

NTSE

National Talent Search Examination

MAT + SAT

[Stage II]

Time : 180 Min

Max. Marks : 200

Read the following instructions carefully.

1. Answers are to be given on a separate answer sheet. Use only HB Pencil.
2. Write your Roll No. very clearly (only one digit in one block) on this booklet and on the answer sheet.
3. This test consists of 200 questions of one mark each. All the questions are compulsory.
4. Answer to each question by filling the correct alternative among the four choices on the answer sheet.

Example

	Q. No.	Alternatives			
Correct way	1	①	②	●	④
	Q. No.	Alternatives			
Wrong way	1	⊗	②	③	④

5. Now, turn to the next page and start answering the questions.



Paper I : Mental Ability Test

Section A: Reasoning

1. If in a certain language 'CLOCK' is written as 'MDNLD', then how 'PRESENT' will be code in that language.

a. FOSQRU b. FSQRUOF c. FSQRUMF d. FSQROMF

2. Find the missing character in the following figure

150	7
157	2 [^]
180	- 2
?	0

a. 190 b. 152 c. 142 d. 228

3. Which group of letters is different from others?

a. PQSRT b. ABDCE c. MNPOQ d. EFGHI

4. Here are some words translated from an artificial language

'you knights' means 'pa ju'

'knights fight' means 'ha pa'

'dangerous fight' means 'ha ja'

Which word could possibly mean 'you dangerous'?

a. ju ja b. ja pa c. ha ju d. pa ju

5. In the given question, choose the correct alternate to complete the series.

r _ t _ v _ s _ u _ r _ s _ u _

a. stvtvru b. surtvvtv c. rvtvstu d. sturvv

6. Recent trends also indicate that the number of child migrants in large cities is increasing. These children leave their families to join the ranks of urban poor doing odd jobs in markets, workshops, hotels or in services sectors. Find the statement among the alternatives which must be true as per the given information.

a. These children earns more money in urban areas
b. Migration to big cities should be checked
c. The problems of poor children should be thoroughly studied
d. None of the above

7. Find the next number in the series.

1, 8, 9, 64, 25, 216, 49, ?

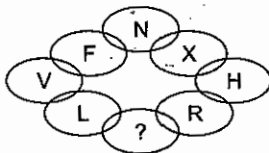
a. 265 b. 512 c. 343 d. 215

8. Choose the correct alternative which replace the question mark?

1, 0, 2, -1, 3, -2, 4, ?

a. 3 b. -3 c. -4 d. 5

9. Insert the missing letter in the diagram below.



a. C

b. B

c. Z

d. A

10. In a question, $55 + 10 = 20$ and $45 + 40 = 49$, then how $95 + 70 = ?$

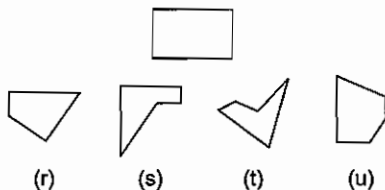
a. 165

b. 84

c. 155

d. 48

11. Identify which among the pieces given below will not be required to complete the square?



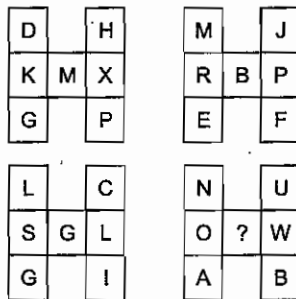
a. r

b. t

c. u

d. s

12. Which letter will replace the question mark from given alternatives?



a. H

b. I

c. J

d. K

Directions (Q. Nos. 13-14) Find the statement which is true according to the given information below.

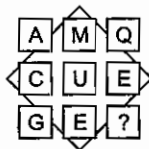
13. On weekends, Mr Sanchez spends many hours working in his vegetable and flower gardens. Mrs Sanchez spends her free time reading and listening to classical music. Both Mr Sanchez and Mrs Sanchez like to cook.

- a. Mr Sanchez enjoys planting and growing vegetables
- b. Mr Sanchez does not like classical music
- c. Mrs Sanchez cooks the vegetables that Mr Sanchez grows
- d. Mrs Sanchez enjoys reading nineteenth century novels

14. Georgia is older than her cousin Marsha. Marsha's brother Bart is older than Georgia. When Marsha and Bart are visiting with Georgia, all three like to play a game of Monopoly. Marsha wins more often than Georgia does.

- a. When he plays Monopoly with Marsha and Georgia, Bart often loses
- b. Of the three, Georgia is the oldest
- c. Georgia hates to lose at Monopoly
- d. Of the three, Marsha is the youngest

15. Insert the missing character from given alternatives.



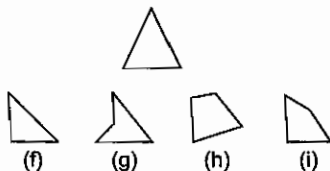
a. F

b. T

c. U

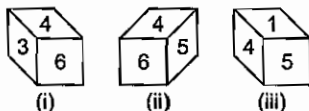
d. S

16. Identify which among the pieces given will not be required to complete the triangular pattern shown below?



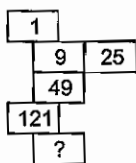
- a. f b. g c. h d. i

17. On the basis of three positions of dice, which number will appear on the face opposite the number 6.



- a. 3 b. 2 c. 1 d. 5

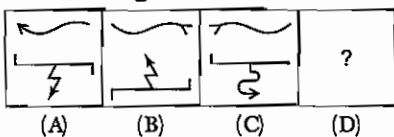
18. Identify which alternate replace the question mark?



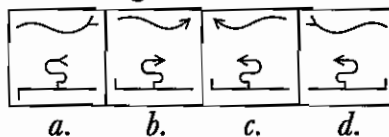
- a. 165 b. 169 c. 167 d. 144

19. Find the correct alternative which relates to figure (C) same as figure (A) and (B) are related to each other.

Problem Figures



Answer Figures



20. Apartments in the Riverdale manor cost less than apartments in the gaslight. Apartments in the livingston gate cost more than apartments in the 'The gaslight commons'. Of the three apartment buildings, the livingston gate costs the most. If the first two sentences are true, the third statement is

- a. true b. Cannot be determined c. uncertain d. false

21. Find the odd figure out.

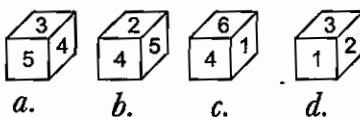


22. If the given figure is folded to form a box, which among the boxes below will be formed?

Problem Figure

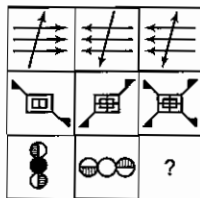


Answer Figures

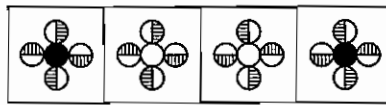


23. Which alternate complete the figure matrix?

Problem Figures

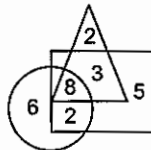


Answer Figures



a. b. c. d.

24. In the given figure, triangle presents 10th passed students, square presents 12th passed students and circle presents those students who are persuing graduation. How many students are 10th and 12th passed but not persuing graduation in the given figure.



- a. Only 2 b. Only 5 c. Only 3 d. Only 6
25. Which of the following is the mirror image of 'CORDIAL', if the mirror is placed below the word?
 a. COBDIAL b. COBDIAƆ c. COBƆIAƆ d. ƆAƆDROO
26. A deer runs from southern side of a forest and runs 800 m, then take a right turn and runs 200 m after that again he took a right turn and runs 500 m. In which direction deer is now, from the starting point?
 a. North-East b. South-West c. North-West d. South-East

Directions (Q. Nos. 27-28) Which of the diagram indicates the relation between given questions.



a.



b.

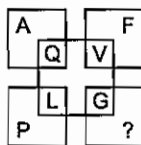


c.

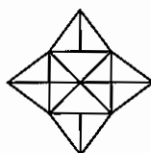


d.

27. Male, Nephew, Niece
 28. Dog, Cow, Animal
 29. Find out the missing character in the following figure matrix



- a. R b. Q c. K d. P
30. How many triangles are in the given figure?



- a. 28 b. 18 c. 20 d. 32

Directions (Q. Nos. 31-33) Read the following information carefully and answer the questions given below.

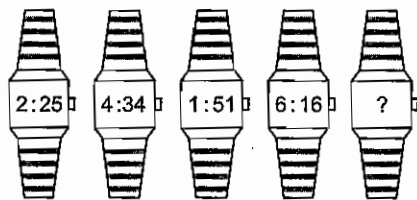
Six films U, V, W, X, Y and Z are to be released on consecutive Fridays. The schedule of the release is to be in accordance with the following conditions.

'U' must be released a week before 'Y'. 'W' must not be released immediately after the first release.

