

NTSE

National Talent Search Examination

MAT + SAT

[Stage II]

Time : 180 Min

Max. Marks : 200

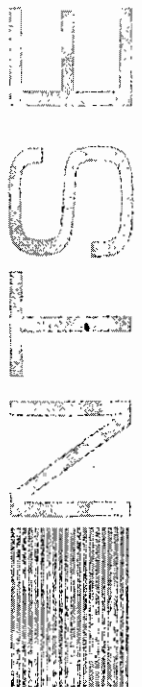
Read the following instructions carefully.

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
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 code language 'POTENTIAL' is written as 'OPSFMUHBK', how would 'WINDOW' be written in the same code?

a. XVJMENV b. VJMENX c. JKLMNO d. JMVNXE

2. Some words are translated from an artificial language below

'Ja Ta' is 'Good Morning'

'Ta Lu' is 'Nice Morning'

'No Pa' is 'Heavy Silk'

'Pa Lu' is 'Nice Silk'

Which words could possibly mean 'Good Silk'?

a. Ja Pa b. No Pa c. Pa Lu d. Ja Lu

3. Find out the missing characters in the following figure.

- 3	20	- 13
7	?	- 20
10	- 13	- 7

a. 33 b. -7 c. 6 d. 7

4. Which group of letters is different from others?

a. AZBY b. CXDW c. IFJU d. FUJQ

5. Find the next number in the given sequence.

1, 4, 3, 16, 5, 36, 7, ?

a. 8 b. 64 c. 54 d. 81

6. In the following letter sequence, some of the letters are missing. These are given in order as one of the alternatives below. Choose the correct alternative.

a_cd_b_a_cd

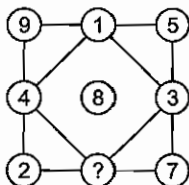
a. bacdb b. bdcab c. caadb d. bbda

7. Find the number in the position of question mark.



a. 7 b. 6 c. 3 d. 9

8. Which number will replace the question mark?



a. 9 b. 8 c. 7 d. 6

9. Find the next number in the sequence.

2, 22, 3, 36, 4, 52, 5, ?

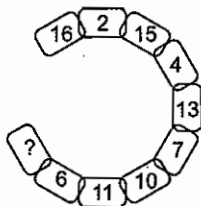
a. 66

b. 68

c. 70

d. 72

10. Which number will replace the question mark?



a. 14

b. 16

c. 15

d. 13

11. In the question, if $5 + 3 + 2 = 151022$ and $5 + 4 + 5 = 202541$, then how $9 + 2 + 4 = ?$

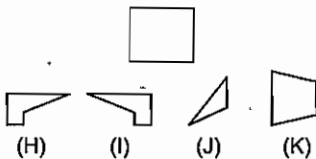
a. 183652

b. 523618

c. 136825

d. 183625

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



a. K

b. H

c. J

d. I

Directions (Q. Nos. 13-14) Read the statement carefully and then choose the best answer from the given options.

13. **Statement** In case of the outstanding candidates, the condition of previous experience of social work may be waived by the admission committee for MA (social work).

Conclusions

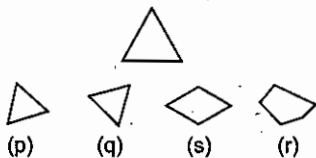
- a. Some of the students for MA (social work) will have previous experience of social work
- b. Some of the students for MA (social work) will not have previous experience of social work
- c. Both a and b follow
- d. Neither a nor b follows

14. **Statement** Though in terms of number of schools, the educational system has very much expanded but most of them are not sufficiently equipped and not able to touch the high water mark in education.

Conclusions

- a. Now, it is not necessary to open new schools
- b. We should provide good teachers and equipments to existing schools now onwards
- c. Both a and b follow
- d. Neither a nor b follows

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



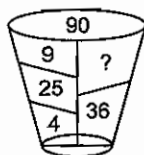
a. p

b. q

c. r

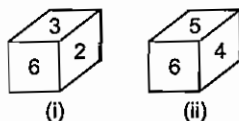
d. s

16. Identify which alternative will replace the question mark.



- a. 16 b. 17 c. 28 d. 26

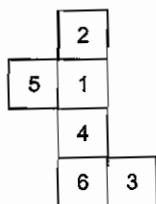
17. On the basis of the two positions of a dice, which number will appear on the face opposite the number 3.



