

Test Booklet

General Ability Test (Solutions)

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.
4. This Test Booklet contains 150 items (questions) in two Parts : **PART - A** and **PART - B**. **Each item in PART -B is printed both in Hindi and English**. 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.
5. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. All items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator **only the Answer Sheet**. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY THE 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 (0.33) 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.

PART-A**Synonyms**

Directions: Each item in this section consists of an underlined word in given sentences. Each sentence is followed by four words. Select the word which is most similar in meaning to the underlined word and mark your response in the Answer Sheet accordingly.

1. Suddenly there was a bright flash, followed by a deafening explosion.
(a) dangerous (b) terrifying (c) mild (d) very loud
Ans. (d) An explosion refers to a loud noise. 'Deafening' means being unable to hear due to too much noise. Therefore, option (d) is most similar in meaning to the work 'deafening'.
2. He showed exemplary courage during the crisis.
(a) usual (b) durable (c) commendable (d) some
Ans. (c) 'Exemplary' means to provide a good example for others. 'Commendable' means praise worthy, therefore, option (c) is most similar in meaning to the word 'exemplary'.
3. When the new teacher entered the classroom, he found the pupils restive.
(a) at rest (b) idle (c) quiet (d) impatient
Ans. (d) 'Restive' means unable to stay still or being controlled. Therefore, option (d) is most similar in meaning to the word 'restive'.
4. There is no dearth of talent in this country.
(a) scarcity (b) availability (c) plenty (d) absence
Ans. (a) 'Dearth' means a lack or scarcity of something. Therefore, option (a) is most similar in meaning to the word 'dearth'.
5. The servants retired to their quarters.
(a) entered (b) went away (c) ran away (d) mobilized
Ans. (b) 'Retired' means to leave a place. According to the context of the sentence option (b) is most similar in meaning to the word 'retired'.
6. The navy gave tactical support to the marines.
(a) sensitive (b) strategic (c) immediate (d) expert
Ans. (b) 'Tactical' means careful planning in order to achieve something. Therefore, option (b) is most similar in meaning to the word 'tactical'.
7. A genius tends to deviate from the routine way of thinking.
(a) dispute (b) disagree (c) distinguish (d) differ
Ans. (d) 'Deviate' means to be different from the rest. Therefore, option (d) is most similar to the word 'deviate'. Other options are not suitable.
8. He was greatly debilitated by an attack of influenza.
(a) depressed (b) weakened (c) worried (d) defeated
Ans. (b) 'Debilitate' means to weaken as a result of an illness. Therefore, option (b) is most similar to the word 'debilitate'.
9. His efforts at helping the poor are laudable.
(a) welcome (b) sincere (c) good (d) praiseworthy.
Ans. (d) 'Laudable' means worth appreciation/here option (d) praiseworthy is the correct synonym.
10. His conduct brought him reproach from all quarters.
(a) rebuke (b) sympathy (c) indifference (d) remorse
Ans. (a) 'Reproach' means expressing blame or criticism. Therefore, option (a) is most similar to the

word 'reproach.'

Sentence Improvement

Directions : In this section, look at the underlined part of each sentence. Below each sentence are given three possible substitutions for the underlined part. If one of them (a), (b) or (c) is better than the underlined part, indicate your response on the Answer Sheet against the corresponding letter (a), (b) or (c). If none of the substitutions improves the sentence, indicate (d) as your response on the Answer Sheet. Thus a "No improvement" response will be signified by the letter (d).

11. When he heard the rhetorical speech of the leader, he was carried along by his enthusiasm.
 (a) carried aloft (b) carried down (c) carried away (d) No improvement
Ans. (c) From the given options, the idiom 'carried away' is appropriate. 'Carried away' means to become overly excited or involved in something.
12. After the heavy rains last week, the water in the lake raised another two feet.
 (a) rose another two feet (b) arisen another two feet
 (c) would raise another two feet (d) No improvement
Ans. (a) The sentence is in the past tense. The past tense of the verb 'rise' is 'rose', therefore, option (a) is correct.
13. One can live and work in a town without being aware of the daily march of the sun across the sky without never seeing the moon and stars.
 (a) seldom (b) hardly (c) ever (d) No improvement
Ans. (c) The word 'ever' is an appropriate substitution of 'never'. 'Ever' is used for emphasis while comparing two things. Therefore, option (c) is correct.
14. Applications of those who are graduates will be considered.
 (a) whom are graduates (b) whose are graduates
 (c) whom are only graduates (d) No improvement
Ans. (d) No improvement
15. It is raining heavily all through this week.
 (a) has rained (b) rains (c) rained (d) No improvement
Ans. (c) The sentence is in past tense. Therefore, option (c) is correct.
16. The sparrow took no notice about the bread.
 (a) notice of (b) notice from (c) notice to (d) No improvement
Ans. (a) The preposition 'of' is used with the word 'notice' to form a meaningful expression.
17. As he spoke about his achievements, his high claims amused us.
 (a) big (b) tall (c) long (d) No improvement
Ans. (b) Tall claims in the correct expression meaning over statement.
18. We ought to stand for what is right.
 (a) stand at (b) stand on (c) stand up (d) No improvement
Ans. (c) The phrase 'stand up' means to support. Therefore, option (c) conveys correct the meaning of the sentence.
19. He enjoys to tell stories to children.
 (a) how to tell stories (b) telling stories
 (c) to narrate stories (d) No improvement
Ans. (b) The sentence is in simple continuous tense. Therefore, option (b) is appropriate.
20. In a few minutes' time, when the clock strikes six, I would be waiting here for an hour.

- (a) shall be waiting on (b) shall have been waiting
(c) shall wait (d) No improvement

Ans. (a) The sentence is in future continuous tense. Therefore, option (a) is appropriate.

Antonyms

Directions : Each item in this section consists of an underlined word in given sentences. Each sentences followed by four words. Select the word which is most nearly opposite in meaning to the underlined word.

21. He handled the machine with deft fingers.

- (a) delicate (b) sturdy (c) quick (d) clumsy

Ans. (d) 'Deft' means skillful and quick. 'Clumsy' means doing something without skill. Therefore, option (d) is nearly opposite to 'deft'.

22. I was deeply affected by his urbane behaviour.

- (a) rural (b) rude (c) irrational (d) indifferent

Ans. (b) 'Urbane' means confident and well-mannered and 'rude' means being impolite. Therefore, option (b) is nearly opposite to 'urbane.'

23. His timidity proved costly.

- (a) arrogance (b) boldness (c) skillfulness (d) cunning

Ans. (b) 'Timidity' means being shy and nervous and 'bold' means being brave confident. Therefore, option (b) is nearly opposite to 'timidity'.

24. Arrangements were made to handle the mammoth gathering tactfully.

- (a) significant (b) small (c) unruly (d) noisy

Ans. (b) 'Mammoth' means extremely large. Therefore, option (b) is nearly opposite to 'mammoth'.

25. He was engrossed in his work when I walked in.

- (a) occupied (b) inattentive (c) engaged (d) absent

Ans. (b) 'Engrossed' means involved or attentive. Therefore, option (b) is nearly opposite to 'engrossed'.

26. These are the main points of the preceding paragraph.

- (a) following (b) previous (c) first (d) last

Ans. (a) 'Preceding' means happening or coming before lot order. Following means next in order. Therefore, option (a) is nearly opposite to 'preceding'.

27. He made a shrewd guess.

- (a) clever (b) wild (c) incorrect (d) discriminating

Ans. (c) 'Shrewd' means to be right or correct. Therefore option (c) is nearly opposite to 'shrewd'.

28. He is suffering from a severe cough.

- (a) violent (b) mild (c) bad (d) continuous

Ans. (b) 'Severe' means harsh or serious. Therefore, option (b) is nearly opposite to 'severe'.

29. Cumulatively, the effect of these drugs is quite bad.

- (a) Individually (b) Obviously (c) Clearly (d) Collectively

Ans. (a) 'Cumulative' means including everything or as a whole. Therefore, option (a) is nearly opposite to 'cumulative'.

30. He was conspicuous because of his colourful shirt.

- (a) charming (b) ugly (c) small (d) unnoticeable

Ans. (d) 'Conspicuous' means easy to see or notice. Therefore, ' option (d) is nearly opposite to

'conspicuous'.

31. He hates these continual arguments with his friend.

- (a) repeated (b) irrational (c) occasional (d) regular

Ans. (c) 'Continual' means continuous or repetitive. Therefore, option (c) is nearly opposite to 'continual'.

Selecting Words

Directions : In this section, each of the following sentences has a blank space and four words given after the sentence. Select whichever word you consider most appropriate for the blank space and indicate your response in the Answer Sheet accordingly.

