	b	Northern Zonal Council	Zonal councils of India
76	d	The Kushan Empire	Ancient India
77	b	'Theris'	Buddhism
78	b	'Seva Samiti'	Organisation and founder
79	d	Treaty of Salbai	The First Anglo-Maratha War
80	b	Battle of Colachel	Battle in Indian History
81	a	Rampa rebellion of 1879	Struggle for Independence
82	b	FIFA World Cup	Sports
83	b	City of Joy	Book and Author
84	c	Champions of the Earth award	Award/Prize
85	b	Theme of G-20 Summit	G - 20
86	d	"Surya Kiran"	Joint Military Exercise
87	d	Greenwich time zone	Time Zone
88	b	'Gas planets'	Solar System
89	a	Characteristics of Black soil	Type of Soil
90	c	Generation of Electricity	Thermal Power Plant
91	a	The Indus basin	The River Basin in India
92	c	Solicitor General of India	The Functions of Government
93	c	The Estimates Committee	Parliament of India
94	a	Election of the President	Constitution of India
95	a	The Citizenship Act, 1955	Constitution of India
96	c	National Multi dimensional Poverty Index	General Knowledge
97	a	Kakatiya dynasties	Indian Ancient History
98	d	Kudumiyamalai Location	Indian Ancient History
99	c	Trade policy of East India Company	Modern History
100	a	'Dadni' system	History of textile production in India
101	c	Kanaganahalli archaeological site	Archaeological site in India
102	c	Features of Volcanoes	Volcanoes
103	b	Characteristics of cumulonimbus clouds	Types of Clouds - Water in Atmosphere

Q.No.	Answer Key	Topic's Name	Chapter's Name
104	c	Bar Chart	Presentation of data
105	b	Longest coastline of Gujarat	Indian costal States
106	b	True or False Type Question	Type of Ports in India
107	b	Forest covers area in India	Forest in India
108	b	Vocational Course in NEP - 2020	New Education Policy - 2020
109	a	The SDG India Index	Current Affairs
110	c	Article - 51	Constitution of India
111	d	The core leaders of NAM	Non-aligned Movement
112	c	Balutedar system	History
113	a	Summer capital of the British Empire	Colonial Rule in India
114	a	Maze Vidyapeeth	Book and Author
115	a	Hindu Dharma Sabha	Organisation and Founder
116	c	The International Year of Millets	Day/Organisation/Celebration
117	c	T20 Internationals	Sports
118	b	Wassenaar Arrangement	Organisation and Founder
119	c	PT Usha	Sports
120	c	Match Book with Author	Book and Author

ANSWERS WITH EXPLANATION

1. Option (a) is correct.

Explanation: A muscle cramp is a temporary, involuntary spasm of the skeletal muscle that can occur in a wide range of situations. The build-up of lactic acid in muscles is the primary factor behind cramps that develop during or soon after exercising or running. The shortage of oxygen supply and the excessive energy demand are the major causes. Thus, anaerobic respiration occurs in the muscle cells to meet the requirement for energy. Consequently, lactic acid is produced in muscles as a result of the anaerobic breakdown of glucose, which eventually causes cramps.

2. Option (c) is correct.

Explanation: To determine the presence of starch in a leaf, it is first plucked from a plant on a sunny day and placed in boiling water for 2 minutes. This procedure will result in the death of its leaf cells. It is then boiled in alcohol, which aids in the extraction of chlorophyll and the removal of the green colour of the leaves. The iodine solution is now utilized to complete the final stage. When iodine is applied to the leaf, it turns blue-black because iodine is an indicator that produces this colour when starch is present. When it was exposed to light, the plucked leaf turned blue-black, indicating that it had been performing photosynthesis and making starch.

3. Option (d) is correct.

Explanation: RBCs, or erythrocytes, are components of human blood. RBCs intracellular fluid contains a solution of salts, glucose, protein, and haemoglobin. When red blood cells (RBCs) are isolated and diluted in

normal saline (an isotonic solution to blood), i.e., 0.9% NaCl solution, there is no change in RBCs diameters. As both the intracellular and extracellular fluids are in osmotic equilibrium across the cell membrane. Therefore, there will be no net influx or efflux towards the solution or the cell.

On the other hand, a solution influx happens when RBCs are placed in a hypotonic environment, such as 0.4% NaCl solution or distilled water. The cells swell, and their membrane integrity is disrupted.

RBCs lose their normal shape and undergo collapse when exposed to hypertonic solutions, such as 1.8% NaCl. This causes the cells to shrink as a result of a rapid osmotic outflow of water.

4. Option (a) is correct.

Explanation: The liver cells produce bile, a complex aqueous secretion. It passes through the hepatic duct and is stored and concentrated in the gall bladder, a small muscular sac. Bile pigments (bilirubin and biliverdin), bile salts, cholesterol, and phospholipids are all present in this bile juice, which is secreted in the duodenum, but enzymes are absent. The pH of the stomach's acidic chyme is neutralized when bile mixes with it. It is also used to emulsify fat so that it is reduced in size to micelles, which are small fat globules that are easy to digest. Also, the bile is alkaline by nature, which is necessary for the pancreatic enzymes to activate.

5. Option (a) is correct.

Explanation: Blood pressure is the pressure within the body's major arterial system,

measured in millimeters of mercury. Blood pressure is commonly separated into systolic and diastolic measurements and is commonly expressed as the systolic pressure over the diastolic pressure (e.g., 120/80 mm Hg). Systolic pressure is the maximum blood pressure recorded during ventricles contraction; diastolic pressure is the minimum pressure recorded just prior to the next contraction, or we can say that, it is the pressure of the blood during the ventricular relaxation.

6. Option (d) is correct.

Explanation:

$$t = 5 \text{ s}$$

$$v = 340 \text{ m/s}$$

$$2D = v \times t$$

$$\Rightarrow 2D = 340 \times 5 = 1700$$

$$\Rightarrow D = 1700/2 = 850 \text{ m}$$

2D is the distance covered by sound from observer to cliff and cliff to observer.

7. Option (d) is correct.

Explanation: Microphone converts sound energy to electrical energy and speaker converts electrical energy to sound energy. Therefore statement 2 and 4 are correct.

8. Option (a) is correct.

Explanation: Given,

$$P = 100 \text{ W} = 0.1 \text{ kW}$$

$$t = 10 \times 3 = 30 \text{ h}$$

$$\text{Energy consumed} = P \times t$$

$$= 0.1 \times 30 \text{ kWh} = 3 \text{ units } (\because 1 \text{ kWh} = 1 \text{ unit})$$

9. Option (b) is correct.

Explanation: Area under velocity time graph gives the net displacement

10. Option (c) is correct.

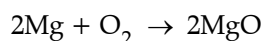
Explanation:

$$f = 10 \text{ cm} = 0.1 \text{ m}$$

$$P = \frac{1}{f} = 1/0.1 = 10 \text{ D}$$

11. Option (d) is correct

Explanation:



Here the reaction of magnesium takes place in presence of oxygen to undergo addition reaction to form magnesium oxide.