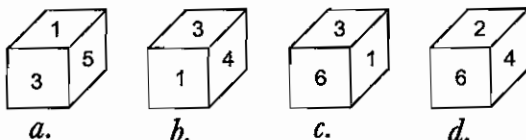
- a. 6 b. 2 c. 4 d. 5

18. If the given figure is folded a form a box, which the boxes (?)

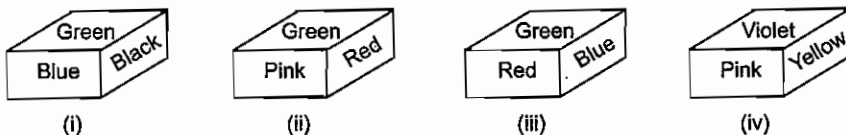
Problem Figure



Answer Figures

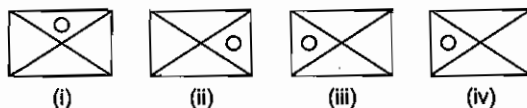


19. On the basis of the four positions of a dice given below, find the colour of the face opposite 'pink'.



- a. Green b. Blue c. Red d. Yellow

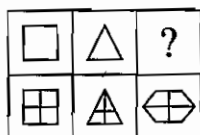
20. Find the odd figure out, from given alternatives.



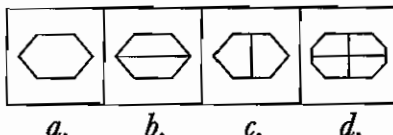
- a. Only (I) b. Only (II) c. Only (III) d. (III) and (IV)

21. Which alternate completes the matrix given below?

Problem Figures

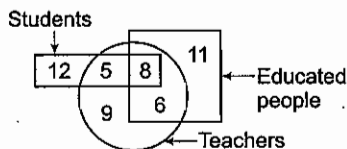


Answer Figures

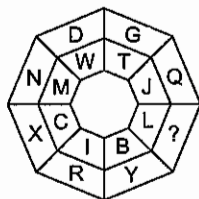


- a. b. c. d.

22. In the given figure, the circle represents teacher, the square represents educated people and rectangle represents students. How many people are educated, students and who are teacher also?

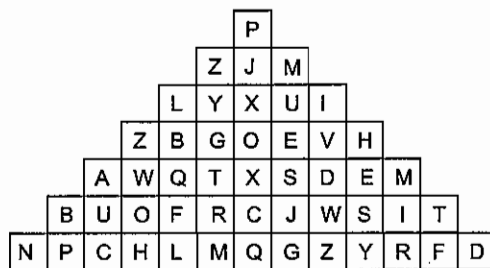


- a. 12 b. 9 c. 8 d. 5
23. Identify that which alternatives will replace the question mark?



- a. J b. O c. K d. M
24. Which of the given alternatives is the mirror image of ABILITY, if the mirror is placed below the word?
- a. ▽BIFILΛ b. ABILILΛ c. YTLJIBΛ d. YLILIBΛ
25. A parrot flies from East and fly 18 km then turn 135° anti-clockwise and flew 9 km, then turn 45° clockwise and flew 27 km. Now, in which direction parrot is from starting point?
- a. North b. North-West c. Nort-East d. East-South

Direction (Q. No. 26) A pyramid of letters is given below. Study the pyramid and select the correct alternatives to fill in the missing term.



26. LBQF, UXYL, GTRM, ?
- a. HEVO b. DSXT c. VEOG d. IUXY

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



a.



b.



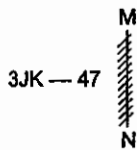
c.



d.

27. School, Teacher and Students
28. Women, House wives and Professionals

29. What is the mirror image of



- a. 31K-47 b. 7A-JLE c. 3LK-47 d. 7A-JK3

30. In five friends Amit and Nidhi are elder than Minish. Nikunj is elder only Manish but younger than Nidhi. Vimal is oldest among them, who is third from the top?

- a. Amit b. Either Nidhi or Amit
c. Nidhi d. Cannot be determined.

Directions (Q. Nos. 31-35) These questions are based on the following information

P, Q, R, S, T and U are sitting around a circular table and facing the centre. P is third to the left of Q but second to the left of R. S is second to the right of Q but immediate right of U.

31. Who sits between P and R?
a. Q b. T c. U d. S
32. What is the position of 'U' in respect of T?
a. Second to the left b. Third to the right c. Second to the right d. Fourth to the right
33. How many person are sitting between P and R, if counting start in clockwise direction?
a. One b. two c. Three d. Four
34. Who sits between Q and S?
a. R b. T c. P d. U
35. How many persons are sits between T and U?
a. 3 b. 2 c. 4 d. 1

Directions (Q. Nos. 36-37) Read the statements and mark the appropriate conclusion as per the given options.