32. When the bus was at full speed, its brakes failed and an accident was_____.

- (a) inevitable (b) undeniable (c) fatal (d) miserable

Ans. (a) 'Inevitable' means difficult to avoid or prevent. Therefore, option (a) is appropriate in the context of the sentence.

33. To explain his design to his visitors, the architect _____ a simple plan on the blackboard.

- (a) built (b) finalised (c) sketched (d) arranged

Ans. (c) 'Sketch' means to draw a simple outline giving less details. Therefore, option (c) suits the context of the sentence.

34. Though Bonsai, a well-known art form, originated in China, it was _____ by the Japanese.

- (a) cultivated (b) finished (c) perfected (d) enlarged

Ans. (c) 'Perfected' means to complete without fault. Therefore, option (c) completes the sentence.

35. He is greatly admired for his _____ behaviour.

- (a) decrepit (b) decadent (c) decorative (d) decorous

Ans. (d) 'Decorous' means polite or restraint. This meaning suit the context.

36. Would you mind _____ to the Principal how the trouble started ?

- (a) remarking (b) saying (c) explaining (d) talking

Ans. (c) 'Explain' means to express in a detailed and easy manner. Therefore, option (c) completes the meaning of the sentence.

37. Vaccination will make people immune _____ certain diseases for a given period.

- (a) against (b) to (c) with (d) for

Ans. (b)

38. The two boys looked so alike that it was impossible to _____ between them.

- (a) discriminate (b) discern (c) distinguish (d) identify

Ans. (c) Distinguish means difficult to understand the difference. Therefore option (c) is correct choice.

39. The campers _____ their tents at the base of the mountain.

- (a) installed (b) dug (c) pitched (d) established

Ans. (c) To 'pitch' tents means to set-up and camp for a short time. Therefore, option (c) suits the context of the sentence.

40. The enemy had captured him and his life was at stake, still he refused to _____ the state secrets.

- (a) divulge (b) divert (c) indulge (d) invert

Ans. (a) 'Divulge' means to reveal or make known. Therefore option (a) suits the context of the sentence.

Spotting Errors

Directions : Each question in this section has a sentence with three underlined parts labelled (a), (b) and (c). Read each sentence to find out whether there is any error in any underlined part and indicate your response in the Answer Sheet against the corresponding letter i.e., (a) or (b) or (c). If you find no error, your response should be indicated as (d).

41. She said that she was understanding his point of view very well. No error.
(a) (b) (c) (d)

Ans. (a) Part (a) has error of tense. As the sentence is in past tense the verb should be in past perfect tense 'she had understood' is correct.

42. All the houses having been washed away by the floods,
(a) (b)

the villagers sought shelter in the panchayat office. No error.
(c) (d)

Ans. (b) Part (b) has error of use of preposition. Instead of by we should write 'due' to floods.

43. It is necessary for us to familiarize with and get used to the ways of the people
(a) (b)
among whom we live. No error.
(c) (d)

Ans. (b) Part (b) has error before get we must use infinitive 'to'.

44. The mother asked the child Why did she cry out in her sleep. No error
(a) (b) (c) (d)

Ans. (b) Part (b) has error in usage of tense with asked 'why did she cry' should not be used. It should be 'why she cried'.

45. I asked him that why he was angry but he did not answer. No error :
(a) (b) (c) (d)

Ans. (a) Part (a) has error. With question word there is no need to use that before it.

46. Had I not taken ill, I would have sent you my research paper much earlier. No error.
(a) (b) (c) (d)

Ans. (a) Part (a) has error, the sentence should begin with. I had not taken ill (Conditional sentence).

47. The barn owl helps the farmer by destroying rats which could, if left unchecked do a lot of
(a) (b)
damage to the crops. No errors.
(c) (d)

Ans. (a) Part (a) has error of tense. Instead of helps (simple present tense) it should be helped (past tense) as the rest of the sentence indicates use of past tense.

48. He had gone home three weeks ago and was expected back yesterday, but he has not come yet.
(a) (b) (c)
No error.
(d)

Ans. (a) Part (a) has error of use of past tense. Here simple past tense is to be used and it should be

'He went home three weeks ago'.

49. We must sympathize for others in their troubles. No error.
 (a) (b) (c) (d)

Ans. (b) Part (b) has error in usage of preposition 'for' should be removed and with should be used. Correct sentence will be 'We must sympathise with others in their trouble'.

50. The scientists in America are trying for long to discover the genes responsible for ageing.
 (a) (b) (c)

No error.

(d)

Ans. (b) Part (b) use of present tense is required here its should be 'The scientist in America have been trying for long.

PART-B

51. Which one of the following oxides dissolves in water?

(a) CuO (b) Al₂O₃ (c) Fe₂O₃ (d) Na₂O

Ans. (d) Sodium oxide (Na₂O) is the base anhydride of sodium hydroxide, when water is added to it, NaOH is produced.



It is used in ceramics and glasses, though not in a raw form.

52. To prevent heart problems, blood of a normal healthy person should have

1. low cholesterol level.
2. high HDL level.
3. high VLDL level.
4. high LDL level.

Select the correct answer using the code given below :

(a) 1 and 2 only (b) 1, 2 and 4 only (c) 3 and 4 only (d) 1, 2 and 3 only

Ans. (a) Low cholesterol level and High Density Lipids (HDL) high level are helpful in preventing heart problems. High density lipids are directly correlated with low level of VLDL. HDL is also called 'good cholesterol'. LDL is called 'bad cholesterol'.

These cholesterol are harmful to our heart. So, high VLDL level and high LDL level are not helpful in preventing heart problems.

53. Spruce and Cedar are tree varieties of

(a) Equatorial forest (b) Temperate coniferous forest
 (c) Monsoon forest (d) Temperate deciduous forest

Ans. (b) Temperate coniferous forests are made up of mainly cone-bearing trees such as pine, fir, spruce, hemlock etc and other varieties include juniper, cedar, redwood.

54. 'Sal' tree is a

(a) Tropical evergreen tree (b) Tropical semi-evergreen tree
 (c) Dry deciduous tree (d) Moist deciduous tree

Ans. (c) Dry deciduous forests are monsoonal forests found in areas where rainfall lies between 70 to 100 cm. Sal is the most significant tree found in these forests. Teak, neem, peepal are other common varieties.

55. Matter around us can exist in three different states, namely, solid, liquid and gas. The correct order of their compressibility is
- (a) Liquid < Gas < Solid (b) Solid < Liquid < Gas
 (c) Gas < Liquid < Solid (d) Solid < Gas < Liquid

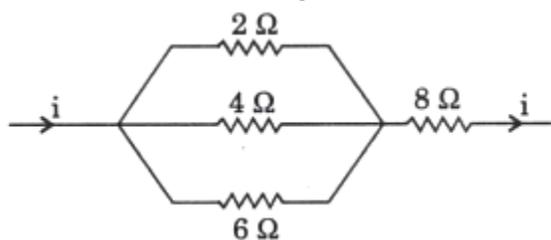
Ans. (b) The correct order of compressibility is Solid < Liquid < Gas. Gases are highly compressible as compared to solids and liquids. In gas, the molecules have enough kinetic energy so that the effect of intermolecular forces is -small and the typical distance between neighbouring molecules is much greater than the molecular size.

56. The temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point. The melting point of a solid is an indication of

- (a) strength of the intermolecular forces of attraction
 (b) strength of the intermolecular forces of repulsion
 (c) molecular mass
 (d) molecular size

Ans. (a) The melting point of a solid is an indication of strength of intermolecular force of attraction. On increasing the temperature of solids, the kinetic energy of the particles increases. Due to the increase in kinetic energy, the particles start vibrating with greater speed. The energy supplied by the heat overcomes the forces of attraction between the particles. A stage is reached when solid melts and is converted to a liquid.

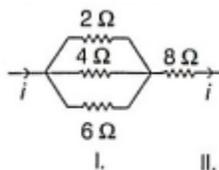
57. Consider the following circuit:



The equivalent resistance of the circuit will be

- (a) 12Ω (b) $8\frac{11}{12}\Omega$ (c) $9\frac{1}{11}\Omega$ (d) $\frac{24}{25}\Omega$

Ans. (c) Consider the given circuit



This circuit consists of two sections, I and II. In first section, three resistors are in parallel connection, therefore equivalent resistance is

$$\frac{1}{R_1} = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} = \frac{6+3+2}{12}$$

$$\Rightarrow R_1 = \frac{12}{11}\Omega$$

This resistance is in series with the resistance 8Ω of section II.