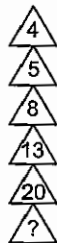
'V' must be released on the Friday following the Friday on which 'Z' is released.

'X' must be released on fifth Friday and should not be preceded by 'V'. 'Y' must not be released in the last.

31. In between which of the two film, 'X' is to be released?
 a. Y and W b. W and Z c. Z and U d. V and Y
32. Which of the following film preceded 'Y'?
 a. U b. X c. V d. Z
33. Which of the following films released first?
 a. U b. V c. W d. Z
34. What time should the last watch time?



- a. 6 : 38 b. 3 : 33 c. 9 : 08 d. 9 : 49
35. Which number replaces the question mark?



- a. 29 b. 39 c. 25 d. 22

Directions (Q. Nos. 36-37) In each question below are given three statements followed by three conclusions numbered I, II and III. You have to take the given three statements to be true even, if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the three given statements, disregarding commonly known facts.

Give answer

- a. if only Conclusion I follows
 b. if only Conclusion II follows
 c. if either Conclusion I or II follows
 d. if both Conclusions I or II follow

36. **Statements** All cooler are AC.
 Some AC are fan.
 All fan are air.

- Conclusions** I. Some fan are AC.
 II. Some fan are air.
 III. Some air are cooler.

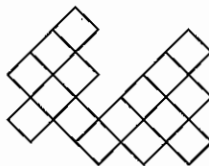
37. **Statements** Some flutes are sitars.
All sitars are gitars.
Some gitars are musical instruments.

- Conclusions** I. Some flutes are gitar.
II. No flutes is gitar.
III. Some musical instruments are flutes.

Directions (Q. Nos. 38-43) Some questions are based on the following information given below.

A, B, C, D, E, F, G, H, and I are sitting around a circular table and facing the centre. C is third to the left of A. E is fourth to the right of A. D is fourth to the left of I, who is second to the right of A. F is third to the right of B. G is not an immediate neighbour of A.

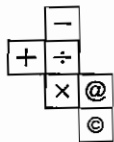
38. In which of the following groups the third person is sitting between the first and the second person?
a. HFA b. CDF c. EBC d. IGE
39. Who is second to the left of H?
a. G b. F c. I d. E
40. Who is to the immediate right of D?
a. E b. I c. F d. G
41. Who is third to the left of I?
a. D b. A c. F d. B
42. How many persons are sitting between G and H?
a. One b. Two c. Three d. Four
43. Who is fifth to the right of E?
a. I b. F c. B d. A
44. How many cubes in the following figure.



- a. 14 b. 15 c. 16 d. 17
45. Complete the given sequence.
1, 28, 153, 496, ?
a. 1219 b. 1231 c. 986 d. 1225
46. S is junior than R but senior than only T. Q is junior than only P but senior than R. R is senior than S. Among them who is senior in all?
a. P b. Q c. R d. S
47. Robert is travelling on his cycle and has calculated to reach point A at 2 pm if he travels at 10 km/h, he will reach there at 12 noon, if he travels at 15 km/h. At what speed must he travel to reach A at 1 pm?
a. 8 km/h b. 11 km/h c. 12 km/h d. 14 km/h
48. A farmer travelled a distance of 61 km in 9 h. He travelled partly on foot at the rate of 4 km/h and partly on bicycle at the rate of 9 km/h. The distance travelled on foot is
a. 16 km b. 45 km c. 15 km d. 17 km

49. When unfolded figure, will be fold then which alternate will be correct?

Problem Figure



Answer Figures



a.



b.



c.



d.

50. 6 yr ago, the ratio of ages of Deepa and Nisha was 6 : 5. 4 yr, hence the ratio of their ages will be 11 : 10. What is the present age of Nisha?
- a. 16 yr b. 12 yr c. 18 yr d. 32 yr

Section B : General English

Directions (Q. Nos. 51-65) Read the following passages carefully and answer the questions that follow.

Passage I

The functional declines of advancing age are depressing. The heart's ability to pump blood drops about one per cent, blood flow to arms and legs decreases by thirty to forty per cent in old age. The amount of air a person can exhale after a deep breath lessens and the chest wall stiffens with age. However, recent studies have shown that most of these age-associated declines can be delayed by exercise. Exercise lowers the resting heart-rate and increases the amount of blood pumped with each beat in older people. When stress is placed on bones through exercise, calcium content rises, with the result that resistance to fracture is improved.

51. Old age is generally a depressing period, because
- a. old people worry more than others b. old people tend to regret their past
c. various organs of the body function less efficiently d. old people do very little work
52. The strength of bones can be increased by exercise, because it
- a. increases the amount of blood pumped by the heart
b. increases calcium content in bones
c. increases the amount of air exhaled by a person
d. lessens the stiffness of the chest wall
53. The word 'exhale' means
- a. breath in b. breath out c. breath slowly d. breath fast
54. Which one of the following statements is correct?
- a. Exercise delays natural decay of age
b. Old age problems increase due to exercise
c. Exercise increases the heart-rate which is dangerous
d. Exercise creates stress which is harmful to bones
55. The chest wall becomes stiff in old age, because
- a. the heart's ability to pump blood to drop about one per cent
b. the blood flow to various organs decreases
c. the resting heart-rate becomes high
d. the person's ability to exhale sufficient air lessens

Passage II

Just because there is no atmosphere on the Moon, there can be no seas, rivers or water of any kind. We are accustomed to think of water as a liquid which does not boil away until it reaches a temperature of 212°, but if ever we picnic high up on a mountain, we find out our mistake. We soon discover that water boils more easily and at a lower temperature there than on the plains below. The reason is that there is less weight of air to keep the molecules of the liquid pressed down and so prevent them from flying off by evaporation. If there were no air pressure at all, the water would evaporate no matter how low its temperature and this is precisely what would happen on the Moon.

56. 'Atmosphere' in this passage stands for
a. mental or moral environment
b. spheroidal gaseous envelope
c. the germinal matter from which all life springs
d. the rise and fall in a barometer
57. It is on account of the atmosphere on our Earth that we have
a. the cycle of seasons
b. canals, lakes and tanks
c. mountains and plains
d. water in all forms
58. Absence of air pressure on the Moon will cause
a. exhaustion
b. evaporation of water
c. water to freeze
d. blizzards
59. Water boils at less than 212° when
a. we apply more heat
b. there is more evaporation
c. there is less weight of air in the atmosphere
d. the molecules of the liquid are not pressed down
60. Water will not evaporate, if
a. it is boiled at a low flame
b. the temperature is very low
c. the kitchen is airconditioned
d. there is adequate air pressure

Passage III

Through the break between the trees, she looked into one of the lighted windows above the shop. She could see the cartons of biscuits neatly piled near the far wall. Against her conscious wishes Cissy's saliva glands started pumping the fluid into her mouth. She felt her heart beating strongly from the top of her throat into the back of her mouth. There is nobody, she thought. I can dash in and take a box and dash out again. I know it is a sin but the Lord will not punish us if we are so hungry.

61. How do you know that Cissy felt guilty?
a. She knew what she was doing was morally wrong
b. She felt her heart pounding inside her chest
c. She was saying her prayers before she went to steal
d. She knew that she was about to do something selfish
62. The whole passage is a description of
a. Cissy's courage for stealing
b. Cissy's plans before stealing
c. Cissy's temptation before stealing
d. Cissy's greed for stealing
63. How was Cissy able to see the cartons of biscuits?
a. She had very good eyesight
b. She was able to smell the biscuits
c. She saw another child eating biscuits
d. She was aided by light in the room

64. What was Cissy's reaction when she saw the biscuit cartons?
 a. She wanted to eat all the biscuits
 b. She felt like vomiting
 c. Her mouth started watering
 d. She thought of all the toffees she had eaten
65. Why did her heart beat strongly?
 a. She thought nobody was watching her
 b. She was thinking of stealing the biscuits
 c. She was eager to taste the biscuits
 d. She was ill and was running temperature

Directions (Q. Nos. 66-67) *In the following questions, each passage consists of five sentences. The first sentence (S₁) and last sentence (S₅) are given. The remaining three sentences are labeled P, Q and R. You are required to find out the proper sequence of the three sentences.*

66. S₁: English is not the language that has always been spoken in the British Isles
 S₂: _____
 S₃: _____
 S₄: _____
 S₅: along the North-sea coast.
 P : English was originally a foreign language imported by foreign invaders
 Q : nor, indeed, it is the only language that is spoken there today
 R : these invaders were two Germanic tribes living in what is now Northern Germany
 a. RPQ b. PQR c. QRP d. QPR
67. S₁: It is difficult now to realise the condition of the poor people situated in remote district of England as late as 1760
 S₂: _____
 S₃: _____
 S₄: _____
 S₅: to sit with in the wide chimney, where they listened to stories or related to each other the events of the day.
 P : the fire places were little apartments, sufficiently capacious to enable the whole family
 Q : fuel was burnt only at cooking times or to cast a glow about the hearth in the winter evenings
 R : in winter they shivered over scanty wood-fires, for timber was as scarce as coal
 a. RQP b. QPR c. RPQ d. QRP

Directions (Q. Nos. 68-69) *Following questions have the second sentence missing. Choose the appropriate sentence from the given options to complete it.*

68. (i) For children too there is no greater instrument of education
 (ii) _____
 (iii) It is unjust to them when nothing is spoken before them.
 a. the trifles of dress
 b. than the conversation they hear at home
 c. the gossip of the neighbourhood
 d. the cares of the household which press too heavily upon the parents
69. (i) He lost many jobs but it was not because of his laziness
 (ii) _____
 (iii) but he spent a lot of time in experiment in order to find out new things.
 a. his employers felt that he was wasting his time b. in fact he worked very hard
 c. worked hard but always late d. always discovered new ideas

Directions (Q. Nos. 70-79) Choose the word which best fills the blank, from the following options.