- a. Only I follows b. Only II follows c. Either I or II follows d. All follow

36. **Statements** Some buses are tempo.
Some tempo are cars.
All cars are scooters.

Conclusions

- I. Some tempo are buses. II. Some buses are scooter.
III. All buses are cars.

37. **Statements** All birds are hens.
Some hens are alarm.
All alarm are cell phones.

Conclusions

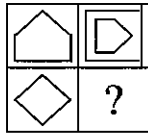
- I. Some alarm are hens. II. Some alarm are birds.
III. All birds are cell phones.

38. Complete the given series.

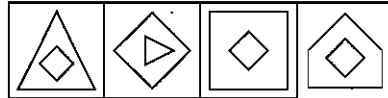
- a. 42 b. 41 c. 40 d. 29

39. Find the figure, which replace the question mark.

Problem Figures



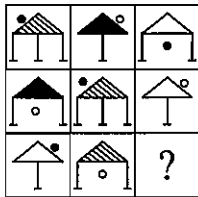
Answer Figures



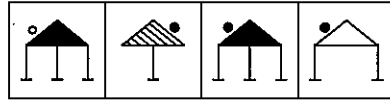
a. b. c. d.

40. Choose the right alternative, which following the pattern in the figure matrix.

Problem Figures

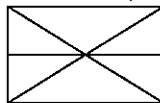


Answer Figures



a. b. c. d.

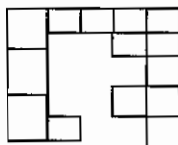
41. A dice is numbered from 1 to 6 in different ways, if 1 is opposite to 5 and 2 is opposite to 3, then
 a. 4 is adjacent to 3 and 6
 b. 6 is adjacent to 3 and 4
 c. 2 is adjacent to 4 and 6
 d. 4 is adjacent to 5 and 6
42. Each problem consists of three statements. Based on first two statements, the third statement may be true, false or uncertain.
 (i) Blueberries cost more than strawberries.
 (ii) Blueberries cost less than raspberries.
 (iii) Raspberries cost more than both strawberries and blueberries.
 If first two statements are true, the third statement is
 a. uncertain b. true c. false d. None of these
43. In covering a distance of 30 km, Abhay takes 2 h more than Sameer. If Abhay doubles his speed, then he would take 1 h less than Sameer. Find Abhay's speed?
 a. 5 km/h b. 6 km/h c. 5.25 km/h d. 7.65 km/h
44. A man wears socks of two colours black and brown. He has altogether 20 black socks and 20 brown socks in a drawer. Supposing he has to take out the socks in the dark, how many must be take out to be sure that he has a matching pair?
 a. 4 b. 1 c. 2 d. 3
45. Find the number of triangles in the given figure?



a. 6 b. 8 c. 13 d. 12

46. Ten new television shows appeared during the month of September. Five of the shows were sitcoms, three were hour long dramas and two were news-magazine shows. By January, only seven of these new shows were still on the air. Five of the shows that remained were sitcoms. Find the statement which must be true according to the given information.
 a. Only one of the news-magazine shows remained on the air
 b. Only one of the hour long dramas remained on the air
 c. Atleast one of the shows that was cancelled was an hour long drama
 d. Television viewers prefer sitcoms over hour long dramas

47. Count the number of cubes in the given figure.



- a. 13 b. 14 c. 12 d. 15
48. Four friends are standing in a row facing East and named P, S, R and T. P is on end of the row. R is between S and T and P is second to the left of R. Who is second to the right of S?
- a. R b. P c. T d. None of these
49. In a race of 100 m, A can give B 10 m and C 28 m. In the same race B can give C.
- a. 20 m b. 10 m c. 38 m d. 28 m
50. A motorist knows four different routes from Bristol to Birmingham. From Birmingham to Sheffield he knows three different routes and from Sheffield to Carlisle he knows two different routes. How many routes does he know from Bristol to Carlisle?
- a. 4 b. 8 c. 12 d. 24

Section B General English

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

Passage I

Though it may be unessential to the imagination, travel is necessary to an understanding of men. Only with long experience and the opening of his wares on many a beach, where his language is not spoken, will the merchant come to know the worth of what he carries and what is parochial and what is universal in his choice. Such delicate goods as justice, love and honour, courtesy and indeed all the things we care for, are valid everywhere but they are variously moulded and often differently handled and sometimes nearly unrecognisable, if you meet them in a foreign land and the art of learning fundamental common values is perhaps the greatest gain of travel to those who wish to live at ease among their fellows.