During the process, heat and light are also produced hence statement 1, 2 and 3 are correct.

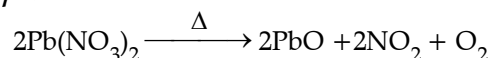
12. Option (c) is correct.

Explanation: Statement 2 is correct— The solution of slaked lime is used for white washing of walls.

Statement 3 is correct – CaO reacts slowly with CO₂ in air to form a thin layer of CaCO₃ on walls.

13. Option (d) is correct.

Explanation:



The thermal decomposition of lead nitrate gives rise to lead oxide, nitrogen dioxide and oxygen.

Here colourless O₂ gas is released along with the formation of NO₂ gas. The brown colored fumes are of nitrogen dioxide.

14. Option (b) is correct.

Explanation: Oxidation reaction is the reaction in which the following process takes place

(1) loss of electron

(2) Removal of hydrogen

(3) Addition of oxygen

Rusting of iron — oxidation

Opening of soda bottle — physical process

Rancidity — oxidation

Combustion — oxidation

15. Option (c) is correct.

Explanation: The given clues hint at the state of Assam. The state of Assam is known as the Land of the Red River and Blue Hills due to its stretching across the Brahmaputra valley. It is one of the biggest states in the North East of India and contains three of the six physiographic divisions of India - The Northern Himalayas, The Northern Plains, and Deccan Plateau. It has a geographical area of 78,438 km² making up 2.39 percent of the country's total area.

16. Option (d) is correct.

Explanation: Telangana, which is the 29th state of India, was formed on June 2, 2014. Telangana, shares its borders with Maharashtra, Chhattisgarh, Andhra Pradesh,

and Karnataka. The Telangana region was part of the Hyderabad state from 17th September 1948 to 1st November 1956, until it was merged with Andhra State to form Andhra Pradesh.

17. Option (b) is correct.

Explanation: Loktak Lake is a freshwater lake located at Moirang in Manipur. Umiam Lake is a reservoir located in the hills 15 km to the North of Shillong in the state of Meghalaya, India. Kolleru Lake is the largest freshwater lake and is located in Andhra Pradesh. Pulicat Lake is the second largest brackish water lagoon in Tamil Nadu. So, Rani visited the states of Manipur, Meghalaya, Andhra Pradesh, and Tamil Nadu.

18. Option (b) is correct.

Explanation: The 2011 Census of India was the 15th Census. The decennial Census of India has been conducted 16 times, as of 2021. While it has been undertaken after every 10 years, the first complete census was taken in 1881 in India. According to Census 2011, a literate person is one who is 7 years old and can read and write in any language with understanding. Literacy is a step towards education and if one fails in this basic step then it becomes difficult to be educated.

19. Option (b) is correct.

Explanation: The Tropic of Cancer passes through 2 coastal and 6 landlocked states of India. These 8 Indian states are Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura, and Mizoram. Gujarat and West Bengal are the coastal states; the rest are landlocked states.

20. Option (a) is correct.

Explanation: Inflation is the rate of increase in prices over a given period of time. When the aggregate demand in an economy strongly outweighs the aggregate supply, prices go up. This is the most common cause of inflation. Aggregate demand is the amount of total spending on domestic goods and services in an economy. Inflation is the decrease in the purchasing power of a currency.

21. Option (d) is correct.

Explanation: Expansionary fiscal policy causes an increase in GNP, an appreciation of the currency. The expansionary fiscal policy raises the domestic interest rate, thus causing a sudden appreciation in the exchange rate. A contractionary monetary policy, by driving up domestic interest rates, would cause the currency to appreciate. Thus, it is concluded that contractionary monetary policy and expansionary fiscal policies help to raise interest rate unambiguously and thereby lead to appreciation of currency.

22. Option (a) is correct.

Explanation: The crowding-out effect refers to an economic theory that states that rising interest rates decrease initial private total investment spending. The government sometimes adopts an expansionary fiscal policy and increases its spending to boost economic activity. This leads to an increase in interest rates. Increased interest rates affect private investment decisions.

23. Option (d) is correct.

Explanation: Allocation of funds at National and State levels is not an objective of NITI Aayog. The NITI Aayog serves as the apex public policy think tank of the Government of India. The important objectives of the NITI Aayog are following –

To propose strategic and long-term policy and programme frameworks and initiatives, and review their progress and their effectiveness.

To grant advice and encourage partnerships between important stakeholders and national-international Think Tanks.

To evolve a shared vision of national development priorities, sectors and strategies with the active involvement of States. Thus, it is concluded that only option 3 is the objective of NITI Aayog.

24. Option (b) is correct.

Explanation: The Tendulkar Committee was constituted in 2009 to review methodology for poverty estimation and to address shortcomings of the previous methods.

The Committee recommended using Mixed Reference Period based estimates, as opposed to Uniform Reference Period based estimates, for the computation of poverty in terms of Monthly Per Capita Consumption Expenditure (MPCE).

25. Option (c) is correct.

Explanation: The National Skill Development Mission was developed to create convergence across sectors and states in terms of skill training activities. This mission was launched by the government of India in 2015 on the occasion of World Youth Skills Day. Seven sub-missions were proposed initially to act as building blocks for achieving overall objectives of the Mission. They are: (i) Institutional Training, (ii) Infrastructure, (iii) Convergence, (iv) Trainers, (v) Overseas Employment, (vi) Sustainable Livelihoods, (vii) Leveraging Public Infrastructure. Thus, it is concluded that option c is correct.

26. Option (c) is correct.

Explanation: In 2018, POSHAN Abhiyaan was launched with an aim to achieve improvement in nutritional status of children under 6 years, adolescent girls, pregnant women and lactating mothers in a time bound manner. It addresses malnutrition issues across the nation through components like ICT application, community mobilization, convergence, behavioural change & jan andolan, and so on.

27. Option (c) is correct.

Explanation: The writ of Certiorari means “to be certified”. It can be issued by the Supreme Court or the High Court of India to quash or cancel an order already passed by a lower court.

The Supreme Court can also use it to transfer a particular matter to it or some other superior judicial authority for consideration.

The following are the essential conditions for the writ of Certiorari:

There has to be an existence of an officer or a tribunal having the judicial authority to decide on the cases affecting the rights of people.

Such an officer or the tribunal must have acted-

- (1) in excess of judicial power, or
- (2) without requisite jurisdiction, or
- (3) in violation of the principles of natural justice.

28. Option (a) is correct.

Explanation: Justice H. L. Dattu is a former Chief Justice of India and the former chairman of the National Human Rights Commission. In December 2014, he had issued a notification to set up a special Bench known as the Social Justice Bench.

Its objective was to deal with matters in the domain of ‘social justice’ that had been pending with the Supreme Court for several years.