70. The different judge gave his note of ____ .
a. decent b. dissent c. descent d. different
71. He has shown both by his hard work and by his conduct that he ____ a special award.
a. dislikes b. merits c. needs d. aspires
72. The young man was quickly promoted when his Managing Director saw how ____ he was.
a. indigent b. lethargic c. cursory d. assiduous
73. He ____ his head against the wall.
a. struck b. injured c. forced d. sounded
74. The role of zoo is to preserve ____ animals.
a. extinct b. common c. rare d. dead
75. He is very fond of ____ jokes.
a. throwing b. boosting c. suggesting d. cracking
76. As a last ____ he has appealed to the principal.
a. method b. resort c. chance d. course
77. It is ____ but true.
a. indiligent b. inaccurate c. informal d. incredible
78. Adequate ____ must be taken to avoid accidents.
a. cautions b. warning c. precautions d. danger
79. He is extremely ____, he would believe anything you tell him.
a. affable b. believable c. reliable d. gullible

Directions (Q. Nos. 80-85) Select the correct meaning of the Idioms and Phrases out of the four choices given.

80. Bear up
a. To face bravely b. To have patience c. To crush d. To drive back
81. Act up
a. Produce effect b. In accordance with c. To misbehave d. Behave in a way
82. Call on
a. Cancel something b. Become calm c. Want something d. Ask someone
83. To get into hot water
a. To burn himself b. To be in difficult situation
c. In irritating position d. To have no strength
84. To have gift of the gab
a. Art of speaking b. To bribe someone
c. To have a strong will d. To have a beautiful face
85. To steal a march
a. To avoid b. To have abundant proof
c. To get ahead secretly d. To surprise

Directions (Q. Nos. 86-93) *In the following passage, there are blanks, each of which has been numbered. For each blank four words are suggested, one of which fits the blank. Find the appropriate word in each case.*

I want to avoid violence. Non-violence **86** the first article of my faith. It is also the **87** article of my creed. But I had to **88** my choice. I had either submit **89** a system which I considered **90** done irreparable harm **91** my country **92** incur the risk of the mad fury of my people bursting forth, when they get the truth **93** my lips.

- | | | | | |
|-----|---------|-----------|------------|------------|
| 86. | a. was | b. be | c. is | d. being |
| 87. | a. last | b. common | c. simple | d. unique |
| 88. | a. make | b. select | c. prepare | d. do |
| 89. | a. over | b. in | c. against | d. to |
| 90. | a. is | b. was | c. has | d. had |
| 91. | a. to | b. on | c. for | d. along |
| 92. | a. nor | b. but | c. or | d. and |
| 93. | a. by | b. from | c. on | d. through |

Directions (Q. Nos. 94-97) *Select the most appropriate option to fill the blanks from the given alternatives.*

94. An _____ man is sure to be successful.
a. industrious b. indistrious c. industrious d. indesterious
95. Students will go on an _____.
a. excursion b. excurtion c. excrusion d. ascursion
96. It is difficult to cross the _____.
a. barier b. barrier c. borier d. berrier
97. One should be always _____.
a. optimistic b. optimestic c. optemestic d. optimicitic

Directions (Q. Nos. 98-100) *In these questions, a key word is followed by four choices. Choose the one opposite to it in the meaning.*

98. Productive
a. Useless b. Repulse c. Masked d. Obscure
99. Indifferent
a. Humility b. Boldness c. Affection d. Cowardice
100. Flourish
a. Swell b. Scarce c. Separation d. Removal

Paper II : Scholastic Aptitude Test

101. In the absence of histone proteins in prokaryotes, the anionic charges of each inter nucleotide phosphate in DNA is neutralized by
a. phospholipids b. polyamines c. polysaccharides d. glycelipids
102. Phagocytosis and pinocytosis are collectively termed as
a. endocytosis b. suspension feeding c. omnivores d. mucous trap

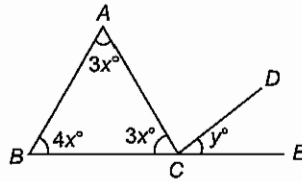
- 103.** Which one of the following is called pacemaker of the heart?
a. SA node *b.* AV node *c.* Chordae tendinae *d.* AV septum
- 104.** The life span of human WBCs is normally
a. 12-13 days *b.* 80-90 days *c.* 100-120 days *d.* 20-30 days
- 105.** Oxygenated blood is carried by
a. pulmonary vein *b.* pulmonary artery *c.* hepatic portal vein *d.* renal vein
- 106.** The reserve food in fungal cell is
a. glucose *b.* fructose *c.* glycogen *d.* starch
- 107.** *Trypanosoma* is
a. bacteria *b.* fungus *c.* algae *d.* protozoa
- 108.** Seeds are called the products of sexual reproduction due to
a. it gives rise to new plants *b.* formation by fusion of pollen tubes
c. it can survive for longer periods *d.* are formed by fusion of gametes
- 109.** The most essential organ for fertilization is
a. juicy fruit *b.* green sepals *c.* coloured petals *d.* mature ovule
- 110.** BCG vaccine is used to protect a child from
a. polio *b.* plague *c.* dengue *d.* tuberculosis
- 111.** Bulliform cells are present in
a. lower epidermis of monocot leaves *b.* upper epidermis of monocot leaves
c. dicot stem *d.* upper epidermis of dicot leaves
- 112.** Sebaceous glands are found in
a. dermis of skin of mammals *b.* epithelium of intestine of frog
c. epithelium of stomach of frog *d.* epidermis of skin mammals
- 113.** One of the most resistant known biological material is
a. lignin *b.* hemicellulose *c.* sporopollenin *d.* lignocellulose
- 114.** Parthenogenesis is a type of
a. sexual reproduction *b.* asexual reproduction
c. budding *d.* regeneration
- 115.** Which one of the following is not correct about cathode rays?
a. They are deflected to the positive plate of electromagnetic field
b. The nature of cathode rays does not depend upon the nature of gas taken in the discharge tube
c. The nature of cathode rays depends upon the nature of gas taken in the discharge tube
d. Cathode rays are made up of material particles
- 116.** Cathode rays are produced when high electric voltage is applied to the gas held in a discharge tube at a pressure of about
a. 10^{-3} atm *b.* 10^{-5} atm *c.* 1 atm *d.* 100 atm
- 117.** The electronic configuration of chlorine with atomic number 17 is
a. 2, 8, 7 *b.* 2, 9, 6 *c.* 2, 10, 7 *d.* 2, 9, 9
- 118.** A divalent cation has 10 electrons and 12 neutrons. The atomic number and mass number of the elements are
a. 12, 24 *b.* 10, 12 *c.* 11, 25 *d.* 8, 12