\therefore Equivalent resistance of the circuit

$$R_{eq} = R_1 + 8$$

$$= \frac{12}{11} + 8 = \frac{100}{11} = 9\frac{1}{11}\Omega$$

58. Which one of the following elements will not react with dilute HCl to produce H₂ ?

- (a) Hg (b) Al (c) Mg (d) Fe

Ans. (a) Hg will not react with dilute HCl to produce H₂ because in reactivity series, Hg is less reactive than the given, i.e. the hydrogen which has a stronger attraction to the Cl than the mercury.

59. Which of the following pairs of vector and disease is/are correctly matched?

- | | Vector | Disease |
|----|---------------|---------------------|
| 1. | Anopheles | : Malaria |
| 2. | Aedes aegypti | : Chikungunya |
| 3. | Tsetse fly | : Filariasis |
| 4. | Bed bugs | : Sleeping sickness |

Select the correct answer using the code given below :

- (a) 1, 2 and 3 only (b) 1 and 2 only (c) 1 and 4 only (d) 2 only

Ans. (b) The vector for malaria disease is female Anopheles. This disease is caused by a protozoon called Plasmodium. It is a epidemic disease. Chikungunya spread by a mosquito Aedes aegypti. This disease is caused by alpha virus. Monkey and human being act as a reservoir. This disease spread by female Culex. It is also known as 'elephantiasis'. The causative agent for this disease is Wuchereria, bancrofti. This worm affects the lymphatic system by blocking lymph vessels. The lymph fluid accumulate in different parts of body, leading to swelling of organs especially lower limbs.

60. Consider the following statements :

- All Echinoderms are not marine.
- Sponges are exclusively marine.
- Insects are found in all kinds of habitats.
- Many primates are arboreal.

Which of the statements given above is/are correct ?

- (a) 1, 3 and 4 only (b) 3 and 4 only
(c) 2 and 4 only (d) 3 only

Ans. (b) Insects constitute the largest group of animal kingdom more than 700000 species present in class-Insecta. This is the most successful animals in invertebrates, present in all kinds of habitats. Many primates such as monkey, lemurs etc are arboreal but human is not. Well-developed brain, binocular vision, cerebral hemisphere are present in primates.

All echinoderms are exclusively marine, with spiny skin and ambulacral system. But sponges are present in fresh and marine both kinds of aquatic habitats. Sponges are animals with pores, static and water canal system.

61. Areas which are engines for economic growth supported by quality infrastructure and complemented by an attractive fiscal package are known as

- (a) Export Processing Zones (b) Duty Free Tariff Zones
(c) Special Economic Zones (d) Technology Parks

Ans. (c) Special Economic Zone (SEZ) are those areas in a country that possess special economic regulations that differ from other areas. These areas has quality infrastructure and attractive fiscal packages to promote export.

62. Deserts, fertile plains and moderately forested mountains are the characteristic features of which one of the following regions of India?
- (a) South-Western border along Arabian Sea
 (b) Coromandel Coast
 (c) North-Eastern Frontier
 (d) North-Western India

Ans. (d) North-Western India has all the features described in the question. Area lying to the West of Aravallis is a desert. Punjab and Haryana have fertile plains suitable for wheat cultivation. Aravallis are moderately forested in rainier areas.

63. A racing car accelerates on a straight road from rest to a speed of 50m/s in 25 s. Assuming uniform acceleration of the car throughout, the distance covered in this time will be
- (a) 625m (b) 1250 m (c) 2500 m (d) 50 m

Ans. (a) Acceleration of the car is uniform. Therefore, according to first equation of motion

$$v = u + at$$

where, v = final velocity of the car = 50 m/s

a = acceleration of the car

t = time interval = 25 s

u = initial velocity = 0

$$\therefore 50 = 0 + a \times 25 \Rightarrow a = 2\text{m/s}^2$$

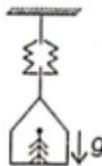
Now, applying second equation of motion we get,

$$s = ut + \frac{1}{2}at^2 = 0 + \frac{1}{2}at^2$$

$$= \frac{1}{2} \times 2 \times 25 \times 25 = 625\text{m}$$

64. A man weighing 70 kg is coming down in a lift. If the cable of the lift breaks suddenly, the weight of the man would become
- (a) 70 kg (b) 35 kg (c) 140 kg (d) Zero

Ans. (d) Consider the mass of the man in the lift is m when cable breaks as shown in the diagram.



Now, the man in the lift is in free fall.

Therefore, his acceleration is same as acceleration due to gravity ' g '. Due to this acceleration pseudo force as the man is mg upward. Therefore, weight of the man,

$$w = mg - mg = 0$$

65. A given conductor carrying a current of 1 A produces an amount of heat equal to 2000 J. If the current through the conductor is doubled, the amount of heat produced will be
- (a) 2000 J (b) 4000 J (c) 8000 J (d) 1000 J

Ans. (c) Let resistance of the coil is R and measuring heat produced for time t seconds.

$$\therefore H = I^2RT = (1)^2 (R) (t) \Rightarrow 2000 \text{ J} = Rt$$

Similarly, when current is doubled, the amount of heat produced is

$$H' = (I')^2 RT = (2I)^2 (Rt) = 4Rt$$

$$= 4 \times 2000 \text{ J} = 8000 \text{ J} \quad [\because Rt = 2000 \text{ J}]$$

66. Which of the following statements about DNA is/are correct ?

1. DNA is the hereditary material of all living organisms.
2. All segments of DNA code for synthesis of proteins.
3. Nuclear DNA is double helical with two nucleotide chains which run anti-parallel.
4. DNA is also found in mitochondria.

Select the correct answer using the code given below :

- (a) 1, 2 and 3 only (b) 3 and 4 only (c) 1, 3 and 4 only (d) 4 only

Ans. (c) DNA is made up of exon and intron regions. Exons are coding region and introns are non-coding region. Only exon part codes for protein synthesis. DNA is the genetic material of all living organisms. Except in few viruses where, RNA acts as a genetic material such as retrovirus (e.g. HIV virus). Here, RNA redirects DNA synthesis by 'reverse transcription' process with the help of 'reverse transcriptase' enzyme.

Nuclear DNA is a double helix with anti-parallel chains. DNA also present in mitochondria as well as in chloroplast. Circular DNA present in mitochondria is similar to bacteria which synthesise proteins related to its own function. That is why these organelles are known as 'semi-autonomous organelles'.

67. Which organisation prepares the topographical maps of India?

- (a) Geological Survey of India
- (b) Archaeological Survey of India
- (c) Survey of India
- (d) National Atlas and Thematic Mapping Organisation

Ans. (c) Survey of India, the national survey and mapping organisation of the country, is responsible for preparing topographical maps of India. These maps are printed on 1: 250000, 1: 50000 and 1: 25000 scales.

68. Which one of the following is not an international boundary line ?

- (a) Dresden Line (b) Durand Line (c) Maginot Line (d) 38th Parallel

Ans. (a) **Durand Line** forms the boundary between Pakistan and Afghanistan.

Maginot Line was drawn as a boundary line separating France from Switzerland, Germany and Luxembourg.

38th Parallel North refers to border between North and South Korea.

Dresden Line is not an international boundary line.

69. A lady is standing in front of a plane mirror at a distance of 1 m from it. She walks 60 cm towards the mirror. The distance of her image now from herself (ignoring the thickness of the mirror) is

- (a) 40 cm (b) 60 cm (c) 80cm (d) 120 cm

Ans. (c) Initial distance of the lady from the mirror is $x_1 = 1 \text{ m} = 100 \text{ cm}$

After moving 60cm towards the mirror, new distance is $x_2 = 100 - 60 = 40 \text{ cm}$

\therefore Distance of her image from herself is

$$d = x_2 + x_2 = 2x_2 = 80 \text{ cm}$$

70. The brightness of a star depends on its

- (a) size and temperature only
- (b) size and distance from the earth
- (c) size, temperature and mass

(d) size, temperature and distance from the earth

Ans. (a) According to Stefan's law, rate of loss of heat energy in the form of radiation (brightness) of a star depends upon

(i) nature of surface of radiant object

(ii) surface area of the star

(iii) temperature of the star

71. When a solid is heated, it turns directly into a gas. This process is called

(a) Condensation (b) Evaporation (c) Sublimation (d) Diffusion

Ans. (c) Sublimation is the change of state from solid state directly to gaseous state without going through liquid state and vice-versa a.

72. Which one of the following is water gas ?

(a) Mixture of carbon monoxide and hydrogen

(b) Mixture of carbon monoxide and nitrogen

(c) Mixture of carbon dioxide and water vapour

(d) Mixture of carbon monoxide and water vapour

Ans. (a) Water gas is a mixture of carbon monoxide and hydrogen in which nitrogen and water vapour is in the form of impurity. The gas is made by passing steam over a red hot carbon fuel such as coke. This gas provided a more efficient heating fuel than the common coal gas or coke gas.