29. Option (d) is correct.

Explanation: The book Bandi Jeevan was written by Sachindra Nath Sanyal. He was an Indian revolutionary and co-founder of the Hindustan Republican Army. He was sentenced to life-term imprisonment for his involvement in the Ghadar conspiracy. He was imprisoned at Cellular Jail in the Andaman and Nicobar Islands, where he wrote his book, titled Bandi Jeevan, in 1922.

30. Option (a) is correct.

Explanation: As mandated by the Government of India Act 1935, provincial elections were held in British India in the winter of 1936-37. Punjab and Sind were two provinces where the Indian National Congress was not able to emerge as the single largest party while it emerged in power in eight of the provinces.

31. Option (c) is correct.

Explanation: The Indian National Army was first formed in 1942 under Rash Behari Bose. The army was created out of Indian POWs of the British Indian Army captured by Japan in the Malayan campaign and at Singapore. Later on, Rash Behari Bose handed over INA to Subhas Chandra Bose. He named regiments of INA after Mahatma Gandhi, Jawaharlal Nehru, Maulana Azad, and himself. An all-women regiment named after Rani of Jhansi, Lakshmibai was also created.

32. Option (c) is correct.

Explanation: The bhakti saints can be broadly classified into two streams- the Alvars and Nayanars. The Alvars were the Tamil poet-saints of South India who espoused bhakti (devotion) to the Hindu preserver deity Vishnu while the Nayanars expressed devotion to Shiva.

33. Option (d) is correct.

Explanation: Krishna and Tungabhadra rivers flow in the region between Gulbarga and Vijayanagara Hampi. The Tungabhadra River starts and flows through the state of Karnataka in India. The river Krishna rises in western Maharashtra state in the Western Ghats range near the town of Mahabaleshwar.

34. Option (b) is correct.

Explanation: Assam Rifles is the only paramilitary force with a dual control structure. It is under administrative control of Home Ministry, but its operations are under control of Indian Army which comes under Defence Ministry. This means that salaries and infrastructure for the force is provided by the Home Ministry, but the deployment, posting, transfer and deputation of the personnel is decided by the Defence Ministry.

35. Option (c) is correct.

Explanation: Ahom is an ethnic community of Assam. Members of this group are mixed descendants of the Tai people who arrived in Assam's Brahmaputra valley in 1228 and the local indigenous people who joined them over time. The Ahom dynasty was established by Sukaphaa, a Shan prince of Mong Mao (present-day Yunnan, China) who came to Assam after crossing the Patkai Mountains. Today, most of the Ahoms declare Hinduism as their religion, but there is an effort going on to revive the traditional Ahom religion.

36. Option (d) is correct.

Explanation: The Zimbabwe national cricket team, also known as the Chevrons has got its name from the stone monument, which is called the Great Zimbabwe. Zimbabwe is a landlocked country in Southern Africa known for its dramatic landscape and diverse wildlife.

37. Option (d) is correct.

Explanation: Eight Cheetahs from Namibia were released in the Kuno National Park of Madhya Pradesh in 2022. Cheetah was officially declared extinct in India in 1952 and the last cheetah was killed in 1947. The introduction of Cheetah in India is being done under Project Cheetah.

38. Option (c) is correct.

Explanation: From the given options, Klaus Hasselmann is not a recipient of the Nobel Prize in Physics in 2022. The Nobel Prize in Physics for 2022 was awarded to John F. Clauser, Alain Aspect and Anton Zeilinger for their work in quantum mechanics by the Royal Swedish Academy of Sciences.

39. Option (a) is correct.

Explanation: A reflex arc is a neuronal pathway that regulates the action of a reflex. It starts with a sensory neuron at a receptor and ends with a motor neuron at an effector. For instance, when we inadvertently touch something hot, the temperature change is first noticed by the receptor (fingertip), which initiates an impulse in a sensory neuron. This travels to the spinal cord, where it passes through a synapse to a connected neuron called the relay neuron, which is located in the spinal cord. Further, the impulse is transmitted to the brain and then to the motor neurons, which then send the impulse to the muscles of the limb (effector), causing them to contract and draw away from the hot object.

40. Option (d) is correct

Iodine is essential for thyroid gland to make thyroxine. The thyroxine is a hormone produced by the thyroid gland, which aids in several vital metabolic processes such as digestion, circulation, brain development, etc. The thyroid gland picks up the iodine from the diet and uses this element for thyroxine synthesis.

41. Option (d) is correct.

Explanation: In plant cells, RNA can be found at various locations, including the nucleus, mitochondria, chloroplasts, ribosomes, and cytoplasm. There are three types of RNA: mRNA, tRNA, and rRNA. The cytoplasm contains mRNA and tRNA, while the nucleus has rRNA.

Ribosomes can be found in the cytoplasm of a cell or attached to the endoplasmic reticulum. The interaction of RNA and ribosomes results in protein production.

A polyribosome, or polysome, is formed when several ribosomes connect to a single mRNA. The ribosomes of a polysome translate the mRNA into proteins.

42. Option (c) is correct.

Explanation: In grass (a monocotyledonous plant), the intercalary meristems are located at the internodes or the base of the leaves. These meristems help in increasing the length of the internode and thereby promote the growth of the plants. On the other hand, apical meristems are located at the tip of the root, stem, etc. They help in the growth of the stem and the root. The lateral meristems are present on the lateral side of the stem and root of a plant. The girth of the stem or root increases due to these meristems.

43. Option (c) is correct.

Explanation: The xylem is an example of complex tissue (made up of more than one type of cell), which mainly helps in the transportation of water and minerals throughout the plant. Xylem is composed of four different kinds of elements, i.e., tracheids, vessels, xylem parenchyma, and xylem fibres. Out of all these four elements, the xylem parenchyma consists of living cells. They help in the storage of starch and fat and also assist in the short-distance transportation of water. On the other hand, tracheids and vessels are the main conducting tissues that allow the transport of water and minerals vertically. Xylem fibres help in water transportation and also provide mechanical support to plants.

44. Option (d) is correct

Explanation:

Given, $R_1 = 11 \Omega$, $R_2 = 22 \Omega$, $R_3 = 33 \Omega$

$$\frac{1}{R_e} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_e} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} = \frac{6+3+2}{66}$$

$$\frac{1}{R_e} = \frac{11}{66} = \frac{1}{6}$$

$$R_e = 6 \Omega$$

45. Option (b) is correct.

Explanation: The r.m.s potential difference between the line wire (Red) and neutral wire (Black) in indian domestic electric supply is 220V.

46. Option (a) is correct.

Explanation:

The hydrogen bomb is based on the principle of uncontrollable nuclear fusion while the uranium bomb is based on the principle of nuclear fission.

47. Option (a) is correct.

Explanation: Sound wave is standing wave which is longitudinal in nature in which the direction of movement of particle is along the direction of wave propagation. Light waves are transverse in nature because the direction of electric field and magnetic field is perpendicular to the direction of propagation of light.