119. Isotopes differ in the number of
a. electrons *b.* protons *c.* neutrons *d.* nucleons
120. The only element having no neutron is
a. protium *b.* deuterium *c.* tritium *d.* All of these
121. α -particle are
a. double positive helium nucleus *b.* single positive helium nucleus
c. neutral helium atom *d.* None of these
122. Neutron was discovered by
a. J J Thomson *b.* James Chadwick *c.* Goldstein *d.* Rutherford
123. Man made synthetic fibre is
a. wool *b.* rayon *c.* nylon *d.* cotton
124. Which one of the following statements is not correct?
a. All metals are solid at room temperature
b. All metals are good conductor of heat and electricity
c. All metals form basic oxides
d. All metals possess lustre when freshly prepared
125. Among metals, the poorest conductor of heat is
a. lead *b.* tin *c.* bismuth *d.* mercury
126. The correct order of electrical conductivity is
a. Al > Au > Cu > Ag *b.* Cu > Ag > Al > Au *c.* Au > Ag > Al > Cu *d.* Ag > Cu > Au > Al
127. Beakers A, B and C contain zinc sulphate, silver nitrate and iron (II) sulphate solutions, respectively. Copper pieces are added to each beaker. Blue colour will appear to in case of
a. beaker A *b.* beaker B *c.* beaker C *d.* All the beakers
128. A particle is projected up with an initial velocity of 80 ft/s. The ball will attain height of 96 ft/s from the ground after
a. 2.0 and 3.0 s *b.* Only at 3.0 s *c.* Only at 2.0 s *d.* After 1 and 2 s
129. A stone is dropped into water from a bridge 44.1 m above the water. Another stone is thrown vertically downward 1 s later. Both strike the water simultaneously. What was the initial speed of the second stone?
a. 12.25 m/s *b.* 14.75 m/s *c.* 16.23 m/s *d.* 17.15 m/s
130. Which one of the following statements is wrong?
a. Sound travels in straight line *b.* Sound travels in the form of waves
c. Sound is a form of energy *d.* Sound travels faster in vacuum than in air
131. A body is thrown vertically upwards with a velocity u . Find the true statement from the following.
a. Both velocity and acceleration are zero at its highest point
b. Velocity is maximum and acceleration is zero at the highest point
c. Velocity is maximum and acceleration is of downwards at its highest point
d. Velocity is zero at the higher point and maximum height reached is $\frac{u^2}{2g}$
132. A body is thrown vertically upwards with velocity u . The distance travelled by it in the fifth and sixth seconds are equal. The velocity u is ($g = 9.8 \text{ m/s}^2$)
a. 24.5 m/s *b.* 49.0 m/s *c.* 65 m/s *d.* 78.0 m/s

133. The mass of the Moon is 7.34×10^{22} kg and the radius is 1.74×10^6 m. The value of gravitation force will be
a. 1.45 N/kg *b.* 1.55 N/kg *c.* 1.75 N/kg *d.* 1.62 N/kg
134. Which one of the following statements is wrong?
a. Voltmeter should have high resistance
b. Ammeter should have low resistance
c. Ammeter is placed in parallel
d. Voltmeter is placed in parallel across the conductor in a circuit
135. A. The resistance of super conductor is zero.
 B. The super conductor are used for the transmission of electric power.
a. A and B are true *b.* A and B are false
c. A is true and B is false *d.* A is false and B is false
136. The resistivity of a wire
a. increases with the length of the wire
b. decreases with the area of cross-section
c. decreases with the length and increases with the cross-section of a wire
d. None of the above
137. Ohm's law is true
a. for gases at low temperature
b. for metallic conductor
c. for electrolytes when current passes through them
d. for diode when current flows
138. A wire 100 cm long and 2.0 mm diameter has a resistance of 0.7Ω , the electrical resistivity of the material is
a. $4.4 \times 10^{-6} \Omega\text{-m}$ *b.* $2.2 \times 10^{-6} \Omega\text{-m}$ *c.* $1.1 \times 10^{-6} \Omega\text{-m}$ *d.* $0.22 \times 10^{-6} \Omega\text{-m}$
139. Two rods of same material and length have their electric resistance in ratio 1 : 2. When both rods are dipped in water, the correct statement will be
a. A has more loss of weight *b.* B has more loss of weight
c. Both have same loss of weight *d.* Loss of weight will be in the ratio 1 : 2
140. The temperature of the Sun is measured with
a. platinum thermometer *b.* gas thermometer
c. pyrometer *d.* vapour pressure thermometer
141. The place value of 8 in the numeral 6437842 is
a. 8000 *b.* 800 *c.* 80 *d.* None of these
142. The product of two numbers is 24 times the difference of these two numbers. If the sum of these numbers is 14, the large number is
a. 5 *b.* 6 *c.* 8 *d.* 10
143. A sum of ₹ 782 has been divided between P, Q and R in the ratio $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$. The share of R is
a. ₹ 302 *b.* ₹ 304 *c.* ₹ 306 *d.* ₹ 308
144. A card is drawn from a well shuffled pack of cards. The probability of getting a queen of club or a king of heart is
a. $\frac{1}{52}$ *b.* $\frac{1}{26}$ *c.* $\frac{1}{13}$ *d.* None of these

145. The angles of a triangle are $3x^\circ$, $(2x-7)^\circ$ and $(4x-11)^\circ$. Find the value of x .
- a. 22° b. 25° c. 30° d. 35°

146. In the given figure, $CD \parallel AB$. Find the value of y .



- a. 79° b. 72° c. 77° d. 74°
147. The value of $\sin 30^\circ + \cos 60^\circ$ is equal to
- a. 1 b. 0 c. 2 d. $\sqrt{2}$
148. $\sqrt{\frac{1+\sin \theta}{1-\sin \theta}}$ is equal to
- a. $\sec \theta - \tan \theta$ b. $\sec \theta + \tan \theta$ c. $\operatorname{cosec} \theta + \cot \theta$ d. None of these
149. If the simple interest for a certain sum at 7% per annum for 2 yr is ₹ 400. What will be the difference between the compound interest and simple interest?
- a. ₹ 10 b. ₹ 12 c. ₹ 14 d. ₹ 16
150. If $4x+9y=42$ and $6x+4y=36$ are the linear equations in x and y , then the value of x and y are respectively.
- a. 4, 3 b. 3, 4 c. 5, 3 d. 3, 7
151. For what values of k , the equation $x^2 + 2(k-4)x + 2k = 0$ has equal roots?
- a. 6 and 4 b. 8 and 2 c. 10 and 4 d. 2 and 12
152. The perimeter of a rectangle is 35 cm. If its breadth is 7 cm, its length will be
- a. 9.5 cm b. 10.5 cm c. 11.5 cm d. 12.5 cm
153. Find the area of the largest circle that can be drawn inside a rectangle with sides 18 cm and 14 cm.
- a. 49 sq cm b. 154 sq cm c. 378 sq cm d. 1078 sq cm
154. A match box measures 4 cm \times 2.5 cm \times 1.5 cm. What will be the volume of the packet containing 12 such boxes?
- a. 150 cm^3 b. 190 cm^3 c. 175 cm^3 d. 180 cm^3
155. A tower stands vertically on the ground. From a point on the ground which is 30 m away from the foot of a tower, the angle of elevation of the top of the tower is found to be 45° . The height of the tower is
- a. 28 m b. 30 m c. 32 m d. 35 m
156. The points (2, 2), (6, 3) and (4, 11) are the vertices of
- a. an equilateral triangle b. an isosceles triangle
c. a right angled triangle d. a scalene triangle
157. The monthly income of a person is ₹ 5000. If his income is increased by 30%, what is his monthly income now?
- a. ₹ 7000 b. ₹ 5500 c. ₹ 4500 d. ₹ 6500
158. A person buys a book for ₹ 500 and sells it for ₹ 300. His loss per cent is
- a. 30% b. 35% c. 40% d. 45%

159. Ravi and Kavi starts a business by investing ₹8000 and ₹72000, respectively. The ratio of their profits at the end of year, is

- a. 1 : 9 b. 2 : 9 c. 5 : 9 d. 7 : 9

160. Ram's income is 20% more than that of Shyam. By how much per cent is Shyam's income less than that of Ram?

- a. $16\frac{4}{5}\%$ b. $16\frac{1}{3}\%$ c. $16\frac{2}{3}\%$ d. $16\frac{2}{7}\%$

161. Consider the following statements

- I. Belgium Constitution prescribes the number of Dutch and French speaking ministers shall be equal in the Central Governments.
- II. The State Governments are not subordinate to the Central Government in Belgium.
- III. Brussels has a separate government in which Dutch and the French communities have equal representation.
- IV. Apart from the Central and the State Government, there is a provision for 'Community Government'.

Which of the above statement(s) is/are correct?