73. Which of the following statements are correct ?

In honey bees

1. Males are haploid.

2. Workers are sterile and diploid.

3. Queen develops from diploid larvae that fed on royal jelly.

4. Honey is collected/made by males.

Select the correct answer using the code given below :

(a) 1, 2, 3 and 4 (b) 2 and 3 only (c) 1, 2 and 3 only (d) 1 and 4 only

Ans. (c) Honey is made by honey bee (*Apis indica*). In these flies 'Haplo-diploidy' is present. In this type of genetic constitution males are haploids and females are diploids. Females are developed into queen and workers. Only one diploid larvae which larvae feed upon 'Royal Jelly', developed into queen, rest larvae feed upon 'Bee bread' and developed into sterile worker. Honey is collected and made by workers.

74. The Amarkantak Hills is the source of which of the following rivers ?

1. Narmada

2. Mahanadi

3. Tapti

4. Son

Select the correct answer using the code given below :

(a) 1 and 2 only (b) 2 only (c) 1, 3 and 4 only (d) 1, 2 and 4 only

Ans. (d) Narmada river originates from Narmada Kund, Amarkantak hills. Mahanadi and Son also rises from Amarkantak. Only Tapti river rises from a different source i.e. Satpura range.

75. Which of the following statements in the context of northern hemisphere is/are correct?

1. Vernal equinox occurs on March 21.

2. Summer solstice occurs on December 22.

3. Autumnal equinox occurs on September 23.

4. Winter solstice occurs on June 21.

Select the correct answer using the code given below:

- (a) 1 only (b) 1 and 3 only (c) 2 and 4 only (d) 1, 2 and 3 only

Ans. (b) Equinox are days when days and nights are equal. 21st March is Vernal equinox and 23rd September is Autumnal equinox. Summer solstice falls on 21st June, when Sun is vertically overhead the tropic of cancer. Winter solstice is observed on 22nd December when Sun is vertically overhead at Tropic of Capricorn.

76. A glass vessel is filled with water to the rim and a lid is fixed to it tightly. Then it is left inside a freezer for hours. What is expected to happen?

- (a) The water freezes to ice and the level of ice comes down
 (b) The water in the glass vessel simply freezes to ice
 (c) The glass vessel breaks due to expansion as water freezes to ice
 (d) The water does not freeze at all

Ans. (c) Water shows anomalous behaviour in expansion during temperature range of 4°C to 0°C. When temperature falls below 4°C, water expands. As lid is fixed tightly, stress will develop in the bottle due to this anomalous expansion which breaks the glass when water is converted into ice that is volume is maximum.

77. A simple circuit contains a 12 V battery and a bulb having 24 ohm resistance. When you turn on the switch, the ammeter connected in the circuit would read

- (a) 0.5A (b) 2A (c) 4A (d) 5A

Ans. (a) It is given that emf of the battery, $E = 12\text{ V}$

Resistance of the bulb, $R = 24\ \Omega$

where switch is turned on, current through the bulb is

$$I = \frac{E}{R} = \frac{12}{24} = 0.5\text{ A}$$

Hence, reading of ammeter is 0.5 A.

78. Three resistors with magnitudes 2, 4 and 8 ohm are connected in parallel. The equivalent resistance of the system would be

- (a) less than 2 ohm
 (b) more than 2 ohm but less than 4 ohm
 (c) 4 ohm
 (d) 14 ohm

Ans. (a) Equivalent resistance of three resistors of resistances 2, 4 and 8 Ω is

$$\frac{1}{R_{\text{eq}}} = \frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{4+2+1}{8} = \frac{7}{8}$$

$$\therefore R_{\text{eq}} = \frac{8}{7}\ \Omega = 1.142\ \Omega$$

Therefore, equivalent resistance is less than 2 Ω .

79. Suppose you have four test tubes labelled as 'A', 'B', 'C' and 'D'. 'A' contains plain water, 'B' contains solution of an alkali, 'C' contains solution of an acid, and 'D' contains solution of sodium chloride.

Which one of these solutions will turn phenolphthalein solution pink ?

- (a) Solution 'A' (b) Solution 'B' (c) Solution 'C' (d) Solution 'D'

Ans. (b) Solution B, i.e. solution of an alkali will turn phenolphthalein solution pink because phenolphthalein is a weak organic acid. It turns colourless in acidic solution and pink in basic solution. It is a synthetic indicator used in acid-base titrations.

80. Which of the following substances are harmful for health if present in food items?

1. Pesticide residues
2. Lead
3. Metanil yellow
4. Mercury

Select the correct answer using the code given below :

- (a) 1 and 2 only (b) 1, 2 and 4 only (c) 3 and 4 only (d) 1, 2, 3 and 4

Ans. (d) Pesticide residues lead to cancers and sterility in humans. Lead is emitted from petroleum as by product. If injected in us specially young one then adversely affecting brain and nervous system. In adults high blood pressure and kidney damage occur due to lead. Metanil yellow, a principal non-permitted food colour, leads neurotoxicity on the developing and adult's brain. Mercury if injected in body then adversely affect nervous, digestive and immune system and other organs such as lungs and kidney.

81. In India, glacial terraces known as 'Karewas' are found in

- (a) Sapt Kosi Valley (b) Jhelum Valley (c) Alakananda Valley (d) Teesta Valley

Ans. (b) The word Karewa in Kashmiri dialect means, elevated table-land. Karewas are fluvial and lacustrine deposits found as low flat mounds or elevated plateaus in the valley of Kashmir.

82. Structurally, the Meghalaya region is a part of

- (a) Shiwalik Range (b) Deccan Plateau (c) Greater Himalaya (d) Aravalli Range

Ans. (b) Meghalaya plateau is the detached North-Eastern extension of the peninsular plateau. The area is made up of oldest rock formation. It consists of Garo, Khasi and Jaintia hills alongwith their outliers formed by the Assam ranges.

83. Two bodies A and B are moving with equal velocities. The mass of B is double that of A. In this context, which one of the following statements is correct?

- (a) Momentum of B will be double that of A. (b) Momentum of A will be double that of B.
(c) Momentum of B will be four times that of A. (d) Momenta of both A and B will be equal.

Ans. (a) Let magnitude of the velocity of each body is v .

\therefore Momentum of A, $p_A = m_A v$

Similarly, momentum of B,

$$p_B = m_B v$$

$$\therefore \frac{p_A}{p_B} = \frac{m_A}{m_B} = \frac{m_A}{2m_A} \quad [\because m_B = 2m_A]$$

$$\Rightarrow p_B = 2p_A$$

84. During solar eclipse

- (a) the earth comes in between the sun and the moon.
- (b) the moon comes in between the sun and the earth.
- (c) the moon comes exactly halfway between the earth and the sun.
- (d) the sun comes in between the earth and the moon.

Ans. (b) As seen from the Earth, a solar eclipse is a type of eclipse that occurs when the Moon passes

between the Sun and Earth and the Moon fully or partially blocks the Sun.

85. The S.I. unit of acceleration is

- (a) ms^{-1} (b) ms^{-2} (c) cms^{-2} (d) kms^{-2}

Ans. (b) Rate of change in velocity is called acceleration.

$$\therefore \text{Acceleration, } a = \frac{\text{change in velocity (m/s)}}{\text{time interval (s)}}$$

Therefore, unit of acceleration is m/s^2 .

86. An atom of carbon has 6 protons. Its mass number is 12. How many neutrons are present in an atom of carbon?

- (a) 12 (b) 6 (c) 10 (d) 14

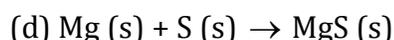
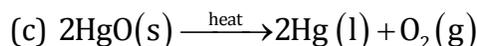
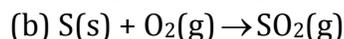
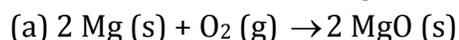
Ans. (b) We know that,

Mass no. (A) = No. of proton (p) + no. of neutron (n)

$$12 = 6 + n \Rightarrow n = 6$$

Mass number determines the atomic mass of atoms.

87. Which one of the following is a reduction reaction ?



Ans. (c) $2\text{HgO (s)} \xrightarrow{\text{Heat}} 2\text{Hg (l)} + \text{O}_2 \text{(g)}$

Above reaction is a reduction reaction. In this reaction, the removal of oxygen from mercuric oxide occurs.

88. Which of the commonly used household item(s) release Bisphenol A (BPA) which is an endocrine disruptor and bad for human health?