51. According to the passage, travelling leads to
- a. selling out wares to the others b. establishing our superiority over foreigners
c. exploiting foreign lands d. understanding human nature
52. Travel helps those who
- a. wish to make money b. want to learn foreign languages
c. wish to learn fundamental common values d. want to resolve differences amongst people
53. When we meet other people while we travel we learn to differentiate between
- a. friends and foes b. local and universal values
c. imagination and understanding d. communities and nationalities
54. The author terms justice, love, honour and courtesy as delicate goods because they are
- a. fragile b. perishable c. desirable d. important
55. The things we care for are available in foreign lands in
- a. some form or the other b. unrecognisable forms
c. plenty d. easily recognisable forms

Passage II

The prisoner was a young man of about twenty-five Charles Darnay. He was tall and handsome, plainly dressed in dark grey, with his dark hair tied back with a ribbon. Though no one in the court had any doubt that he would be found guilty and condemned to a cruel death, the young man watched all that went on with a grave interest. Only when his eyes rested on Dr Manette and his daughter did his expression change.

56. No body doubted that Darnay would be
a. set free immediately
c. forced to leave the country
b. sent to prison
d. sentenced to death
57. The prisoner was dressed
a. gorgeously
b. expensively
c. clumsily
d. ordinarily
58. In the court, Darnay was
a. in a state of fear
c. interested in everything around him
b. completely indifferent
d. absolutely passive
59. Darnay showed feeling when he
a. entered the court
c. realised that he would be condemned
b. felt that he might be set free
d. looked at Dr Manette and his daughter
60. The prisoner Charles Darnay was a
a. very experienced person
c. middle-aged gentleman
b. young man
d. short but handsome person

Passage III

At last the bomb is made. The site chosen for the test explosion was the desert region, two hundred miles from Los Alamos. Ten seconds before zero hour a green flare warned the spectators to keep down. Then, came the blinding flash. The whole area was suddenly brighter than the brightest daylight and the bomb was a ball of fire. Then, came the tremendous roar and the heavy pressure wave, which knocked down two men outside the control centre and then came the cloud-the mushroom cloud, all the colours of the rainbow, ironically beautiful, surging up to our 40000 feet over 10000 feet higher than the Everest.

61. 'A green flare warned the spectators to keep down' means that
a. the green light was too dazzling and so they decided to lie down
b. the sudden burst of green light gave the spectators notice of possible danger and suggested that they should lie down flat on the ground
c. the sudden burst of green light over powered the spectators and they lay down on the ground
d. a dazzling flame kept the spectators down
62. 'And then came the cloud-the mushroom cloud'. This means that
a. dark rain clouds covered the sky
b. mushrooms grew so fast that they soon assumed the form of clouds
c. the explosion produced huge masses of clouds
d. as a result of nuclear explosion huge masses of smoke and dust spiralling upwards looked like a gigantic mushroom
63. Which of the following statements best reflects the attitude of the writer?
a. The writer is delighted at the explosion
b. The writer is detached in his observation
c. The writer is conscious of the evil this particular event releases
d. The writer is just interested in presenting an eye-witness account of the event

64. The passage uses many words and phrases dealing with colour and light. This is because the writer wants to
- suggest that the event took place at night
 - convey to us his own sense of satisfaction
 - indicate the humanity has achieved something really great
 - make us see vividly the entire cycle of events
65. Which of the following best helps to bring out the precise meaning of zero hour?
- Twelve O'clock at night
 - Twelve O'clock in the middle of the day
 - Exact time at which operations are to begin
 - 6 O'clock in the morning

Directions (Q. Nos. 66-67) *The following five sentences come from the paragraph. The first and the last sentences are given. Choose the order in which the three sentences (PQR) should appear to complete the paragraph.*

66. S₁: If life exists in Mars, it is most likely to be in the form of bacteria
 S₂: _____
 S₃: _____
 S₃: _____
 S₄: _____
 S₅: in ancient lake beds, waiting to be found.
 P: there might even be fossilised Martian algae locked up
 Q: buried deep in the planet's permafrost or lichens growing within rocks
 R: say scientists from NASA
 The sequence should be
- QRP
 - RQP
 - PQR
 - PRQ
67. S₁: Preservation of environment is one of the most alarming problem of today
 S₂: _____
 S₃: _____
 S₃: _____
 S₄: _____
 S₅: like smoke, noise, dirt, dust, chemicals and gases.
 P: our atmosphere is being polluted by various factors
 Q: and preservation of purity of environment.
 R: most of the big cities are suffering from the problem of conservation
 The sequence should be
- PRQ
 - PQR
 - RQP
 - 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) I am sure that he has recovered from his illness
 (ii) _____
 (iii) us to the picnic spot.
- and that he will accompany
 - and that he will be accompanied
 - although he will accompany
 - but he will accompany
69. (i) The earnest appeal by the staff members that the salaries be subjected to
 (ii) _____
 (iii) by the industrialist.