- a. I, II and III b. II and III c. I and III d. All of these

162. Which of the following is the characteristics or forms of power sharing?

- a. System of checks and balances b. Federalism
c. Division of power among different social groups d. All of these

163. Match the following

List I	List II
A. Community Government	1. Power shared among different organs of government
B. Separation of Powers	2. Power shared among governments at different levels
C. Coalition Government	3. Power shared by different social groups
D. Federal Government	4. Power shared by two or more political parties

Codes

- A B C D A B C D A B C D A B C D
a. 3 1 4 2 b. 1 3 2 4 c. 1 2 3 4 d. 4 1 2 3

164. Which of the following Writs can be issued by the Supreme Court, to enforce Fundamental Rights?

- a. Writ of Habeas Corpus b. Writ of Mandamus
c. Writ of Quo Warranto d. All of these

165. Party system in India can be described as

- a. single party b. bi-party c. multi-party d. All of these

166. Who can dissolve the Lok Sabha before the expiry of its normal term of 5 yr?

- a. The Prime Minister
b. The President of India
c. The President on the recommendation of the Prime Minister
d. None of the above

167. The Indian Parliament consists of

- a. Lok Sabha b. Rajya Sabha
c. Lok Sabha and Rajya Sabha d. The President, Lok Sabha and Rajya Sabha

- 168.** How many times the Preamble of the Constitution of India has been amended?
a. Once *b.* Twice *c.* Thrice *d.* Never
- 169.** When we speak of gender divisions, we usually refer to
a. biological difference between men and women
b. unequal roles assigned by the society to men and women
c. unequal child sex ratio
d. absence of voting rights for women in democracies
- 170.** In India, seats are reserved for women in
a. Lok Sabha *b.* State Assemblies *c.* Cabinets *d.* Panchayati Raj Bodies
- 171.** What were the 'Corn Laws' passed by the British Government?
a. To restrict the import of corn *b.* To restrict the export of corn
c. To restrict the export of corn to America *d.* To restrict the import of corn from China
- 172.** For what purpose, the earliest textbooks were printed in China?
a. To train the illiterate mass
b. To recruit the civil servants through written examination
c. To teach the religious priests
d. To train the factory workers

- 173.** Match the following

List I	List II
A. Charles Dickens	1. Pride and Prejudice
B. Emile Zola	2. Major of Casterbridge
C. Thomas Hardy	3. Oliver Twist
D. Jane Austen	4. Germinal

Codes

- | | | | |
|-------------------|-------------------|-------------------|-------------------|
| A B C D | A B C D | A B C D | A B C D |
| <i>a.</i> 3 2 1 4 | <i>b.</i> 3 4 2 1 | <i>c.</i> 2 4 1 3 | <i>d.</i> 1 2 4 3 |

- 174.** Who is the author of 'Godan'?
a. Premchand *b.* Suryakant Tripathi *c.* Phaniswarnath Renu *d.* Mahadevi Verma
- 175.** Name the author whose novel was printed serially in a magazine.
a. Thomas Hardy *b.* Charles Dickens *c.* Leo Tolstoy *d.* Jane Austen
- 176.** When did the great depression begin?
a. In 1929 *b.* In 1931 *c.* In 1930 *d.* In 1932
- 177.** Which one of the following contains the famous Gayatri Mantra?
a. Sama Veda *b.* Yajur Veda *c.* Rig Veda *d.* Atharva Veda
- 178.** Why were the migrants attracted towards London and Manchester?
a. To live a life of leisure and pleasure *b.* To enjoy the urban life
c. To avail job facilities in textile mills *d.* To get proper education facility for their children
- 179.** Rearrange these socio-religious movements in chronological order
 I. Aligarh Movement II. Young Bengal Movement
 III. Brahma Samaj IV. Arya Samaj
a. I, II, III, IV *b.* III, II, I, IV *c.* II, III, IV, I *d.* I, III, IV, II
- 180.** In the 19th century, women of which country agitated against corsets and tight dressings?
a. Women of America *b.* Women of France *c.* Women of England *d.* Women of Germany

- 181.** Suppose you buy an edible oil. Which logo or mark you will have to look for?
a. Agmark *b.* ISI *c.* Hallmark *d.* None of these
- 182.** The consumer has the right to get compensation depending on the degree of
a. cost of the commodity *b.* age of the commodity
c. damage *d.* None of these
- 183.** Which of the following factors helped the process of globalisation?
a. MNCs *b.* Technology *c.* Foreign investment *d.* All of these
- 184.** The difference between the export and import of a country is known as
a. External trade *b.* Balance of trade *c.* Internal trade *d.* National income
- 185.** The past two decades of Globalisation has seen rapid movement in
a. goods, services and people between countries
b. goods, services and investments between countries
c. goods, investments and people between countries
d. goods, technology and cheap labour between countries

186. Match the following

List I	List II
A. Ford Motors	1. Call Centres
B. IT helped in spreading of production of services	2. Pharmaceutical Company
C. Ranbaxy	3. Mahindra and Mahindra
D. Foreign investment	4. Investment made by MNCs

Codes

A B C D	A B C D	A B C D	A B C D
<i>a.</i> 3 1 2 4	<i>b.</i> 1 3 4 2	<i>c.</i> 1 4 3 2	<i>d.</i> 1 2 3 4

- 187.** Consider the following statements
 I. The Self-Help Group is a small voluntary association of poor people.
 II. They preferably form the same socio-eco background.
 III. Usually the number of members in one SHG does not exceed twenty.

Which of the above statement(s) is/are correct?

- a.* Only I *b.* Only II *c.* II and III *d.* All of these

- 188.** Saina Nehwal is related to which of the following sports?
a. Tennis *b.* Badminton *c.* Snooker *d.* Table-tennis

- 189.** Which of the following is not a feature of unorganised sector?
a. Security of job *b.* Supposed to get medical benefits
c. The worker get pension as well *d.* None of these

190. Match the following

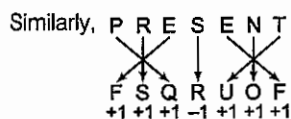
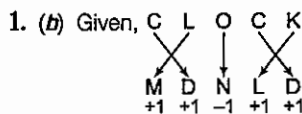
List I (Problems Faced by Farming Sector)	List II (Process Measures)
A. No job in the off season	1. Setting up agro-based mills
B. Unirrigated land	2. Procurement of food grains by government
C. Low prices for crops	3. Construction of canals by the government
D. Debt burden	4. Banks to provide credit with low interest

Codes

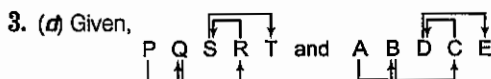
A B C D	A B C D	A B C D	A B C D
<i>a.</i> 1 3 2 4	<i>b.</i> 3 1 2 4	<i>c.</i> 2 4 1 3	<i>d.</i> 4 3 2 1

191. The Himalayas 'Yew' is a medical plant used in the treatment of
a. Tuberculosis *b.* AIDS *c.* Cancer *d.* Asthama
192. Which among the following is false?
a. Rice is a zayad crop
b. Our country is 2nd largest producer of rice after China
c. Rice requires high temperature (25°C) and high humidity with annual rainfall above 100 cm
d. Rice is grown in the plains of North and North-Eastern India
193. Which among the following is the highest quality hard coal?
a. Lignite *b.* Bituminous *c.* Anthracite *d.* Peat
194. The first jute mill was set up near Kolkata at Rishra in
a. 1857 *b.* 1858 *c.* 1859 *d.* 1860
195. The Golden Quadrilateral Super Highway Projects are being implemented by the
a. SHAI (State Highway Authority of India)
b. IHAI (Indian Highway Authority of India)
c. Private Sector Companies
d. NHAI (National Highway Authority of India)
196. Consider the following statements
 I. East-West extent of India is larger than North-South extent.
 II. East-West extent of India is smaller than North-South extent.
 III. From Gujarat to Arunachal Pradesh, there is time lag of 2 h.
 IV. $66\frac{1}{2}^{\circ}$ N is termed as Tropic of Capricorn.
 Which of the above statement(s) is/are true?
a. I, II and III *b.* II, III and IV *c.* II and III *d.* All are true
197. Which of the following is correct sequence from North to South?
a. Nilgiri, Aravali, Vindhyan, Satpura *b.* Aravali, Nilgiri, Satpura, Vindhayan
c. Aravali, Satpura, Vindhayan, Nilgiri Hills *d.* Aravali Range, Vindhayan, Satpura, Nilgiri Hills
198. The Purna, the Wardha, the Pranhita are the tributaries of
a. Mahanadi *b.* Narmada *c.* Godavari *d.* Tapi
199. El Nino is a Spanish word means
a. Christ *b.* Rough wind *c.* Child *d.* None of these
200. Which among the following is not a part of primary sector?
a. Agriculture *b.* Forestry *c.* Mining *d.* Manufacturing Industry

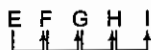
Paper I : Mental Ability Test



2. (c) $150 + 7 = 157$
 $157 + 23 = 180$
 $180 - 38 = \boxed{142}$



∴ Only option (d) is odd among them because it is not following the same pattern



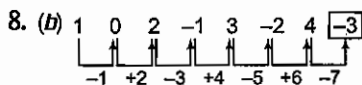
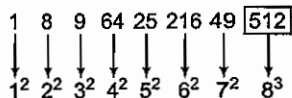
4. (a) you knights means pa ju
 knights fight means ha pa
 dangerous fight means ha ja

From above explanation 'dangerous fight, means 'ja ju'.

5. (b) r s t u v / r s t u v / r s t u v

6. (b) Migration to big cities should be checked.