1. Steel utensils
2. Plastic coffee mugs
3. Aluminium utensils
4. Plastic water storage bottles

Select the correct answer using the code given below:

- (a) 1 only (b) 1 and 2 only (c) 2 and 4 only (d) 1, 2 and 3 only

Ans. (c) Bisphenol A (BPA), $(\text{CH}_3)_2\text{C}(\text{C}_6\text{H}_4\text{OH})_2$ is employed to make certain plastics and epoxy resins.

It is used for making plastic mugs, water storage plastic bottles, beverage cans etc. Typically, phenol containing molecules similar to BPA are known to exert weak oestrogenic activities as thus it is also considered as an Endocrine Disrupter (ED) and oestrogenic chemical.

89. The Nagarjuna Sagar Project is located on which one of the following rivers?

- (a) Godavari (b) Krishna (c) Kavery (d) Mahanadi

Ans. (b) Nagarjuna Sagar project/dam is the world's largest masonry dam built across Krishna river in Nagarjuna Sagar, Nalgonda district of Telangana. It is one of the earliest irrigation and hydro-electric projects in India.

90. Consider the following statements :

1. Rajmahal highlands consist of lava flow deposits.
2. Bundelkhand gneiss belong to the oldest Achaean rocks of India.

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

Ans. Rajmahal highlands were formed as a result of volcanic activity in the Jurassic period. It stretches from Sahibganj district to Dumker district in Jharkhand.

The Bundelkhand gneiss belong to the oldest rock system in India, known as Archaean rocks. It occurs in Bundelkhand, Baghelkhand, Maharashtra, Rajasthan, Andhra Pradesh and Tamil Nadu.

- 91.** An object is placed at the centre of curvature of a concave mirror of focal length 16 cm. If the object is shifted by 8 cm towards the focus, the nature of the image would be

- (a) real and magnified (b) virtual and magnified
(c) real and reduced (d) virtual and reduced

Ans. (a) Focal length of the concave mirror, $f = -16$ cm

\therefore Magnitude of radius of curvature of the mirror, $|R| = 2f = 32$ cm

When object is shifted towards the focus, new distance of the object

$$u = -(32 - 8)\text{cm} = -24\text{cm}$$

Applying mirror formula, we get

$$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$$

$$\Rightarrow \frac{1}{v} - \frac{1}{24} = \frac{1}{-16}$$

$$\Rightarrow \frac{1}{v} = \frac{1}{24} - \frac{1}{16} = \frac{16 - 24}{24 \times 16} = \frac{-8}{24 \times 16}$$

$$\Rightarrow v = -48 \text{ cm}$$

$$\therefore \text{Magnification, } m = -\frac{v}{u} = \frac{-(-48)}{-24} = -2$$

As magnification is negative and having magnitude more than one, image will be real and magnified.

- 92.** A pencil is placed upright at a distance of 10 cm from a convex lens of focal length 15 cm. The nature of the image of the pencil will be

- (a) real, inverted and magnified (b) real, erect and magnified
(c) virtual, erect and reduced (d) virtual, erect and magnified

Ans. (c) It is given that,

Focal length of the convex lens, $f = 15$ cm

Distance of pencil from the pole, $u = -10$ cm

Applying mirror formula, we get

$$\frac{1}{v} + \frac{1}{u} = \frac{1}{f} \Rightarrow \frac{1}{v} - \frac{1}{10} = \frac{1}{15}$$

$$\Rightarrow \frac{1}{v} = \frac{1}{10} + \frac{1}{15} = \frac{25}{150} \Rightarrow v = 6 \text{ cm}$$

$$\therefore \text{Magnification, } m = -\frac{v}{u} = \frac{-6}{-10} = 0.6$$

As magnification is positive and less than one image will be vertical, erect and diminished.

- 93.** Which one of the following is a conventional energy source ?

- (a) Tidal energy (b) Geothermal energy (c) Solar energy (d) Biomass energy

Ans. (d) Bio-mass energy covers entire life of our planet. This type of energy has been used since, the cave-men discovered fire. Bio-mass comes from things that were once living, e.g. wood product, dried vegetation, crop residue, aquatic plants etc.

94. Which one of the following oxides of nitrogen is known as 'anhydride' of nitric acid ?

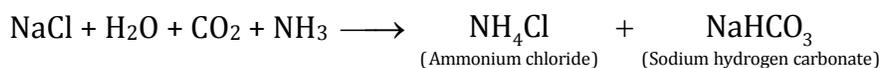
- (a) N_2O (b) N_2O_3 (c) NO_2 (d) N_2O_5

Ans. (c) NO_2 is the anhydride of nitric acid. NO_2 is used to generate anhydrous metal nitrates from the oxides. $MO + 3NO_2 \longrightarrow M(NO_3)_2 + NO$

95. Which one of the following is the chemical name for baking soda?

- (a) Sodium bicarbonate (Sodium hydrogen carbonate)
(b) Sodium carbonate
(c) Potassium bicarbonate (Potassium hydrogen carbonate)
(d) Potassium carbonate

Ans. (a) The chemical name of baking soda is sodium bicarbonate (sodium hydrogen carbonate, (c) $NaHCO_3$). It is produced using sodium chloride as one of the raw materials.



96. Which of the following statements relating to the Comptroller and Auditor General (CAG) of India is/are correct ?

1. The CAG can attend the sittings of the Committee on Public Accounts.
2. The CAG can attend the sittings of Lok Sabha and Rajya Sabha.
3. The jurisdiction of CAG is co-extensive with powers of the Union Government.

Select the correct answer using the code given below :

- (a) 1 only (b) 2 and 3 only (c) 1 and 2 only (d) 1, 2 and 3

Ans. (a) The GAG is an authority established by Constitution of India under Article-148 to audit all receipts and expenditure of Central and State Governments. CAG assists the public account committee during the examination of audit report of CAG. Further CAG cannot attend the sittings of Lok Sabha and Rajya Sabha.

97. Which of the following statements relating to election as the President of India is/are correct ?

1. A person above the age of thirty-five years is eligible for election as the President of India.
2. The President of India is eligible for re-election for more than one term.
3. A person is not eligible for election as the President of India if the person holds an office of profit.

Select the correct answer using the code given below:

- (a) 1 and 2 only (b) 2 only (c) 1, 2 and 3 (d) 3 only

Ans. (c) A person to be eligible for election as President should be a citizen of India, must have completed the age of 35 years and should not hold any office of profit. The President of India is eligible for re-election for more than one term.

98. Which one of the following nations adopted its first democratic Constitution in September 2015?

- (a) Bhutan (b) Myanmar (c) Nepal (d) Singapore

Ans. (c) On September 20, 2015, Nepal adopted its first democratic Constitution replacing the interim Constitution of 2007. This new Constitution has restructured the nation into a federal republic. Nepal also adopted bicameral parliamentary system.

99. Who among the following was defeated by Novak Djokovic in the final of the US Open Tennis Tournament Men's Singles event (2015) ?

(a) Tommy Robredo (b) Fabio Fognini (c) Roger Federer (d) Pablo Cuevas

Ans. (c) Novak Jokovic (Serbia) defeated Roger Federer in US Open 2015 to win his second US Open singles title and 10th Grand Slam singles title.

100. The citizens of India do not have which one of the following Fundamental Rights?

- (a) Right to reside and settle in any part of India
- (b) Right to acquire, hold and dispose of property
- (c) Right to practice any profession
- (d) Right to form co-operative societies

Ans. (b) Article-300A in Part-XII deals with right to property and deems it to be a legal right rather than Fundamental Right.

Originally, the right to property was one of the seven Fundamental Rights & dealt by Articles-19(1)(f) and Article-31. Article-19(1)(f) guaranteed to every citizen the right to acquire, hold and dispose property. The 44th Amendment Act abolished this right as Fundamental Right.

101. Which one among the following Acts for the first time allowed Indians, at least theoretically, entry to higher posts in British Indian administration?

- (a) Charter Act, 1813
- (b) Charter Act, 1833
- (c) Charles Wood's Education Despatch, 1854
- (d) Indian Councils Act, 1861

Ans. (b) The Charter Act of 1833 was the first act which made provision to freely admit the natives of India to share administration in the country. This act also provided that Haileybury College of London should make quota to admit future civil servants.

102. Consider the following statements about Rashtrakuta kings:

1. They were ardent patrons of Shaivism and did not support other forms of religion.
2. They promoted only Sanskrit scholars and gave them large grants.

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

Ans. (d) The Rashtrakuta kings were known for their religious tolerance, however, they were more inclined towards Jainism. Many of the scholars who flourished in the court of Rashtrakuta kings wrote in Sanskrit, Kannada, Apobhramasha and Prakrit languages.