48. Option (a) is correct.

$$u = 12 \text{ m/s}$$

$$a = -6 \text{ m/s}^2 \text{ (Retardation)}$$

$$t = 2 \text{ s}$$

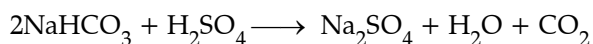
$$S = ut + \frac{1}{2} at^2$$

$$= 12 \times 2 - \frac{1}{2} \times 6 (2)^2$$

$$= 24 - 12 = 12 \text{ m}$$

49. Option (a) is correct.

Explanation: The chemical composition of a soda-acid type fire extinguisher is the solution of sodium hydrogen carbonate and sulfuric acid. The reaction of sodium hydrogen carbonate and sulfuric acid gives rise to carbon dioxide which cuts off the supply of air and extinguish the fire.



50. Option (c) is correct.

Explanation: The dilution of concentrated nitric acid solution decreases the concentration of $[\text{H}_3\text{O}^+]$ ions/Volume.

When a concentrated acid is added to water for preparing a dilute acid, then the heat is evolved gradually and easily absorbed by the large amount of water (to which the acid is being added).

However if water is added to concentrated acid, then large amount of heat is evolved at once. This heat changes some of the water to steam explosively which can splash the acid on our face or clothes and cause acid burns. Even the glass container may break due to the excessive heating.

51. Option (d) is correct.

Explanation: Lemon juice and coffee are acidic substance while blood and milk of magnesia are basic substance.

The correct order of pH of the given substances-
Lemon juice < Coffee < Blood < Milk of magnesia

52. Option (c) is correct.

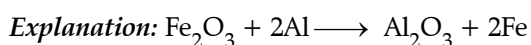
Anodizing process is the process in which the metal that needs to be electroplated is formed as anode.

Here option (c) is not correct because aluminium metal acts as anode but no oxygen gas is evolved at the cathode.

53. Option (a) is correct.

Explanation: Being unsaturated hydrocarbon, the ratio of carbon to hydrogen is low it burns with a yellow sooty flame.

54. Option (a) is correct.



here Al act as reducing agent while Fe_2O_3 acts as an oxidizing agent.

The above process is called thermite reaction and large energy is released which is utilised in welding purpose.

55. Option (c) is correct.

Explanation: Vicky told his friends about his visit to Stewart Island, Bay of Plenty and Hawke's Bay which are situated in New Zealand. Stewart Island is New Zealand's third largest island. The Bay of Plenty is a large bight along the northern coast of the North Island of New Zealand, while Hawke's Bay is a local government region on the east coast of New Zealand's North Island.

56. Option (c) is correct.

Explanation: World Heritage Sites are cultural and natural sites considered to be of outstanding value to humanity. As of January 2023, a total of 1,157 World Heritage Sites exist across 167 countries. Delhi has a rich historical and cultural background owing to the numerous invasions that took place in this region. If Manav is planning to visit all UNESCO World Heritage Sites in Delhi, he will be visiting at Red Fort, Qutab Minar, and Humayun Tomb. Red Fort was built by Shah Jahān in the mid-17th century and remains a major tourist attraction. The fort was designated a UNESCO World Heritage site in 2007. Qutab Minar was added to the list of World Heritage Site by UNESCO in 1993. Humayun Tomb was built in 1570 is the first garden-tomb on the Indian subcontinent and was declared a UNESCO World Heritage Site in 1993.

57. Option (d) is correct.

Explanation: The correct sequence of cities on the bank of river Ganga if someone moves from west to east is Kanpur, Prayagraj, Patna, Bhagalpur.

58. Option (d) is correct.

Explanation: Chhattisgarh has the longest extension in north-south direction. The northern and southern parts of the state are hilly, while the central part is a fertile plain. The highest point in the state is the Gaurata near Samri, Balrampur - Ramanujan district.

59. Option (b) is correct.

Explanation: A-3, B-1, C-4, D-2

List-I		List-II	
A	World Wetlands Day	3	2 February
B	International Tiger Day	1	29 July
C	World Water Day	4	22 March
D	International Mother Earth Day	2	22 April

60. Option (c) is correct.

Explanation: Six states and one Union Territory

have attained the best rating of Level 2 (L2) in Union Education Ministry's Performance Grading Index (PGI) 2020-21. These are Andhra Pradesh, Kerala, Maharashtra, Punjab, Chandigarh, Rajasthan and Gujarat. No state has been able to attain the highest level of L1 so far.

61. Option (d) is correct.

Explanation: Asha Parekh is an Indian actress, director, and producer. She was one of the top actresses in Bollywood from the late 1950s to 1970s. She is also an accomplished Indian classical dancer. In 1992, she was honoured with the Padma Shri for her contribution to the field of cinema. She was awarded the Dadasaheb Phalke Award in 2020.

62. Option (b) is correct.

Explanation: The UN 2023 Water Conference was held between 22nd to 24th March in New York. The first water conference was held in 1977 in Mar de Plata, Argentina. It was held after a gap of 46 years on the theme "Our watershed moment: uniting the world for water."

63. Option (c) is correct.

Explanation: Both the given statement is true regarding Tomb of Sand. Tomb of Sand is a 2018 Hindi-language novel, written by Indian author Geetanjali Shree. This book became the first novel translated from an Indian language (Hindi) to win the International Booker Prize. Tomb of Sand is a novel about a depressed 80-year-old woman.

64. Option (b) is correct.

Explanation: The eighth edition of the Exercise Garuda Shakti, a bilateral military to military exercise, was conducted recently between the special forces of India and Indonesia that commenced on 21 November 2022. It seeks to boost understanding, cooperation, and interoperability between the special forces of Indian and Indonesian armies.

65. Option (c) is correct.

Explanation: Inflation is an increase in the general price level of goods and services in an economy. Following are the measure that can be taken to control inflation:

There is a close link between the money supply and inflation. If RBI reduces the money supply in the market, people would be having less money to spend. This can be done by increasing repo or bank rates.

When repo rate is increased, rate of interest on savings and fixed deposits is also increased, which encourage people to save money rather than spending it. This eventually will lead to decrease in supply of money which in turn decrease the demand and decline in prices.

66. Option (a) is correct.

Explanation: The sustained decrease in the general price level is called as deflation. Deflation harms a country and its economy since a company's or business's revenue will drop due to deflation. This results in a large number of layoffs of employees and rising unemployment rates. A decrease in aggregate demand, a decrease in money flow, an increase in aggregate supply, monetary policy, and technological advances can all cause deflation.

67. Option (a) is correct.

Explanation: The National MPI is India's equivalent of the Global Multidimensional Poverty Index developed by the NITI Aayog. The Baseline Report of MPI is based on the National Family Health Survey (NFHS) 4 taken up during 2015-16.