7. (b) Sequence is

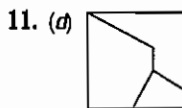


9. (b) Starting from 'N' add 10 in its number position and rotate it or add 10 in clockwise direction

N + 10 = X
 X + 10 = H
 H + 10 = R
 R + 10 = **B**
 B + 10 = L
 V + 10 = F

10. (b) Given, $55 + 10 = 20$ and $45 + 40 = 49$

Means $(5 + 5) + 10 = 20$ and $(4 + 5) + 40 = 49$
 Similarly, $= 95 + 70 = ?$
 $(9 + 5) + 70 = 84$



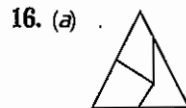
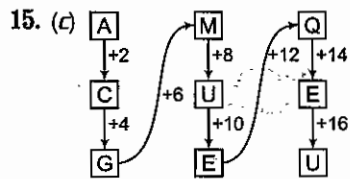
∴ Only figure (s) is odd among other figures.

12. (a) Given, $(H + X + P) - (D + K + G) = M$ $13 \leftarrow$
 $(8 + 24 + 16) - (4 + 11 + 7) = \frac{26}{2} = \boxed{13}$

Similarly, $(U + W + B) - (N + O + A) = \boxed{H} \leftarrow$
 $(21 + 23 + 2) - (14 + 15 + 1) = \frac{16}{2} = \boxed{8}$

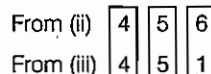
13. (a) Because Mr Sanchez spends many hours during the weekend working in his vegetable garden, it is reasonable to suggest that he enjoys this work. There is no information to suggest that he does not like classical music. Although Mrs Sanchez likes to cook, there is nothing that indicates she cooks vegetables (choice c). Mrs Sanchez likes to read but there is no information regarding the types of books she reads (choice d).

14. (d) If Georgia is older than Marsha and Bart is older than Georgia, then Marsha has to be the youngest of the three. Choice b is clearly wrong because Bart is the oldest. There is no information in the paragraph to support either choice a or choice c.

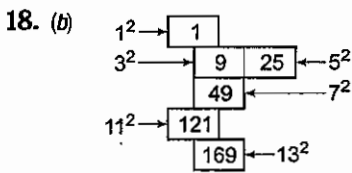


So, only figure (f) is odd among them.

17. (c) From (ii) and (iii),
 Common number is 4 and 5.



∴ Clearly, shows that 1 and 6 are opposite to each other.

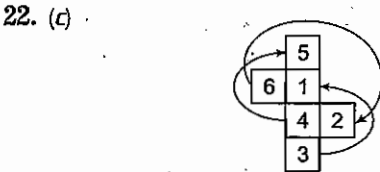


∴ All are the square of consecutive prime numbers.

19. (b) The upper element rotates through 180° and its head gets inverted. The lower element gets vertically inverted.

20. (a) Since, the Gaslight Common Costs more than the Riverdale manor and the Livingston Gate Costs more than the gaslight commons, it is true that the livingston gate the most.

21. (d) Figure (d) is odd in the all figure because except (d) in all one outer side is blacked but in option (d) centre or inside is black.



∴ It means 1 opposite to 3

2 opposite to 4

5 opposite to 6

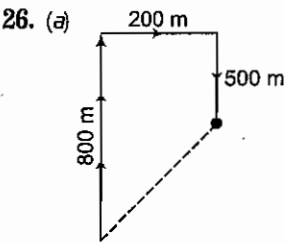
∴ Only option (c) dice is correct because there is no opposite number is given.

23. (d) In each row, the third figure is a combination of the first and second figure.

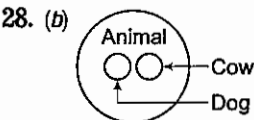
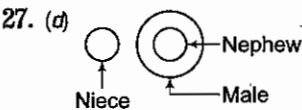
24. (c) Only 3 students are there who passed 10th and 12th but not persuing graduation.

25. (b)

M CORDIAL N
 C O B D I V T



∴ North-East would be the answer.

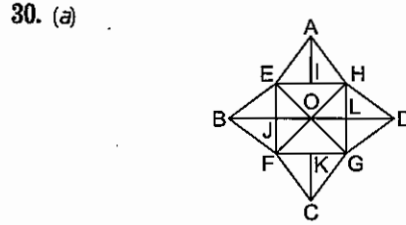


29. (c)

$$A + 16 \rightarrow Q \quad \text{and} \quad F + 16 \rightarrow V$$

$$P \xrightarrow{-4} L \quad \text{and} \quad K \xrightarrow{-4} G$$

∴ K will be the answer.



∴ Triangles are \rightarrow AEI, A IH, BEJ, B JF, CFK, CKG, DGL, DLH, EOJ, FOJ, FOJ, LOG, HOL, HOE, EAH, FBE, BEO, EOF, BFO, FCG, GDH, HOD, HOG, GOD, EFH, EHG, FGH and EFG i.e., 28.

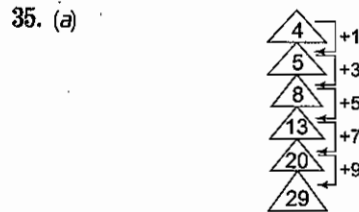
Solutions (Q. Nos. 31-33)

Data arranged in tabular form

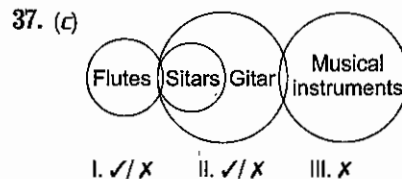
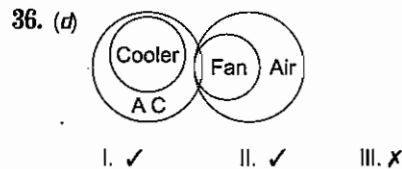
Z	V	U	Y	X	W
1	2	3	4	5	6

31. (a) 32. (a) 33. (d)

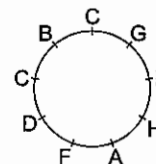
34. (d) On each watch, the time shown contains two digits that one of them two are the same.



∴ In all add the odd consecutive numbers.



Solutions (Q. Nos. 38-43)

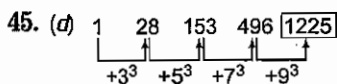


Either I or II follows

38. (a) 39. (b) 40. (c)

41. (c) 42. (a) 43. (d)

44. (c) There only 16 cubes in the given figure.



46. (a) $P > Q > R > S > T$
So, P is senior to all among them.

47. (c) Let the distance travelled by x km.

$$\text{Then, } \frac{x}{10} - \frac{x}{15} = 2$$

$$\Rightarrow 3x - 2x = 60$$

$$\therefore x = 60 \text{ km}$$

$$\text{Time taken to travel 60 km at 10 km/h} = \left(\frac{60}{10}\right) \text{ h} = 6 \text{ h}$$

So, Robert started 6 h before 2 pm i.e., at 8 am.

$$\therefore \text{Required speed} = \left(\frac{60}{5}\right) = 12 \text{ km/h}$$

48. (a) Let the distance travelled on foot be x km.

Then, distance travelled on bicycle = $(61 - x)$ km

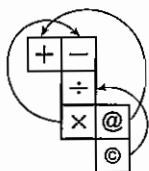
$$\text{So, } \frac{x}{4} + \frac{(61 - x)}{9} = 9$$

$$\Rightarrow 9x + 4(61 - x) = 9 \times 36$$

$$\Rightarrow 5x = 80$$

$$\therefore x = 16 \text{ km}$$

49. (b)



\therefore + opposite to @

- opposite to x

x opposite to @

\therefore Only option (b) is correct because all sign are in this dice not related to each other.

50. (a) Let the age of Deepa and Nisha 6 yr ago be $6x$ and $5x$ yr, respectively.

$$\text{Then, } \frac{(6x + 6) + 4}{(5x + 6) + 4} = \frac{11}{10}$$

$$\Rightarrow 10(6x + 10) = 11(5x + 10)$$

$$\Rightarrow 5x = 10$$

$$\Rightarrow x = 2$$

$$\therefore \text{Nisha's present age} = 5x + 6 \\ = (5 \times 2) + 6 \\ = 16 \text{ yr}$$

51. (c) Old age is generally a depressing period, because various organs of the body function less efficiently.

52. (b) When stress is placed on bones through exercise, calcium content rises in bones.

53. (b) The word exhale means breath out.

54. (a) 'Recent studies have shown that most of these age associated declines can be delayed by exercise'.

55. (d) The chest wall becomes stiff in old age, because the person's ability to exhale, sufficient air lessens.

56. (b) 'Atmosphere' means an envelope of gases.

57. (d) On Earth water is present in all form which is the one of the reason of existing life on Earth.

58. (b) If there is no air pressure water will start evaporating.

59. (c) Water boils at less than 212° , when there is less weight of air in the atmosphere.