103. After a ban on unscientific coal mining and transportation of coal in this region by the National Green Tribunal, many of those engaged in the activity have been switching to turmeric farming for their livelihood. The region referred above is

- (a) Jaintia Hills, Meghalaya
- (b) Koriya, Chhattisgarh
- (c) Angul, Odisha
- (d) Bardhaman, West Bengal

Ans. (a) The National Green Tribunal (NGT) ban on coal mining and transportation of coals in Jaintia Hills region has resulted in many of those engaged in the activity switching to turmeric farming.

104. Which of the following statements about the first act of the Revolt of 1857 is/are true?

1. It occurred in Meerut when two sepoys stole a superior officer's rifle.
2. It began when the Rani of Jhansi declared war on the British.
3. It began when Mangal Pandey fired at a European officer in Meerut.
4. It began when Mangal Pandey fired at a European officer in Barrackpore.

Select the correct answer using the code given below :

(a) 2 only (b) 1, 2 and 3 only (c) 4 only (d) 1 and 4 only

Ans. (c) Mangal Pandey played a key role in events that preceded the outbreak of revolt of 1857. On March 29, 1857, Mangal Pandey fired at an European officer in Barrackpore.

105. Which of the following statements about Gandhiji's Hind Swaraj written in 1909 is/are true?

1. Hind Swaraj offers a civilizational concept of the Indian nation.
 2. Hind Swaraj states that Parliamentary democracy was necessary for the amelioration of the sufferings of Indians.
 3. Hind Swaraj argues that Industrial capitalism was responsible for the immorality of society.
- Select the correct answer using the code given below :

(a) 3 only (b) 1, 2 and 3 (c) 1 and 3 only (d) 1 only

Ans. (c) Hind Swaraj was written by Gandhiji in 1909 to express his views on Swaraj, modern civilisation and industrialisation etc. He was in favour for independence not just from British but also from modern civilisation. He thought that Parliament is simply a costly toy and was not in favour of parliamentary democracy. He was also against industrial capitalism.

106. Division of labour often involves

1. specialized economic activity.
2. highly distinct productive roles.
3. involving everyone in many of the same activities.
4. Individuals engage in only a single activity and are dependent on others to meet their various needs.

Select the correct answer using the code given below:

(a) 1, 3 and 4 only (b) 1, 2 and 4 only (c) 3 only (d) 2 and 4 only

Ans. (b) Division of labour is an economic concept that states that dividing production process into different stages enables workers to focus on specific tasks. If workers concentrate on one small aspect of production, their overall efficiency increases.

107. Who among the following is/was associated with 'Maharashtra Andhashraddha Nirmoolan Samiti' ?

(a) Chandi Prasad Bhatt. (b) Narendra Dabholkar
(c) G.D. Agrawal (d) Kailash Satyarthi

Ans. (b) Narendra Dabholkar, a rationalist, founded the Maharashtra Andhashraddha Nirmoolan Samiti in 1899. He actively campaigned against superstitions and confronted dubious tantriks. Dabholkar was murdered on August 20, 2013.

108. Consider the following statements :

1. Warren Hastings set up the Calcutta Madrassa for the study and teaching of Muslim law related subjects.
2. Jonathan Duncan started a Sanskrit College at Varanasi for the study of Hindu law and philosophy.

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

Ans. (c) Madrasah-i-Aliyah or Calcutta Madrassa was the first educational institution set up in India in 1780 by Warren Hastings. In 1791 Jonathan Duncan started the Sanskrit College at Varanasi for the study of Hindu law and philosophy.

109. Consider the following statements about Sufism in India:

1. Pilgrimage called ziyarat to tombs of Sufi saints is an important feature.
2. The most influential group of Sufis in India were the Chishtis.

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

Ans. (c) One of the most popular rituals in sufism is visiting of grave-tombs of Sufi saints. This ritual of visiting tombs is called Ziyarat.

The Chishti order in India was the most influential group of Sufis and this order emerged from Central Asia and Persia. Khawaja Muinuddin Chishti introduced the Chishti order in India.

110. Which of the following thinkers and movements influenced the development of Gandhiji's political ideas?

1. Henry David Thoreau
2. John Ruskin
3. John Milton
4. Jainism

Select the correct answer using the code given below:

- (a) 1 only (b) 1, 2 and 3 only (c) 1, 2 and 4 only (d) 2 and 4 only

Ans. (c) Gandhiji was greatly influenced by thinkers like John Ruskin, Leo Tolstoy, Henry David Thoreau. John Ruskin's book 'Unto his last' had a lasting impact on Gandhiji's psyche. He paraphrased the book as 'Sarvodaya'. Gandhi also was influenced by non-violence principle preached by Jainism.

111. Consider the following statements :

1. The Arthashastra is the first Indian text to define a State.
2. The main concerns of the Arthashastra are theoretical issues like the origins of the state.

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

Ans. (a) The Arthashastra written in Sanskrit was the-first Indian work that formally defined state. It is a practical treatise on statecraft, economic policy and military strategy. Its main concern is not to deal with theoretical issues like origin of state.

112. Which of the following is/are not FDI policy change(s) after 2010 ?

1. Permission of 100 percent FDI in automotive sector
2. Permitting foreign airlines to make FDI up to 49 percent
3. Permission of up to 51 percent FDI under the government approval route in multi-brand retailing, subject to specified conditions
4. Amendment of policy on FDI in single-brand product retail trading for aligning with global practices

Select the correct answer using the code given below :

- (a) 1 only (b) 2 and 4 only (c) 1 and 2 only (d) 1, 2 and 3 only

Ans. (a) The government permitted 100% FDI in automatic route in 2002. Foreign airlines were allowed to make FDI up to 49% in 2012. Multi-brand retail was opened for FDI (51%) in 2012. And in the same year, the amendment to the policy was done.

113. Which of the following is/are the component/component(s) of the Integrated Power Development Scheme launched by the Government of India recently ?

1. Strengthening of sub-transmission and distribution networks in the urban areas
2. Metering of distribution transformers/ feeders/consumers in the rural areas

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

Ans. (a) Integrated Power Development Scheme (IPDS) was launched in 2014 with the objective of strengthening of sub- transmission and distribution network in urban areas and metering of distribution transformers/feeder/consumers in urban areas. This scheme will help in reduction in AT&C losses along with establishment of IT enabled accounting system.

114. Which of the following statements about Brahma Saraaj is/are correct ?

1. The Brahma Marriage Act of 1872 allowed inter-caste and widow re-marriage only if the contracting parties declared themselves to be non-Hindus.
2. Keshub Chandra Sen arranged the marriage of his minor daughter with the Maharaja of Burdwan.
3. Keshub Chandra Sen's followers broke away to form the Naba Brahma Samaj.
4. The Brahma Samaj grew from a small elite group to a mass movement in the 19th century.

Select the correct answer using the code given below :

- (a) 1 only (b) 1 and 2 only (c) 2 and 3 only (d) 1, 2, 3 and 4

Ans. (a) The Brahma Marriage Act was passed in 1872. It allowed inter-caste and widow remarriage if the contracting parties declared themselves to be non-Hindus. Keshub Chandra Sen arranged marriage of his minor daughter with Maharaja of Cooch Behar. His followers formed Sadhaman Brahma Samaj.

115. Which of the following statements about the aims of the United Nations is/are true?

1. To foster a mutual appreciation of each others' culture and literature among nations
2. To achieve international co-operation in solving problems of an economic, social, cultural, or humanitarian character
3. To foster relations between scholars and academics in different countries
4. To organize international conferences

Select the correct answer using the code given below:

- (a) 1 only (b) 1, 2 and 4 only (c) 2 only (d) 1, 2 and 3 only

Ans. (c) The aims of United Nations Organisation includes maintaining international peace and security, developing friendly relations among nations, achieving international co-operation in solving international problems of economic, social, cultural or humanitarian character and to be a centre for harmonising actions of nations towards these common ends.

Directions : The following **05 (Five)** items consist of two statements, Statement I and Statement II. Examine these two statements carefully and select the answers to these items using the code given below :

Code:

- (a) Both the Statements are individually true and Statement II is the correct explanation of Statement I.
- (b) Both the Statements are individually true but Statement II is not the correct explanation of Statement I.
- (c) Statement I is true but Statement II is false.
- (d) Statement I is false but Statement II is true.

116. Statement I: Petroleum is a mixture of many different hydrocarbons of different densities.

Statement II: The grade of petroleum depends mainly on the relative proportion of the different hydrocarbons.

Ans. (b) Petroleum is a mixture of a very large number of different hydrocarbons; the most common are alkanes, cycloalkanes, aromatic hydrocarbons etc.