Directions (Q. Nos. 86-93) *In the following passage, there are some numbered blanks. Fill in the blanks by selecting the most appropriate word for each blank from the given options.*

Someone 86 at the door. A lady opened it. A stranger was standing at the 87. He said, 'Madam, please excuse me for 88 you. May I ask you something? I 89 by your house everyday on my way to work, I have 90 that everyday you hit your son on his head with a loaf of bread'. The lady replied, 'Yes, that's 91'. The stranger asked, 'This morning, I saw you 92 him with a chocolate, why 93? The lady replied, 'Today is his birthday, therefore I hit him with a sweet thing.'

- | | | | | |
|-----|---------------|--------------|---------------|--------------|
| 86. | a. pointed | b. knocked | c. looked | d. moved |
| 87. | a. fence | b. gate | c. compound | d. door |
| 88. | a. disturbing | b. enquiring | c. harassing | d. asking |
| 89. | a. wait | b. watch | c. stand | d. pass |
| 90. | a. decided | b. felt | c. noticed | d. surprised |
| 91. | a. right | b. obvious | c. surprising | d. clear |
| 92. | a. feeding | b. bestowing | c. giving | d. hitting |
| 93. | a. bread | b. then | c. so | d. change |

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

94. Ram was promoted as officer at a ____ date.
a. last b. later c. latter d. latest
95. The ____ half of the century saw many revolutions.
a. last b. later c. latter d. late
96. The ____ he grew, the more demands he made.
a. older b. elder c. eldest d. oldest
97. Delhi is ____ from Alwar than Jaipur.
a. further b. farther c. farthest d. furthest

Directions (Q. Nos. 98-100) *Select the most appropriate word which means the opposite of the given word.*

98. Feeble
a. Obscene b. Strong c. Mighty d. Daring
99. Diminish
a. Decrease b. Increase c. Lower d. Rise
100. Fickle
a. Continue b. Constant c. Perpetual d. Connect

Paper II : Scholastic Aptitude Test

101. After long exercise the muscle cramps is due to formation of
a. citric acid b. glycogen c. lactic acid d. ATP
102. Match the following

List I	List II
A. Red eye frog	1. Thick skin and strong sense of smell
B. Toucon	2. Thick skin and sensitive hearing
C. Big cats	3. Long large beak
D. Polar bear	4. Sticky pad

Codes

A B C D

a. 1 2 3 4

A B C D

b. 2 3 4 1

A B C D

c. 4 3 2 1

A B C D

d. 3 4 1 2

103. Which one of the following is not a reason for shortage of usable water?
a. Irrigation by tube well *b.* Flowing of water from pump in drainage
c. Increase in use for domestic animal *d.* Decrease in sea level
104. Asexual reproduction in ginger, potato and onion takes place through
a. stem *b.* leaves *c.* roots *d.* None of these
105. The role of air pumped in waste water treatment plant is
a. to minimise the growth of aerobic bacteria *b.* to support the growth of aerobic bacteria
c. to provide nutrient to bacteria *d.* to pressurise the water which has been treated
106. The deoxygenated blood from various parts of body enter into heart by
a. pulmonary veins *b.* veins *c.* pulmonary artery *d.* artery
107. Which of the following is correct in response to soil?
a. Clay particles are light as they hold less water and the space between sand particle is less
b. Clay particles are heavy as they hold more water and the space between sand particles is less
c. Clay particles are heavy as they hold more water and the space between sand particle is more
d. Clay particles are light as they hold more water and the space between sand particles is more

108. Match the following

List I	List II
A. Winnowing	1. Irrigation
B. Threshing	2. Hoe
C. Drip system	3. Separation of grains and chaff
D. Weeds	4. Separation of seeds and chaff

Codes

A B C D

a. 1 2 3 4

A B C D

b. 4 3 2 1

A B C D

c. 2 1 3 4

A B C D

d. 3 4 1 2

109. Silk is produced by
a. cocoon/pupa *b.* larva *c.* adult moth *d.* cephalic gland
110. 'Red Data Book' provides the information about
a. natural plants and animals *b.* protected plants and animals
c. endangered animals and plants *d.* genetically modified plants and animals
111. Why the two sisters born looked exactly same?
a. Due to same environment *b.* Due to same genes
c. Due to same parents *d.* Due to birth at same time
112. Baker's yeast is added to aquarium because it
a. provides oxygen *b.* absorb nutrients
c. absorb oxygen form it *d.* provides minerals and metals
113. Match the following