60. (d) With air pressure evaporation decreases.

61. (a) From the line 'I know it is a sin' proves that Cissy felt guilty.

62. (c) It is a temptation because she was hungry.

63. (d) Cissy was able to saw the cartons of biscuits through the lighted windows above the shop.

64. (c) Her mouth started watering.

65. (b) As she was going to commit the sin of stealing the biscuits.

66. (d) Q P R
 S_1 links with statement Q, English was originally a foreign language links the next statement (P) and last is statement (R).

67. (a) R Q P
Condition of poor people is stated in S_1 which is continued in statement R next is connecting appropriately with statement Q and last is statement (P).

68. (b) than the conversation they hear at home.

69. (b) in fact he worked very hard.

70. (b) Dissent means disagreement.

71. (b) Merits means deserves.

72. (d) 'Assiduous' means hard working, 'indigent' mean 'poor'.

73. (a) Head can be 'struck' only.

74. (c) Extinct is wrong because it means animals which are no longer found in the world. Therefore, rare is the correct option.

75. (d) Jokes are cracked.

76. (b) Last 'resort' means the last 'alternative'.

77. (d) Incredible means 'unbelievable'.

78. (c) With the word 'avoid' only precaution can go.

79. (d) 'Gullible' means one who can be easily cheated.

80. (a) 'Bear up' means to face hardships bravely.

81. (c) 'Act up' means misbehave (for people) and not work properly (for machines).

82. (d) Call on means to ask someone for an answer.

83. (b) To get into hot water means to be in a difficult situation.

84. (a) To have gift of the gab means 'art of speaking'.

85. (c) To steal a march means to get ahead secretly.
86. (c) 'Is' will go along with singular and present tense.
87. (d) 'unique' is the right option here.
88. (a) 'make' is the best option.
89. (d) 'to' is the right proposition with submit.
90. (c) has (present tense)
91. (a) 'to' my country
92. (c) 'or' incur
93. (b) They get the truth 'from' my lips.
94. (c) 'Industrious' means hard working .
95. (a) 'Excursion' is the correct spelling.
96. (b) Barrier is the correct spelling.
97. (a) Optimistic is correct spelling.
98. (a) Productive means successful or progressive while 'useless' means fruitless or unproductive.
99. (c) Indifferent means dislike or hatred while 'affection' means fondness or liking.
100. (b) Flourish means teem or plentiful while 'scarce' means 'deficient' or want.

Paper II : Scholastic Aptitude Test

101. (b) In the absence of his tone protein in prokaryotes, an ionic charges of each inter nucleotides phosphate in DNA is neutralized by polyamines.
102. (a) Phagocytosis and pinocytosis are collectively termed as endocytosis. Endocytosis is the process by which materials move into the cell. Phagocytosis and pinocytosis, receptor-mediated endocytosis is an extremely selective process of imparting material into the cell.
103. (a) SA node is called pacemaker of the heart. In the upper part of the right atrium of the heart is a specialised bundle of neurons known as the sinoatrial node (SA node).
104. (a) The white blood cells have a rather short life, living from a few days to a few weeks. So, the lifespan of white blood cells ranges from 13 to 20 days.
105. (a) Oxygenated blood is carried by pulmonary vein. The left pulmonary vein carries oxygenated blood from the left lung to the heart and the right pulmonary vein carries oxygenated blood from the right lung to the heart.
106. (c) The reserve food in fungal cell is glycogen.
107. (d) Trypanosoma a is a genes of protozoa parasitic in the blood.
108. (d) Seeds are called the products of sexual reproduction due to formed by fusion of gametes.
109. (d) The most essential organ for fertilisation is mature ovule.
110. (d) BCG vaccine is used to protect a child from tuberculosis.
111. (b) Bulliform cells are present in upper epidermis of monocot leaves. Bulliform cells are large, bubble shaped epidermal cells.
112. (a) Sebaceous glands are found in dlermis of skin of mammals.
113. (c) One of the most resistant known biological material is sporopollenin.
114. (b) Parthenogenesis is a type of asexual reproduction in which a female gamete or egg cell develops into an individual without fertilization.
115. (c) 116. (a) 117. (a) 118. (a)
119. (c) 120. (a) 121. (a) 122. (b)
123. (c) 124. (a) 125. (a) 126. (d)
127. (b) 128. (a)
129. (a) Time taken by first stone to reach the water surface from the bridge be t , then
- $$h = ut + \frac{1}{2}gt^2$$
- $$44.1 = 0 \times t + \frac{1}{2} \times 9.8 \times t^2$$
- $$t = \sqrt{\frac{2 \times 44.1}{9.8}}$$
- $$t = 3 \text{ s}$$
- Second stone is thrown, is later and both strikes simultaneously. This mean that the time left for second stone = $3 - 1 = 2 \text{ s}$
- Hence, $44.1 = 4 \times 2 + \frac{1}{2} \times 9.8 \times (2)^2$
- $$44.1 - 19.6 = 2u$$
- $$u = 12.25 \text{ m/s}$$
130. (d)
131. (d) At the highest point $v_1 = 0$
- So, from $v^2 = u^2 - 2gh$
- $$h = \frac{u^2}{2g}$$
132. (c)
133. (d)
- $$g = \frac{GM}{R^2}$$
- $$= \frac{6.67 \times 10^{-11} \times 7.34 \times 10^{22}}{(1.74 \times 10^6)^2}$$
- $$= 1.62 \text{ N/kg}$$
134. (c) 135. (c)
136. (d) Resistivity is the intrinsic property of the substance. It is independent of shape and size of the body.

137. (b) 138. (b) 139. (c) 140. (c)

141. (b) Place value of 8 in 6437842 = $8 \times 100 = 800$

142. (c) Let the two numbers be x and y , respectively.

Then, as per the question,

$$x \times y = 24(x - y)$$

$$\Rightarrow xy = 24x - 24y \quad \dots(i)$$

and $x + y = 14$

$$\therefore y = 14 - x \quad \dots(ii)$$

On putting the value of y in Eq. (i), we get

$$\Rightarrow x(14 - x) = 24x - 24(14 - x)$$

$$\Rightarrow 14x - x^2 = 24x - 336 + 24x$$

$$\Rightarrow x^2 + 34x - 336 = 0$$

$$\Rightarrow x^2 + 42x - 8x - 336 = 0$$

$$\Rightarrow x(x + 42) - 8(x + 42) = 0$$

$$\Rightarrow (x + 42)(x - 8) = 0$$

$$\Rightarrow x = 8, -42$$

Then, $y = 6, 56$

\therefore Large number = 8 (because sum of the number is 14)

143. (c) $P : Q : R = \frac{1}{2} : \frac{2}{3} : \frac{3}{4} = \frac{12}{2} : \frac{2 \times 12}{3} : \frac{3 \times 12}{4}$

$$= 6 : 8 : 9$$

$$\therefore \text{Share of } R = \frac{9}{6+8+9} \times 782$$

$$= \frac{9}{23} \times 782 = 9 \times 34 = 306$$

$$= ₹ 306$$

144. (b) Total ways = 52. There is one queen of club and one king of heart.

$$\therefore \text{Favourable ways} = 1 + 1 = 2$$

$$\therefore \text{Required probability} = \frac{2}{52} = \frac{1}{26}$$

145. (a) Sum of three angles of a triangle = 180°

$$\therefore 3x + (2x - 7) + (4x - 11) = 180^\circ$$

$$\Rightarrow 9x - 18 = 180^\circ$$

$$\Rightarrow 9x = 180^\circ + 18^\circ$$

$$\Rightarrow 9x = 198^\circ$$

$$\Rightarrow x = \frac{198^\circ}{9} = 22^\circ$$

$$\therefore x = 22^\circ$$

146. (b) In $\triangle ABC$, $\angle ABC + \angle BCA + \angle CAB = 180^\circ$

$$\Rightarrow 4x + 3x + 3x = 180^\circ$$

$$\Rightarrow 10x = 180^\circ$$

$$\therefore x = 18^\circ$$

Now, $\angle ABC = \angle DCE$

(corresponding angles are equal)

$$\Rightarrow \angle CDE = 4x = 4 \times 18^\circ$$

$$\Rightarrow \angle CDE = 72^\circ = y$$

$$\therefore y = 72^\circ$$

147. (a) $\sin 30^\circ + \cos 60^\circ = \frac{1}{2} + \frac{1}{2} = 1$

148. (b) $\frac{\sqrt{1+\sin\theta}}{\sqrt{1-\sin\theta}} = \frac{\sqrt{(1+\sin\theta)} \times \sqrt{(1+\sin\theta)}}{\sqrt{(1-\sin\theta)} \times \sqrt{(1+\sin\theta)}}$
 $= \frac{\sqrt{(1+\sin\theta)^2}}{\sqrt{(1-\sin^2\theta)}} = \frac{\sqrt{(1+\sin\theta)^2}}{\sqrt{(\cos^2\theta)}} = \frac{1+\sin\theta}{\cos\theta}$
 $= \frac{1}{\cos\theta} + \frac{\sin\theta}{\cos\theta} = \sec\theta + \tan\theta$