Across three dimensions of health, education and standard of living, it includes indicators on nutrition, child and adolescent mortality, maternal care, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, bank accounts and assets.

68. Option (b) is correct.

Explanation: The unemployment that occurs due to changes in the technology or in the demand for particular products is called Structural unemployment. It is a longer-lasting form of unemployment caused by fundamental shifts in an economy. Structural unemployment occurs when certain industries

decline because of long term changes in market conditions. If there is complete change in a business set up, some workers are removed from their jobs this is structural employment. This type of unemployment is long run in nature.

69. Option (a) is correct.

Explanation: Correcting regional imbalances in the availability of tertiary health care services and augmenting facilities for quality medical education in the country are the objectives of the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY). It was announced in 2003 with an aim to develop capacities of primary, secondary, and tertiary care health systems even in the last miles of the nation, and developing a modern ecosystem for research, testing and treatment in the country itself.

70. Option (c) is correct.

Explanation: Mahatma Gandhi (M.K Gandhi) suggested the dissolution of the Indian National Congress as a political organization and its replacement by a Lok Sevak Sangh. He suggested the winding up of the party after India attained independence, as its main aim was to fight for Indian independence.

71. Option (a) is correct.

Explanation: In 2007, India became the first country to deploy an all-women contingent to a UN peacekeeping mission. India sent the first all-female Central Reserve Police Force (CRPF) contingent to Liberia as part of the United Nations Mission in Liberia (UNMIL).

72. Option (b) is correct.

Explanation: SWAYAM stands for Study Webs of Active Learning for Young Aspiring Minds. This programme is designed by Government of India to achieve the three cardinal principles of Education Policy viz., access, equity and quality. There are the 4 quadrants of SWAYAM programme :-

- Video lecture
- Specially prepared reading materials that can be downloaded

- online discussion forum for clarifying doubts
- Time to time assessment by experts.

Thus, a classroom lecture is not a part of the SWAYAM programme.

73. Option (c) is correct.

Explanation: From the given options, the National Authority Chemical Weapons Convention is not under the Ministry of Home Affairs. This wing was transferred during 1991 to the Ministry of Defence. It was established on 29 April 1997 by a resolution of the Cabinet and was later accorded a statutory status through Chemical Weapons Convention Act, 2000. There are a total of six departments under the Ministry of Home Affairs. These are - Department of Official Languages, Department of Internal Security, Department of Border Management, Department of Home, Department of States, Department of Jammu, Kashmir, and Ladakh Affairs. The Ministry of Home Affairs is mainly responsible for the maintenance of internal security and domestic policy.

74. Option (b) is correct.

Explanation: Under Article 244(1) of Fifth Schedule of the Constitution of India, the Tribes Advisory Councils (TAC) shall be established in each State having Scheduled Areas therein and, if the President so directs, also in any State having Scheduled Tribes but not Scheduled Areas therein.

75. Option (b) is correct.

Explanation: Zonal Councils are the statutory bodies which are established by an Act of the Parliament, that is the States Reorganisation Act of 1956. There are total five zone like - Northern, Central, Eastern, Western and Southern zone. The Northern Zonal Council comprises with the states and union territories of Chandigarh, National Capital Territory of Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan and Ladakh.

76. Option (d) is correct.

Explanation: The Kushan Empire was a syncretic empire, formed by the Yuezhi, in the Bactrian territories in the early 1st century. The notion of kinship projected by the Kushana rulers is best evidenced through coins and sculpture. The term kingship refers to a relatively complex and hierarchical structure of society in which a central figure, a king or, in certain cases, a queen- undertakes a unifying role that acts as a value reference for the various groups that constitute the society.

77. Option (b) is correct.

Explanation: Elder nuns in Buddhism were referred to as the 'Theris' in ancient India. 'Theri' refers to elderly women, though Susan Murcott argues that it refers to distinguished women (nuns) of wisdom and character. The Therigatha (verses of old women) is a collection of 73 poems written by Buddhist nuns over a period of 300 years.

78. Option (b) is correct.

Explanation: Hridayanath Kunzru founded the 'Seva Samiti' at Allahabad in 1914. It has an objective of Improving the status of the suffering classes through social service, and education. H. N. Kunzru joined the Servants of India Society in 1909 and became its life President in 1936.

79. Option (d) is correct.

Explanation: The First Anglo-Maratha War was concluded by the Treaty of Salbai which was signed in 1782. The First Anglo-Maratha War (1775–1782) was the first of three Anglo-Maratha Wars fought between the British East India Company and Maratha Empire in India. The Treaty of Salbai was signed between Warren Hastings and Mahadaji Sindhia. Some of the provisions of the Treaty of Salbai were: The whole of the territory conquered since the Treaty of Purandhar (1776) including Bassein should be restored to the Marathas. The English should not offer any further support to Raghunathrao and the Peshwa should grant him a maintenance allowance.

80. Option (b) is correct.

Explanation: The Battle of Colachel was fought between the Kingdom of Travancore and the Dutch East India Company in August 1741. Marthanda Varma won the Battle of Colachel against the Dutch. The Dutch never recovered from the defeat and no longer posed a large colonial threat to India.

81. Option (a) is correct.

Explanation: Rampa rebellion occurs during 1879 to 80 in which the Koya and Konda tribal chiefs rise against the local overlord from a Mansabdar family. It was a tribal uprising against the British in the hill tracts of Vishakhapatnam against the oppressions of a Zamindar.

82. Option (b) is correct.

Explanation: Brazil won the FIFA World Cup (Men) for maximum number of times. Brazil has won the title a record five times- 1958, 1962, 1970, 1994 and 2002. Brazil, is the only team that has participated in every World Cup.

83. Option (b) is correct.

Explanation: Dominique Lapierre is the author of the famous novel, City of Joy. It was adapted as a film by Roland Joffé in 1992. Dominique Lapierre was a French author who awarded with the Padma Bhushan by President of India on 5th May 2008. 'City of Joy' became an international best seller in 1985.

84. Option (c) is correct.

Explanation: Champions of the Earth award is an annual award accorded for transformative action to prevent, halt and reverse ecosystem degradation. Purnima Devi Barman is a wildlife biologist from Assam, and was honoured with the UN Environment Programme's 2022 Champions of the Earth Award in the Entrepreneurial Vision category. She is the founder of the Hargila Army, an all-female conservation initiative dedicated to protecting the Greater Adjutant Stork from extinction.

85. Option (b) is correct.

Explanation: India assumed the G20 Presidency on the 1st of December 2022 from Indonesia and it will hold the presidency for a year. The theme of India's G20 Presidency 'Vasudhaiva Kutumbakam' or 'One Earth- One Family- One Future' is drawn from the Maha Upanishad.

86. Option (d) is correct.

Explanation: Surya Kiran Exercise is the joint military Exercise that is held between India and Nepal bilaterally. The 16th edition of Indo-Nepal annual joint training exercise in jungle warfare and counterterrorism operations was held in 16th December to 29th December 2022 at Nepal Army Battle School, Saljhandi.