List I	List II
A. Lohi	1. Hosiery
B. Nali	2. Coarse wool
C. Patanwadi	3. Carpet wool
D. Marwari	4. Good quality wool hosiery

Codes

A B C D
a. 4 3 1 2

A B C D
b. 3 4 2 1

A B C D
c. 1 2 3 4

A B C D
d. 4 2 1 3

114. Which of the following is required for change of frog from tadpole to adult?
a. Sodium b. Iron c. Iodine d. Magnesium

115. Polycot is a mixture of
a. polythene + cotton b. nylon + cotton c. polyester + cotton d. None of these

116. Match the following

List I	List II
A. Malamine	1. Non-sticking cookware
B. Nylon	2. Appears like silk
C. Teflon	3. Easily biodegradable
D. Cotton	4. Flame resistant

Codes

A B C D
a. 4 1 2 3

A B C D
b. 1 4 3 2

A B C D
c. 4 1 3 2

A B C D
d. 4 1 2 3

117. An element when burnt in air, forms an oxide which is a good dehydrating agent. The oxide on dissolution in water gives its oxyacid. The oxide forms salt with caustic soda but not with sulphuric acid. The oxyacid of the element is
a. phosphorus acid b. phosphoric acid c. hypophosphorus acid d. boric acid

118. Match the following

List I	List II
A. Iron	1. Can be cut easily with a knife
B. Copper	2. Liquid at room temperature
C. Potassium	3. Formation of green layer on exposure to moist air
D. Mercury	4. Deposition of reddish brown layer on exposure to moist air

Codes

A B C D
a. 4 3 2 1

A B C D
b. 4 3 1 2

A B C D
c. 1 2 3 4

A B C D
d. 1 3 2 4

119. Naphthalene is obtained from
a. coal tar b. light oil fraction c. ethyne d. All of these

120. Consider the following statement about natural gas
I. Its main constituent is methane.
II. It is a raw material for the manufacture of fertilizer.
III. It is used to generate electricity.

Which of the above statements is/are correct?

a. II and III

b. I and II

c. Only I

d. I, II and III

121. The head of match stick contains
a. antimony trisulphide + potassium chloride b. antimony chloride + red phosphorus
c. white phosphorus only d. antimony trisulphide + potassium chlorate

122. The decreasing order of temperature of different zones of a candle is
a. innermost zone, middle zone, outermost zone
b. middle zone, innermost zone, outermost zone
c. outermost zone, innermost zone, middle zone
d. outermost zone, middle zone, innermost zone

123. Consider the following statements greenhouse effect
 I. trapping of radiation on the Earth atmosphere.
 II. increase in the Earth temperature which is known as global warming.
 Which of the above statements is/are correct?
 a. Only I b. I and II c. Only II d. Neither I nor II

124. Consider the following pairs
 I. Lemon-citric acid II. Sting-acetic acid
 III. Bauxite-aluminium oxide IV. Calamine-zinc oxide
 Which pairs is/are not correctly matched?
 a. II and III b. II and IV c. I and IV d. II, III and IV

125. What will be the effect of added ammonium nitrate to soil?
 a. The soil become alkaline b. Soil first become alkaline then acidic
 c. Soil first become acidic then alkaline d. The soil become acidic

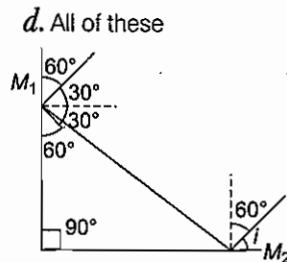
126. Consider the following changes
 I. Hammering of red hot iron and make flat sheet.
 II. Formation of ice by cooling water.
 III. Vapourisation of sea water.
 The example(s) of physical change(s) is/are
 a. I, II and III b. I and II c. II and III d. I and III

127. Consider the following changes
 I. Burning of candle wax. II. Crystallisation of blue vitriol.
 III. Passing of CO₂ gas through lime water.
 Which of above is/are considered as chemical change?
 a. II and III b. I and II c. I and III d. All of these

128. Why is it difficult to drive a car on a rainy day?
 a. On wet road friction increases b. On wet road friction decreases
 c. The brakes of car does not work d. None of these