The relative percentage of hydrocarbons varies and is responsible for different grades of petroleum.

117. Statement I: There is high salinity in Red Sea.

Statement II: Rate of evaporation is high in Red Sea.

Ans. (a) The Red Sea is one of the most saline water bodies in the world due to effects of the water circulation pattern, resulting from evaporation and wind stress.

118. Statement I: Volcanic eruption is accompanied by earthquakes.

Statement II: Volcanoes erupt water vapours and dust particles in the atmosphere.

Ans. (a) Volcanic eruption at times might be accompanied by earthquake.

However, not all volcanoes result into earthquakes. Volcanoes erupt lava, water vapour gases and dust particles etc.

119. Statement I: Plantation farming has mostly been practised in humid tropics.

Statement II: The soil of humid tropics is highly fertile.

Ans. (c) Humid tropics are most favoured location for plantation crops including rubber, tea, coffee, coconut etc.

However, the soils of this region is not very fertile due to leaching of minerals because of heavy rainfall.

120. Statement I: India has wide variation in population density.

Statement II: Factors like agricultural productivity and history of settlements have greatly influenced the population density pattern in India.

Ans. (b) India has a wide variation in population density due to variety of reasons including relief, topography, water resources and historical reasons. Statement II is not the main reason, but they too are determinants of population density.

121. A container is first filled with water and then the entire water is replaced by mercury. Mercury has a density of $13.6 \times 10^3 \text{ kg/m}^3$. If X is the weight of the water and Y is the weight of the mercury, then

(a) $X = Y$ (b) $X = 13.6Y$ (c) $Y = 13.6X$ (d) None of the above

Ans. (c) Let volume of the container is V.

Density of mercury, $\rho_m = 13.6 \times 10^3 \text{ kg/m}^3$

We know that density of water

$$\rho_w = 10^3 \text{ kg/m}^3$$

Volume of container remains same in both the cases

$$\therefore \frac{X}{\rho_w} = \frac{Y}{\rho_m} \Rightarrow Y = \left(\frac{\rho_m}{\rho_w} \right) X$$

$$\Rightarrow Y = \left(\frac{13.6 \times 10^3}{10^3} \right) X = 13.6 X$$

122. Density of water is

(a) maximum at 0°C (b) minimum at 0°C (c) maximum at 4°C (d) minimum at -4°C

Ans. (c) Water shows anomalous behaviour between temperatures 0°C and 4°C expands it temperature goes below 4°C .

Therefore, density decreases below 4°C . Also, it expands when temperature goes above 4°C .

Therefore, density of water is maximum at 4°C because volume is minimum at 4°C .

123. The phosphorus used in the manufacture of safety matches is

(a) Red phosphorus (b) Black phosphorus (c) White phosphorus (d) Scarlet phosphorus

Ans. (a) Red phosphorus is used in the manufacture of safety matches. Red phosphorus exists as an amorphous network. Red phosphorus does not ignite in air at temperature below 240°C.

124. Which one of the following is not a chemical change?

(a) Ripening of fruits (b) Curdling of milk (c) Freezing of water (d) Digestion of food

Ans. (c) Freezing of water is a physical change, i.e. not a chemical change because it is the interconversion of states, the physical property changes but the chemical composition remains the same.

125. One of the main causes of air pollution in cities is emissions from vehicles like cars and trucks. Cars emit various pollutants which are bad for human health when inhaled, like

1. Nitrogen oxides (NO)

2. Carbon monoxide (CO)

3. Carbon dioxide (CO₂)

4. Benzene

Which of the above pollutants are not tolerated by human beings even at very low levels?

(a) 1 and 4 only (b) 1 and 2 only (c) 1, 2 and 3 only (d) 1, 2 and 4 only

Ans. (d) NO_x (nitrogen oxides), CO (carbon monoxide), benzene are main sources of air pollution. Nitrogen oxides has a characteristic sharp, biting odour. CO is yet non-irritating gas and benzene has aromatic, gasoline like odour which can't be tolerated even at very low level can be lethal at higher concentration.

126. Arrange the following centres of AIIMS from East to West:

1. Rishikesh

2. New Delhi

3. Patna

4. Bhubaneswar

Select the correct answer using the code given below :

(a) 4-3-1-2 (b) 4-1-3-2 (c) 3-4-2-1 (d) 3-2-1-4

Ans. (a) Correct order is

Bhubaneswar → Patna → Rishikesh → New Delhi

127. Suppose the force of gravitation between two bodies of equal masses is F. If each mass is doubled keeping the distance of separation between them unchanged, the force would become

(a) F (b) 2 F (c) 4 F (d) $\frac{1}{4}$ F

Ans. (c) Let mass of each body is m and separation between the bodies is r. Gravitational force

between the bodies $F = \frac{Gm^2}{r^2}$

After doubling the mass, gravitational force becomes

$$F' = \frac{G(m)^2}{r^2} = \frac{4Gm^2}{r^2} = 4F$$

128. A body has a free fall from a height of 20 m. After falling through a distance of 5 m, the body would

(a) lose one-fourth of its total energy (b) lose one-fourth of its potential energy

(c) gain one-fourth of its potential energy (d) gain three-fourth of its total energy

Ans. (b) Initial gravitational potential energy of two body

$$U_1 = mgh = 20 mg \quad [\because h = 20 \text{ m}]$$

\therefore Initial total energy of the body

$$E = U_1 + K_1 = K_1 + 0 = U_1 = 20 mg$$

After falling through 5 m, new potential energy is

$$U_2 = mgh' = mg(20 - 5) = 15mg$$

\therefore Loss in potential energy

$$\Delta U = U_1 - U_2 = 20 mg - 15mg = 5mg$$

$$= \frac{20mg}{4} = \frac{E}{4} = \frac{U_1}{4}$$

i.e. $\frac{1}{4}$ th of its potential energy.

129. Soap is sodium or potassium salt of

- (a) Stearic acid (b) Oleic acid (c) Palmitic acid (d) All of the above

Ans. (d) The mineral salts of higher fatty acids such as oleic acid ($C_{17}H_{33}COOH$), stearic acid ($C_{17}H_{35}COOH$) and palmitic acid ($C_{15}H_{31}COOH$) etc. are called soaps. Out of these, only sodium and potassium salts of fatty acids being water soluble, are widely used for cleaning purposes.

130. Mass of a particular amount of substance

- is the amount of matter present in it.
- does not vary from place to place.
- changes with change in gravitational force.

Select the correct answer using the code given below :

- (a) 1, 2 and 3 (b) 1 and 2 only (c) 2 and 3 only (d) 1 only

Ans. (b) Mass of a particular amount of substance is the amount of matter present in it. It is the inherent property of the substance and does not depend on location of the substance. Therefore, mass of the substance is independent of gravitational force between them.

131. Which one of the following carbon compounds will not give a sooty flame?

- (a) Benzene (b) Hexane (c) Naphthalene (d) Anthracene

Ans. (b) Hexane (C_6H_{14}) will not give a sooty flame. Hexane is a significant constituent of gasoline. The darker or sootier the smoke, the more unsaturated the compound. On the other hand if the flame is burning relatively clearer and clearer then the compound is saturated. Hexane burns with a clear and luminous flame.

132. Match List I with List II and select the correct answer using the code given below the Lists :

List I (Molecule)		List II (Product of digestion)	
A.	Proteins	1.	Nitrogenous base and pentose sugars
B.	Carbohydrates	2.	Fatty acids and glycerol
C.	Nucleic acids	3.	Monosaccharides
D.	Lipids	4.	Amino acids

Code:

	A	B	C	D
(a)	2	3	1	4

- (b) 2 1 3 4
 (c) 4 1 3 2
 (d) 4 3 1 2

Ans. (d) The correct matching is as follows

	List I (Molecule)	List II (Product of Digestion)
1.	Proteins	Amino acids
2.	Carbohydrates	Monosaccharides
3.	Nucleic acid	Nitrogenous bases and pentose sugars
4.	Lipid	Fatty acids and glycerol

133. In Thar region, the shifting sand dunes are locally known as

- (a) Dhrian (b) Daurs (c) Dhoros (d) Dhaya

Ans. (a) The shifting dunes in 'Marusthali (Thar)' is locally known as Dhrian and the blow out depressions are known as 'Dhand',

134. The impulse on a particle due to a force acting on it during a given time interval is equal to the change in its

- (a) force (b) momentum (c) work done (d) energy

Ans. (b) According to Newton's second law of motion

$$\vec{F} = \frac{d\vec{p}}{dt} = m\vec{a}$$

where, \vec{F} = applied external force

m = mass of the particle

\vec{a} = acceleration of the particle

\therefore Impulse = $\vec{J} = \vec{F}.dt = d\vec{p}$ = change in momentum

135. Which one of the following statements with regard to expansion of materials due to heating is not correct ?

- (a) As ice melts, it expands uniformly up to 4°C.
 (b) Mercury thermometer works using the principle of expansion due to heating.
 (c) Small gap is kept between two rails to allow for expansion due to heating.
 (d) The length of metallic wire increases when its temperature is increased.