87. Option (d) is correct.

Explanation: As given, Time at GMT = 10 am. The place is situated at 90° East longitude. From the above concept, we know that 1° East longitude = 4 minutes ahead. As it is going towards East the time will be added to the GMT. So at 90°E longitude the time will be 4 pm.

88. Option (b) is correct.

Explanation: Gas giants are large planets composed primarily of gases, such as hydrogen and helium, with a relatively small rocky core. Jupiter, Saturn, Uranus and Neptune are the four gas giants of our solar system. These four are also called as Jovian planets.

89. Option (a) is correct.

Explanation: The following are the characteristics of the Alluvial Soil:

- The alluvial soil consists of various proportions of sand, silt and clay.
- The soil can be classified as old alluvial (Bangar) and new alluvial (Khadar) according to its age.
- Alluvial soils as a whole are very fertile and contain adequate proportion of potash, phosphoric acid and lime.

90. Option (c) is correct.

Explanation: Both the statements are correct regarding generation of electricity. Thermal power generation consists of using steam power created by burning oil, liquid natural

gas, coal, and other substances to generate electricity. The burning of fuels such as oil, coal and LNG (liquefied natural gas) fires a boiler to generate high-temperature, high-pressure steam, which goes through a turbine, which spins and turns, generating electricity.

91. Option (a) is correct.

Explanation: The Indus basin extends over China (Tibet), India, Afghanistan and Pakistan draining an area of 11, 65,500 Sq.km. In India, Indus river basins are extended up to Ladakh, Jammu and Kashmir, Himachal Pradesh and Punjab.

92. Option (c) is correct.

Explanation: The option (c) is incorrect regarding the Solicitor General of India. The post of the SGI is not a constitutional post. The posts of the Solicitor General and the Additional Solicitors General are merely statutory. The Solicitor General of India is subordinate to the Attorney General for India. The SGI is the Government's chief legal advisor and the secondary law officer of the country. The SGI is appointed by the Appointments Committee of the Cabinet.

93. Option (c) is correct.

Explanation: The Estimates Committee does not have members from the Rajya Sabha. It is the largest committee of the Parliament. It has 30 members and all these members are from Lok Sabha. The term of office is one year. A minister cannot be elected as a member of the committee.

94. Option (a) is correct.

Explanation: Option (a) is incorrect regarding the election of the President. According to Article 58 of the Constitution, no person shall be eligible for election as President unless he is a citizen of India, has completed the age of thirty-five years and is qualified for election as a member of the House of the People. That's why any Union Minister shall be eligible for election as the President. A person shall not be eligible for election as President if he holds any office of profit under or the Government of any State.

95. Option (a) is correct.

Explanation: The Citizenship Act, 1955 deals with the determination of citizenship on or after 26th January, 1950. The Act provides for five ways of acquiring citizenship, viz, birth, descent, registration, naturalisation and incorporation of territory.

A person born in India on or after January 26, 1950 but before July 1, 1987 is a citizen of India by birth irrespective of the nationality of his parents.

A person born in India on or after July 1, 1987 is considered as a citizen of India only if either of his parents is a citizen of India at the time of his birth.

96. Option (c) is correct.

Explanation: National Multi dimensional Poverty Index is released by the NITI Aayog. The MPI seeks to measure poverty across its multiple dimensions and in effect complements existing poverty statistics based on per capita consumption expenditure. According to the National Multi dimensional Poverty Index (MPI) constructed by the NITI Aayog, a household is considered deprived if a single member of the household is identified as under-nourished or the body mass index of a woman member, between 15 years and 49 years of age, is below 18.5 kg/ m². Thus, it is concluded that, both the statement 1 and 2 is correct.

97. Option (a) is correct.

Explanation: The titles of 'Rayagajakesari' and 'Dayagajakesari' were associated with Kakatiya dynasties. It was a Telugu dynasty that ruled most of eastern Deccan region in present-day India between 12th and 14th centuries. According to Kakatiya inscriptions, the name of the family derives from the name of a place called Kakati but there is another theory which states the family was named after their guardian goddess Kakati, a form of Durga.

98. Option (d) is correct.

Explanation: Kudimiyamalai is located at a distance of 20 km from pudukkottai district, Tamil Nadu. The existence of the Kudimiyamalai inscriptions are known from 1904 but it was first noticed by H. Krishnashastri. Later on, in 1970s, the Indian Council of Historical Research (ICHR) compiled inscriptions of each dynasty and brought out a volume. These inscriptions are important not only to historians but also to musicologists. There are more than 100 inscriptions with a highlight of an inscription expressing the grammatical notes of Karnatic/ Carnatic music.

99. Option (c) is correct.

Explanation: In the context of eighteenth century India, the Dastak was the trade permit given to the East India company by Farruksiyar's Farman of 1717. It was mostly issued to European traders by the officials of the East India Company.

100. Option (a) is correct.

Explanation: Dadni System was a system where advances were given as a mark of any business deal. Dadni comes from the Persian word dadan or advance. The Mughal Empire saw significant growth in trade and commerce, and the Dadni system was one of the ways that loans were provided to merchants and craftsmen. Textiles production was primarily associated with 'Dadni' system. Dadni is actually a kind of advance money paid to the merchants related to textiles production.

101. Option (c) is correct.

Explanation: Kanganahalli is an important Buddhist site located on the left bank of the Bhima river in Kalaburagi district in Karnataka. The remains of the excavations site at Kanaganahalli can be dated to between the 1st century BC to the 3rd century AD. The significant discovery of this site was the sculpture of Maurya emperor Ashoka with the label "Rayo Asoka."

102. Option (c) is correct.

Explanation: Volcanoes are Earth's geologic architects. The strength of a volcano is measured by the Volcanic Explosive Index. The Volcanic Explosivity Index (VEI) is a scale that describes the size of explosive volcanic eruptions based on magnitude and intensity. Volcanic soils are rich, deep and fertile and allow intensive agriculture to take place. The verdant splendor and fertility of many farmlands of the North Island of New Zealand are on volcanic soils of different ages. The island of Iceland is a part of the Mid-Atlantic Ridge. Thus, it is concluded that statement 1 and 3 is true.

103. Option (b) is correct.

Explanation: The cumulonimbus cloud, also known as thunderclouds, is a convective cloud or cloud system that produces rainfall and lightning. An anvil cloud is made of ice particles. These frozen particles form in the highest levels of thunderstorms or cumulonimbus clouds.

104. Option (c) is correct.

Explanation: As per the given information, bar chart will be the most suitable for the presentation of preserved data. A bar chart is a diagrammatic way of presentation that presents categorical data with rectangular bars with heights or lengths proportional to the values that they represent. Meena can present the different classification of data like population size and number of services easily in bar chart and she can compare it.