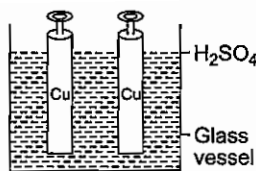
129. Consider the following statements
 I Concave mirror forms virtual and enlarged image of a real object placed very near to it, so it is used by dentists to examine teeth.
 II Concave lens always form virtual image of smaller size of a real object and it is thinner in middle.
 III Plane mirror always forms virtual image of the same size of a real object.
 IV Convex mirror always forms virtual image of bigger size of a real object.
 V Convex lens forms real and diminished image of a real object placed near to it, so it is used as reading glass.
 Which of the above statements is/are correct?
 a. I, II and III b. II and III c. IV and V d. All of these

130. Two plane mirrors are inclined to each other at an angle of 90° as shown in figure. A ray of light falls on the mirror M₁ at angle 60° and after reflection, falls on the other mirror M₂ from which it get reflected by angle i. The value of ∠ is.
 a. 60° b. 70°
 c. 30° d. 90°



131. Atmospheric pressure at the centre of a tropical cyclone is
 a. very high b. very low
 c. normal d. zero

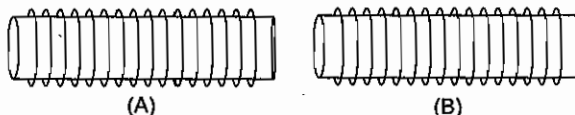
132.



If two copper plates are moved further apart from each other, then

- a.* less copper deposited *b.* more copper deposited
c. same copper deposited *d.* two times copper deposited

133.



Both electromagnets (A) and (B) consist of a coil of insulated wire wrapped around an iron core. Then,

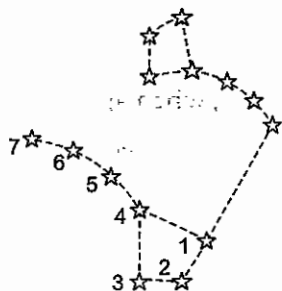
- a.* electromagnet (A) has more strength of magnetic field
b. electromagnet (B) has more strength of magnetic field
c. Both electromagnets (A) and (B) have same strength of magnetic field
d. Data insufficient

134.

The pattern in which the iron filings will align, if a current carrying straight conductor is kept in the mid of iron filing, is

- a.* straight line *b.* concentric circle *c.* remain as such *d.* zig-zag manner

135.



Which of the above represent pointer stars?

- (i) 1 and 2 (ii) 3 and 4 (iii) 4 and 5 (iv) 1 and 3 (v) 2 and 4 (vi) 6 and 7

The correct option is

- a.* (i) and (iv) *b.* (ii), (iii) and (iv) *c.* Only (i) *d.* All of these

136.

The value of 25°C on Fahrenheit scale is

- a.* 77°F *b.* 35°C *c.* 22°F *d.* 25°F

137.

Consider the following

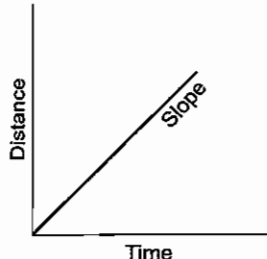
To protect yourself from lightening you will

- I. go under a building and small trees. II. crouch on your feet.
 III. stand on the ground. IV. lie on the ground.

Which of the above is/are correct?

- a.* I and II *b.* II and III
c. III and IV *d.* I and IV

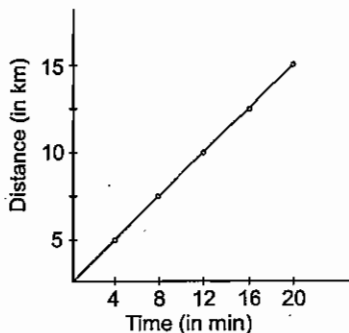
138.



This graph shows

- a. constant speed b. constant acceleration c. constant velocity d. None of these

139.

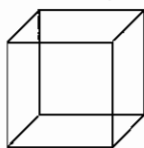


What is the average speed between time 4 min and 20 min?

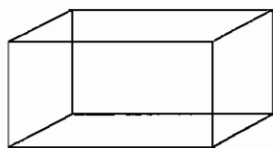
- a. $\frac{5.5}{8}$ km/min b. $\frac{5}{8}$ km/min c. $\frac{4.9}{8}$ km/min d. $\frac{4.5}{8}$ km/min

140.

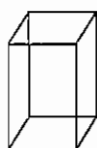
Which of the following cuboid will exert maximum pressure, when applied thrust is same?



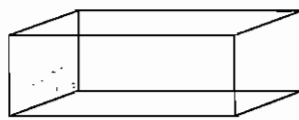
a.



b.



c.



d.

141.

The cost of a pen is ₹ 5 and the cost of a pencil is ₹ 1. The ratio between number of pen and pencil is 2 : 3. If 12% and 10% of cost of pen and pencil respectively is increased, then the total selling price of both is ₹ 725. What is the difference between number of pen and pencil?