Ans. (a) Generally substances expand on heating and contract on cooling. Now, if temperature of certain amount of water is increased from 0°C to 100°C, its volume decreases between 0°C (ice) to 4°C and increases from 4°C to 100°C. Therefore during 0°C to 4°C, anomalous behaviour of water is observed.

136. Which of the following pairs is/are correctly matched ?

- | | (National Park) | | (Famous for) |
|----|-----------------|---|--------------|
| 1. | Ranthambhore | : | Tiger |
| 2. | Periyar | : | Elephant |
| 3. | Manas | : | Lion |
| 4. | Gir | : | Rhinoceros |

Select the correct answer using the code given below :

- (a) 1, 2 and 3 only (b) 1 and 2 only (c) 1 and 4 only (d) 2 only

Ans. (b) Manas National Park is situated in Assam. It is famous as a project tiger reserve and an elephant reserve. Gir national park is situated in Gujarat famous for asiatic lions. Ranthambhore National Park is present in Sawai Madhopur in Rajasthan. It is also famous for its tiger. Periyar national park present in Idukki, Kerala famous for elephants mainly other animals such as auld pig, wild dog and mouse deer are also present.

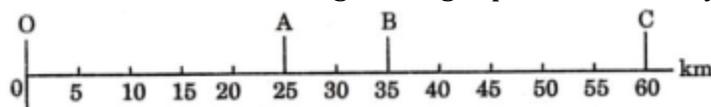
137. Which one of the following is not a form of stored energy?

- (a) Nuclear energy (b) Potential energy (c) Electrical energy (d) Chemical energy

Ans. (a) Potential energy of a system is the stored energy associated with the configuration of the system. Electrical energy of a system is also stored energy in the form of electrostatic potential energy. Similarly, chemical energy is stored in the form of chemical potential.

Potential energy associated with the chemical bonds. But nuclear energy is obtained by breaking a heavy nucleus into light nucleus of comparable masses. It can also be obtained by the formation of a heavy nucleus due to fusion of two light nuclei. Therefore, it is not a form of stored energy.

138. The motion of a car along a straight path is shown by the following figure :



The car starts from O and reaches at A, B and C at different instants of time. During its motion from O to C and back to B, the distance covered and the magnitude of the displacement are, respectively

- (a) 25 km and 60 km (b) 95 km and 35 km (c) 60 km and 25 km (d) 85 km and 35 km

Ans. (d) During motion from O to C and back to B, distance covered

$$d = \text{actual path taken} = OC + BC \\ = 60\text{km} + (60 - 35)\text{ km} = 85\text{ km}$$

Similarly displacement

$$x = \text{least distance between O and B} \\ = OB = 35\text{ km}$$

139. Jelep La pass is located in

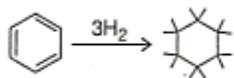
- (a) Punjab Himalaya (b) Sikkim Himalaya (c) Kumaon Himalaya (d) Kashmir Himalaya

Ans. (b) Jelep La is a high altitude mountain pass of 13999 feet located in Sikkim Himalayas. It links Lhasa in Tibet to India. This pass is an important trade route between India and Tibet.

140. What is the number of mole(s) of $\text{H}_2(\text{g})$ required to saturate one mole benzene?

- (a) 1 (b) 2 (c) 3 (d) 4

Ans. (c)



3 moles of $\text{H}_2(\text{g})$ is required to saturate one mole of benzene.

141. Which one of the following pairs of the Schedule in the Constitution of India and its Content is not correctly matched?

- | Schedule | Content |
|-----------------------|--|
| (a) Eighth Schedule : | Languages |
| (b) Second Schedule : | The forms of oaths and affirmations |
| (c) Fourth Schedule : | Allocation of seats in the Council of States |

(d) Tenth Schedule : Provisions as to disqualification on the ground of defection

Ans. (b) The Second Schedule of the Indian Constitution deals with emoluments of President, Governors, Judges of High Court and Supreme Court and Comptroller and Attorney General of India.

142. Consider the following statements :

1. The Constitution of India empowers the Parliament to form new States and to alter the areas, boundaries or names of existing States by passing a resolution in simple majority.
2. Jammu and Kashmir has been given special status under Article 370 of the Constitution of India.

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

Ans. (c) Parliament can form new states, alter the area, boundaries or names of existing States by passing a law by simple majority. This bill can be introduced in either house on recommendation of the President. Article-370 grants special autonomous Status to Jammu and Kashmir. It is a part of Part-XXI of the Constitution.

143. The Speaker of the Lok Sabha may resign his office by writing, addressed to the

- (a) President of India (b) Prime Minister of India
(c) Vice President of India (d) Deputy Speaker of the Lok Sabha

Ans. (d) The speaker may resign from office by writing under his hand to the Deputy Speaker.

144. Who among the following is the founder of the 'Bachpan Bachao Andolan'?

- (a) Shantha Sinha (b) Kailash Satyarthi (c) Aruna Roy (d) Anil Agarwal

Ans. (b) Bachpan Bachao Andolan works in the field of rights of children. It was started in 1980 by Nobel Laureate Kailash Satyarthi. The focus is on ending bonded labour, child labour and human trafficking.

145. Which of the following are the features of Pradhan Mantri Jan Dhan Yojana?

1. Ensuring financial inclusion of the poor
2. Enhancing financial literacy
3. Provision for accidental insurance to account holders
4. Allowing bank accounts with zero balance

Select the correct answer using the code given below :

- (a) 1 and 4 only (b) 1, 2 and 3 only (c) 2 and 4 only (d) 1, 2, 3 and 4

Ans. (d) Pradhan Mantri Jan-Dhan Yojana is a national mission on financial inclusion encompassing an integrated approach to bring about comprehensive financial inclusion of all house hold. The plan envisages one basic account for every household, financial literacy, access to credit, insurance and pension facility.

146. The Election Commission recognizes a political party as a national party if

1. it secures at least six percent of the total valid votes polled in four or more States in a general election to the Lok Sabha or to the State Legislative Assemblies.
2. it wins at least four seats in a general election to the Lok Sabha from any State or States.

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

Ans. (c) A political party is recognised as a national party if it secures at least 6% of valid votes polled in any four or more States. Further it wins at least 4 seats in the house of people from any State or States or wins atleast 2% seats in house of the people.

147. Which one of the following is not a feature of the Nehru-Mahalanobis model of development strategy?

- (a) Development of capital goods industries
- (b) Major involvement of the State in the economy
- (c) Industrial deregulation and disinvestment in the public sector
- (d) Enhancing the scope and importance of the public sector

Ans. (c) The Nehru-Mahalanobis model was followed during Second Five Year plan. The essence of this model was a shift in the pattern of industrial investment towards building up a domestic consumption goods sector. It was in favour of enhancing public investment and was against industrial deregulation and disinvestment.

148. Which of the following best explains the stated broad vision and aspirations of the Twelfth Five Year Plan (2012 - 2017) ?

- (a) Faster, Sustainable and More Inclusive Growth
- (b) Modernisation of Industries and Strengthening Infrastructure
- (c) Enhancing Agricultural and Rural Incomes
- (d) Checking Inflation and Strengthening non-economic variables like Nutritional Requirements, Health and Family Planning

Ans. (a) The broad vision and aspirations that the 12th Plan seeks to fulfil are reflected in its subtitle 'faster, sustainable and more inclusive growth'.

149. Nabhah Sprsam Diptam is the motto of

- (a) Central Industrial Security Force
- (b) Indian Air Force
- (c) ISRO
- (d) Indian Navy

Ans. (b) Nabhah Sprsam Diptam (Touch the sky with glory) is the motto of Indian Air Force. This has been taken from eleventh chapter of the Gita, the discourse given by Lord Krishna to Arjuna during the war by Mahabharata.

150. Consider the following statements:

1. The Amendment procedure has been provided in Article 368 of the Constitution of India.
2. The consent of the States is mandatory for all Amendments to the Constitution of India.

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

Ans. (a) Article-368 of the Indian Constitution lays down the procedure for Amendment of the Constitution. This article provides for two types of amendments (i) By a special majority of Parliament (ii) Through ratification of half of the States by a simple majority.

Besides, some other articles also provide for constitutional amendment by simple majority of Parliament and no consent of States are required.