105. Option (b) is correct.

Explanation: Gujarat has the longest coastline in the country which is 1600 km long. Most of it lies on the Kathiawar peninsula.

106. Option (b) is correct.

Explanation: The port of Visakhapatnam is a land locked harbour as it is surrounded by land and the water passage is towards the ocean. The port which is encircled by land from all sides with a water passage towards sea or ocean is termed as land-locked port. Kandla port also known as the Deendayal Port is one

of the tidal ports in India. Tidal port refers to those ports in which the level of water within port varies with the change in the level of water in the oceans. Thus, it is concluded that both 1 and 2 is correct.

107. Option (b) is correct.

Explanation: According to the India State of Forest Report 2021, there is an increase in forest cover area of India between 2011 and 2021. The tree cover has risen from 90,844 sq km in the 2011 assessment to 95,748 sq km as per the 2021 assessment, showing a decadal increase of 4,904 sq km. However, there is a decrease in forest cover area of India during the same period in moderately dense forest (canopy density between 40-70 percent). In the last 10 years between 2011 and 2021, India lost 4.3 percent of the area under moderately dense forests.

108. Option (b) is correct.

Explanation: National Education Policy 2020 focuses on addressing the skill requirements arising due to technological developments. It outlines the vision of a new education system for India. According to NEP 2020, at least 50 percent of the learners through school and higher education system get exposure to vocational education by 2025, which will help students in acquiring various skills to meet the needs of the industries and to improve the quality of education. To achieve this objective, secondary schools will have to collaborate with Industrial Training Institutes (ITIs), Polytechnics, Local Industry, etc. Instead of NGOs, the School Education Boards will be strengthened to carry out the assessment of vocational courses, in collaboration with the industry. Thus, it is concluded that only statement (1) and (2) is correct regarding NEP-2020.

109. Option (a) is correct.

Explanation: The third edition of the SDG India Index and Dashboard 2020-21, which was released by NITI Aayog, has been

comprehensively documenting and ranking the progress made by states and Union Territories towards achieving the Sustainable Development Goals.

Bihar, Jharkhand and Assam were the worst performing states in this year's index.

110. Option (c) is correct.

Explanation: According to Article 51, the State shall make every effort to –

- (a) promote international peace and security.
- (b) maintain just and honourable relations between nations.
- (c) foster respect for international law and treaty obligations.
- (d) encourage the settlement of international disputes through arbitration.

111. Option (d) is correct.

Explanation: From the given options, only Fidel Castro was not in the core leadership of the Non-Aligned Movement (NAM) in its formative phase. The five top leaders like - Sukarno of Indonesia, Jawaharlal Nehru of India, and Josip Broz Tito of Yugoslavia, Gamal Abdul Nasser of Egypt and Kwame Nkrumah of Ghana are the core leaders of the Non-Aligned Movement in its formative phase. Their actions were known as 'The Initiative of Five'. The Non-Aligned Movement was formed during the Cold War as an organization of States that did not seek to formally align themselves with either the United States or the Soviet Union, but sought to remain independent or neutral. It is a forum of 120 countries that are not formally aligned with or against any major power bloc.

112. Option (c) is correct.

Explanation: The Bara Balutedar system was a hereditary system of twelve trades used historically in villages of regions that are now the part of Maharashtra. Balutedar means an occupation provided to a person belonging to a particular village based upon the caste system. Normally, they were village servants and artisans which existed in the Medieval Deccan and Maharashtra.

113. Option (a) is correct.

Explanation: Sir John Lawrence officially declared Simla the summer capital of the British Empire in 1864. Lawrence chose Shimla as the capital of the British Empire as they could not bear the heat and dust of the Indian summers and Shimla lies on the foothills of the Himalayas. After Independence, Shimla became the capital of Punjab and was later named the capital of Himachal Pradesh.

114. Option (a) is correct.

Explanation: Narayan Surve is the author of Maze Vidyapeeth, the famous poem about the life of working class of Bombay. Narayan Gangaram Surve was a Marathi poet emerged as the voice of the subaltern in Marathi poetry in the 1960s. He was a Convener of the Marathi Advisory Board of Sahitya Akademi.

115. Option (a) is correct.

Explanation: The Hindu Dharma Sabha was formed in 19th Century (1830) in Calcutta by Radhakanta Deb. Raja Sir Radhakanta Deb Bahadur was a Bengali reformer and cultural nationalist who dedicated his life to the preservation of orthodox Hinduism. Hindu Dharma Sabha was an orthodox Hindu society, established mainly to counter the ongoing social reform movements led by protagonists such as Raja Ram Mohun Roy and Henry Derozio.

116. Option (c) is correct.

Explanation: The resolution adopted by the United Nations General Assembly on 3rd March, 2021 decided to celebrate the year 2023 as the International Year of Millets. The day stands to provide a unique opportunity to increase global production, ensure efficient processing and consumption, promote a better utilization of crop rotations, and encourage better connectivity throughout food systems to promote millets as a key component of the food basket. Millets can grow on arid lands with minimal inputs and are resilient to changes in climate. The theme for the International Year

of Millets 2023 is “Harnessing the untapped potential of millets for food security, nutrition, and sustainable agriculture”.

117. Option (c) is correct.

Explanation: Karthik Meiyappan, who secured hat-trick in the ICC Men’s T20 World Cup, 2022, represents United Arab Emirates. The Indian-born Karthik Meiyappan is the first player from an associate team to take a hat-trick against a Test team in men’s World Cups. He made his One Day International debut for the UAE in 2019 and also represented the UAE at the 2020 Under-19 Cricket World Cup.

118. Option (b) is correct.

Explanation: The Wassenaar Arrangement is a voluntary export control regime. There are 42 participating nations in the arrangement to exchange information on transfers of conventional weapons and dual-use goods and technologies. India joined the Wassenaar Arrangement in December 2017 as its 42nd participating state. India assumed Chairmanship of Wassenaar Arrangement (WA) Plenary starting from 1st January 2023 for the period of one year. Thus, it is concluded that only option (b) is incorrect.

119. Option (c) is correct.

Explanation: Pilavullakandi Thekkeparambil Usha, popularly known as P. T. Usha is nicknamed as Payyoli Express or Payali Express. She dominated Asian track-and-field events for most of the 1980s, winning 23 medals in all, 14 of which were gold. The Government of India awarded Padma Shri to P.T. Usha in 1985.