149. (c) Let the sum = P

$$\therefore SI = \frac{P \times r \times t}{100} \Rightarrow 400 = \frac{P \times 7 \times 2}{100}$$

$$\therefore P = \frac{400 \times 100}{7 \times 2} = \frac{20000}{7}$$

Now, for compound interest

$$\text{Amount (A)} = P \left(1 + \frac{r}{100}\right)^2 = \frac{20000}{7} \left(1 + \frac{7}{100}\right)^2$$

$$= \frac{20000}{7} \times \frac{107}{100} \times \frac{107}{100}$$

$$\therefore CI = A - P = \frac{20000}{7} \times \frac{107}{100} \times \frac{107}{100} - \frac{20000}{7}$$

$$= \frac{20000}{7} \left(\frac{107}{100} \times \frac{107}{100} - 1\right)$$

$$= \frac{20000}{7} \left(\frac{11449}{10000} - 1\right) = \frac{20000}{7} \times \frac{1449}{10000}$$

$$= 414$$

$$\therefore \text{Difference} = CI - SI = 414 - 400 = ₹ 14$$

150. (a) Given, $4x + 9y = 43$... (i)

$$6x + 4y = 36 \quad \dots (ii)$$

On multiplying Eq. (i) by 3 and Eq. (ii) by 2 and then subtracting, we get

$$12x + 27y = 129$$

$$\underline{- 12x + 8y = 72}$$

$$19y = 57$$

$$y = \frac{57}{19} = 3 \Rightarrow y = 3$$

On putting the value of y in Eq. (i), we get

$$x + 9 \times 3 = 43$$

$$4x = 43 - 27 = 16$$

$$x = \frac{16}{4} \Rightarrow 4x = 4$$

$$\therefore x = 4 \text{ and } y = 3$$

151. (b) Since, the roots are equal.

We have, $D = b^2 - 4ac = 0$

$$\therefore 4(k-4)^2 - 8k = 0$$

$$\Rightarrow (k-4)^2 - 2k = 0$$

$$\Rightarrow k^2 + 16 - 8k - 2k = 0$$

$$\Rightarrow k^2 - 10k + 16 = 0$$

$$\Rightarrow k^2 - 8k - 2k + 16 = 0$$

$$\Rightarrow k(k-8) - 2(k-8) = 0$$

$$\Rightarrow (k-8)(k-2) = 0$$

$$\therefore k = 8, 2$$

152. (b) According to the question, $2(L+B)=35$

where, L = Length of rectangle

and B = Breadth of rectangle

$$\Rightarrow 2(L+7) = 35 \Rightarrow 2L+14 = 35$$

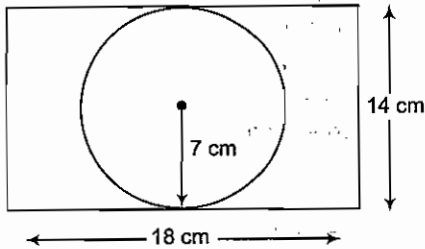
$$\Rightarrow 2L = 35-14 = 21$$

$$\Rightarrow L = \frac{21}{2} = 10.5$$

$$\therefore L = 10.5 \text{ cm}$$

Hence, length of rectangle is 10.5 cm.

153. (b) Radius of circle (r) = $\frac{1}{2} \times 14 = 7$ cm



$$\therefore \text{Area of the circle} = \pi r^2 = \frac{22}{7} \times 7 \times 7$$

$$= 154 \text{ sq cm}$$

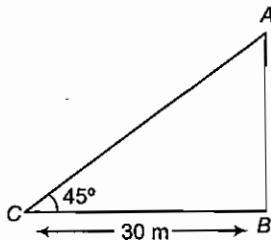
154. (d) Volume of one match box (cuboid)

$$= 4 \times 2.5 \times 1.5 = 15 \text{ cm}^3$$

$$\therefore \text{Volume of 12 boxes} = 15 \times 12 = 180 \text{ cm}^3$$

155. (b) Given, angle of elevation $\angle ACB = 45^\circ$

$$BC = 30 \text{ m}, AB = ?$$



$$\text{In } \triangle ABC, \tan 45^\circ = \frac{AB}{BC} \Rightarrow 1 = \frac{AB}{30}$$

$$\Rightarrow AB = 30 \text{ m}$$

Hence, height of the tower is 30 m.

156. (c) Let $A(2,2), B(6,3)$ and $C(4,11)$.

$$AB^2 = (3-2)^2 + (6-2)^2 = 1+16 = 17$$

$$BC^2 = (11-3)^2 + (4-6)^2 = 64+4 = 68$$

$$CA^2 = (11-2)^2 + (4-2)^2 = 81+4 = 85$$

$$\text{Here, } AB^2 + BC^2 = AC^2$$

Hence, $\triangle ABC$ is a right angled triangle.

157. (d) Given that, $x = ₹ 5000$ and $y = 30\%$

$$\text{New income} = \frac{100+y}{100} \times x = \frac{100+30}{100} \times 5000$$

$$= \frac{130}{100} \times 5000 = 6500 = ₹ 6500$$

158. (c) Given that, $CP = ₹ 500$ and $SP = ₹ 300$

$$\therefore \text{Loss} = CP - SP = (500 - 300) = ₹ 200$$

$$\therefore \text{Loss percentage} = \frac{\text{Loss}}{CP} \times 100\%$$

$$= \frac{200}{500} \times 100\% = 40\%$$

159. (a) Ratio of profits = Ratio of investments

$$= 8000 : 72000 = 1 : 9$$

160. (c) Let Shyam's income be ₹ 100.

Then, Ram's income = ₹ 120

$$\therefore \text{Required percentage} = \left(\frac{20}{120} \times 100 \right) \%$$

$$= \frac{100}{6} \% = \frac{50}{3} \%$$

$$= 16\frac{2}{3} \%$$

161. (d)

162. (d) All these are systems or tools through which the power is shared between centre-state, state or local governments.

163. (a)

164. (d) All these are Writs provided in the Article 32 of the Constitution Right to Judicial Review.

Only because of the Supreme Court or Judiciary is called Guardian and Protector of the Constitution.

165. (c) In India, we have multi-party system with single member constituencies.

166. (c) The President of India can dissolve the Lok Sabha on the recommendation of the Prime Minister after completion of normal term of 5 yr or in case of no confidence motion against the government.

167. (d) No bill became law unless the assent given by the President.

168. (a) The Preamble to the Constitution was amended for the first time in 1976, through 42nd amendment to the Constitution when the word 'Socialist' and 'Secular' were added.

169. (a)

170. (d) One-third of seats in Panchayati Raj Bodies is reserved for women. As embodied in the eleventh schedule of the Constitution.

171. (a)

172. (b) The imperial state China possessed a huge bureaucratic system, which recruited its personnel through civil service examination. So, the textbooks for this examination were printed in vast numbers.

173. (b) 174. (a) 175. (b)

176. (a) The great depression lasted till the mid 1930s. During this period most parts of the world experienced catastrophic decline in production, employment, income and trade.

177. (c) Rig Veda is a collection of mantras sung in God's praise. Gayatri mantra is included in Rig Veda. This mantra is dedicated to Savitri.
178. (c) 179. (d)
180. (c) By the 1830s, women in England began agitating for democratic rights. Women's magazines described the ill effects of tight dresses and corsets. A new movement developed in England for comfortable and convenient dress for women.
181. (a) Agmark is a certification for edible oil and cereals *i.e.*, food products.
182. (c) The compensation is given in accordance with the damage done by the commodity or product decided by the consumer court.
183. (d) All of these helped the process of globalisation.
184. (b)
185. (a) With the process of globalisation and liberalisation, the movement of these became much easier and became necessity for the countries.
186. (a) 187. (d)
188. (b)
189. (d) All these are features of the organised sector.
190. (a)
191. (c) Himalayan 'Yew' is one of the many species of Yew tree that grows in temperate zone around the world.
192. (a) Rice is kharif Crop.
193. (c) Anthracite contain 86 to 98% of carbon content, frequently associated with home heating.
194. (c) In 1859, during period of Lord Canning (then Viceroy) first jute mill was set up near Kolkata. India is largest producer of raw jute.
195. (d) 196. (c) 197. (d)
198. (c) Tributaries are the small rivers which join the river of largest cover areas.
199. (c)
200. (d) Primary sector is the sector of economy making direct use of natural resources *e.g.*, forestry, agriculture, fishing, mining and extraction of oil and gas.