120. Option (c) is correct.

Explanation: A-4, B-3, C-2, D-1

List – I (Title and Genre)		List – II (Author)	
A	Bhool Satya (Short Stories)	4	Manoj Kumar
B	Tumadi Ke Shabd (Poetry)	3	Badri Narayan
C	Chhe Roopak (Drama)	2	Veena Gupta
D	Alekhun Amba (Play)	1	Kamal Ranga

Time Allowed : 2 Hours

M.M. : 100

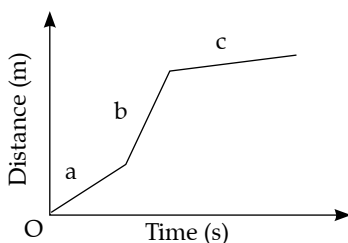
Important Instructions :

1. This Test Booklet contains **120** items (questions). Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
2. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See directions in the Answer Sheet.
3. All items carry equal marks.
4. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

1. A person can see near objects clearly through his eyes but **cannot** see distant objects clearly. The possible reason(s) for this defect could be:
 1. Excessive curvature of the eye lens.
 2. The eye-ball has become too small.
 3. The focal length of the eye lens is too large.
 4. Elongation of the eye-ball.

Select the correct answer using the code given below:

- (a) 1 only
 - (b) 2 and 4 only
 - (c) 1 and 4 only
 - (d) 1 and 3 only
2. Consider a journey by a car represented by the graph given below in three parts A, B and C. The speed of the car in these parts is v_a , v_b and v_c respectively:



Which one of the following is correct in this case?

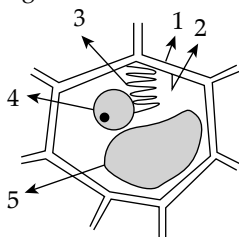
- (a) $v_a < v_b < v_c$
 - (b) $v_b > v_a > v_c$
 - (c) $v_0 = v_b = v_c$
 - (d) $v_a > v_b ; v_a > v_c$
3. A concave mirror of radius of curvature 50 cm is used to form an image of an object kept at a

distance of 25 cm from the mirror on its principal axis. What will be the position of the image from the mirror?

- (a) At infinity
- (b) At 50 cm
- (c) At 25 cm
- (d) At 75 cm

4. If the Moon is brought closer to the Earth such that its distance from the Earth becomes half of the original distance, then the gravitational force of attraction between the Earth and the Moon would:
 - (a) reduce to half of its original value.
 - (b) increase to two times of its original value.
 - (c) remain the same as the original value.
 - (d) increase to four times of its original value.
5. Sonic boom is produced when a source of sound travels at a speed :
 - (a) greater than the speed of sound.
 - (b) greater than the speed of light.
 - (c) lesser than the speed of sound.
 - (d) equal to the speed of sound.
6. Which one among the following are the correct symbols for the elements gold, tin and lead, respectively?
 - (a) Ga, Sb, Pb
 - (b) At, Sn, Le
 - (c) Au, Sn, Pb
 - (d) Au, Sb, Pb
7. How much percentage of carbon dioxide is present in the atmosphere of Venus and Mars?
 - (a) 45 - 47%
 - (b) 52 - 55%
 - (c) 74 - 77%
 - (d) 95 - 97%

8. Which among the following methods is used to separate the constituents present in a compound?
- Electrochemical method
 - Heating method
 - Fractional distillation
 - Decomposition followed by ion exchange
9. During white-washing of walls, slaked lime reacts slowly with carbon dioxide in air to form a thin layer of calcium carbonate on the walls. Which of the following reactions represents this correctly?
- $\text{CaO(s)} + \text{CO}_2\text{(g)} \rightarrow \text{CaCO}_3\text{(s)}$
 - $\text{CaO(l)} + \text{CO}_2\text{(g)} \rightarrow \text{CaCO}_3\text{(s)}$
 - $\text{Ca(OH)}_2\text{(l)} + \text{CO}_2\text{(l)} \rightarrow \text{CaCO}_3\text{(s)} + \text{H}_2\text{O(l)}$
 - $\text{Ca(OH)}_2\text{(aq)} + \text{CO}_2\text{(g)} \rightarrow \text{CaCO}_3\text{(s)} + \text{H}_2\text{O(l)}$
10. Which one of the following equations is the balanced chemical equation for the given reaction?
- $$\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$$
- $\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
 - $3\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 2\text{H}_2$
 - $3\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$
 - $3\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
11. The term Phyllotaxy refers to the pattern of :
- arrangement of leaves.
 - branching in stem.
 - flower formation on branch.
 - arrangement of flowers.
12. Chromosomes are composed of DNA and :
- lipids
 - vitamins
 - proteins
 - carbohydrates
13. Bacteria have an undefined nuclear region which lacks a nuclear membrane and contains only DNA without proteins. Such a region is called:
- Nucleosome
 - Nucleus
 - Nucleoprotein
 - Nucleoid
14. In the following simplified diagram of a plant cell, five parts/organelles are marked from 1 to 5:



Which one of the following correctly represents the above parts/organelles?

- 1 - cell membrane; 2 - cell wall;
3 - vacuole; 4 - endoplasmic reticulum;
5 - nucleus
 - 1 - cell wall; 2 - cell membrane;
3 - endoplasmic reticulum; 4 - vacuole;
5 - nucleus
 - 1 - cell wall; 2 - cell membrane;
3 - endoplasmic reticulum; 4 - nucleus;
5 - vacuole
 - 1 - cell wall; 2 - cell membrane;
3 - vacuole; 4 - endoplasmic reticulum;
5 - nucleus
15. Which one of the following is the language of the famous political treatise Amuktamalyada?
- Sanskrit
 - Tamil
 - Kannada
 - Telugu
16. Which one of the following statements about the Shvetambara Sect of Jainism is **not** correct?
- It refers to monks, who wear white clothes.
 - It refers to monks, who migrated to the south of Vindhyas in 4th century BCE.
 - They recognized the existence of canonical texts including the 12 Angas.
 - They believed that women can also attain salvation.
17. Where is the Vikramkhoh Cave located?
- Odisha
 - Bihar
 - Telangana
 - West Bengal
18. Consider the following statements regarding the 'Levallois Technique' :
- It refers to making perforated Harappa pottery.
 - It refers to making prehistoric flake tools.
- Which of the statements given above is/are correct?
- 1 only
 - 2 only
 - Both 1 and 2
 - Neither 1 nor 2
19. Which of the following statements is/are correct?
- The Bakshali Manuscript written in the Gatha language (a refined version of old Prakrit) using the Sharada script deals with topics such as fractions, square roots, arithmetic and geometric progressions.
 - In the field of geometry, Aryabhatta described the various properties of a circle giving a very accurate value for pi (π) correct to four decimal places at 3.1416.
 - Sharangadhara Samhita is an important text on political system of ancient India.
- Select the correct answer using the code given below :
- 1,2 and 3
 - 1 and 3 only
 - 1 and 2 only
 - 2 only
20. Which one of the following is **not** correct about the Indian Independence Act, 1947?
- The Bill for the Indian Independence Act was introduced in Parliament on July 4 and received the Royal Assent on July 18, 1947.
 - Act of 1947 laid down the basic framework of the Indian Constitution.
 - The Act provided for the establishment of two independent Dominions to be known as India and Pakistan.
 - The Act empowered the Constituent Assembly of each Dominion to have unlimited power to frame and adopt any constitution.