- a. 30 b. 50 c. 59 d. 63

142.

Due to the higher tax of the commodity, Government decide to decrease 15% tax of the commodity. But the consumption is increased by 10%. Then, the decreasing percentage in revenue corresponding to new revenue is

- a. 4.5% b. 5.5% c. 6.5% d. 7.3%

143.

The unit digit in the product of $3^{1001} \times 7^{1002} \times 13^{1003}$ is

- a. 3 b. 5 c. 7 d. 9

144.

Square root of a number lie between 6 and 7. Then, the cube root of this number lying between

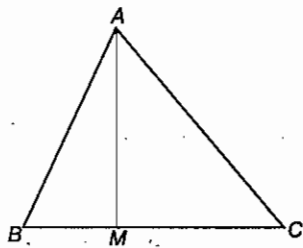
- a. 2 and 3 b. 2.4 and 3.4 c. 3 and 4 d. None of these

145.

If one angle of a regular polygon be 165° , then number of sides of the polygon is

- a. 6 b. 24 c. 27 d. 36

155. In $\triangle ABC$, $AB = 4$ cm, $AC = 8$ cm and AM is the median of length 3 cm which meets BC at M . Then, BC is equal to



- a. 4 cm b. $2\sqrt{31}$ cm c. $5\sqrt{3}$ cm d. $7\sqrt{2}$ cm
156. Two circles with different radius in which the circumference of second circle is x times and area of second circle is twice of the first circle. Then, the value of x is
 a. 1 b. 2 c. $\sqrt{2}$ d. $\frac{1}{2}$
157. What is the maximum area of a triangle inscribed in a semi-circle?
 a. $r/2$ b. $2r$ c. r^2 d. $\frac{3r^2}{2}$
158. The angle between the diagonal and side bisector of a hexagon at centre is
 a. 30° b. 60° c. 120° d. 90°
159. If the coordinates of four points A, B, C and D are (4, 0), (6, 3), (4, 6) and (2, 3), respectively of any quadrilateral. Then, the quadrilateral should be a
 a. square b. rectangle c. rhombus d. parallelogram
160. The mode, median, mean and range of the following observations are
 45, 84, 21, 77, 56, 84, 39, 54, 56, 39, 54, 56
 a. 65, 55, 36 and 52 b. 56, 58, 60 and 58
 c. 56, 55, 63 and 58 d. None of these
161. Match the following

List I	List II
A: Dhangadeva	1. Kandariya Mahadeva Temple
B: Rajarajadeva	2. Rajarajeshvara Temple
C: Rajendra I	3. Gangaikonda Cholapuram
D: Babur	4. Chahar Gagh

Codes

- A B C D A B C D A B C D A B C D
 a. 2 3 1 4 b. 3 2 4 1 c. 4 3 2 1 d. 1 2 3 4
162. Which of the following describes the common property resource?
 a. Forests owned by the state
 b. Pastures, grazing lands used by community
 c. Woodlots, orchards used by cooperatives
 d. Fruit orchards, grasslands owned by individual

163. Consider the following statements
 I. Alvars saints of South India were followers of Lord Agni.
 II. Nayanars were worshippers of Lord Shiva.

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

- a. Only II b. Only I c. Both I and II d. None of these

- 164.** Consider the following statements about Mughal period.
 I. Bakshi was responsible for paying salaries to soldiers.
 II. Faujdar was the Prime Minister.
 III. Sadr-ur-Sadar was responsible to take care of religious behaviour of people.
 IV. Kotwal look after the law and order of city.

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

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

- 165.** What do you mean by 'Pietra Dura'?
- a.* Coloured hardstones placed in depressions, carved into marble sandstone.
b. Baolis
c. Coloured rooms
d. None of the above

- 166.** Consider the following statements about Kathak.
- I. Kathak word derived from the word 'Katha' (Story tillers).
 II. Kathak later developed by Bhakti Saint.
 III. Nawab Siruj-ud-daula patronaged Kathak and later by Mughals.

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

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

- 167.** Consider the following statements
- I. Kanchipuram was the capital of Hampi.
 II. Masulipatnam emerged as an important town during Narsimhavarman.
 III. Hampi was the capital of Pallava during Sultanate period.
 IV. Mumbai emerged as an important town during colonial period.

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

- a.* Only II *b.* II and III *c.* I, II and III *d.* II and IV

- 168.** Garh was divided into Chaurasi, into Barhots and later into smallest unit known as
- a.* town *b.* city *c.* district *d.* village

- 169.** Who was the only women sultan during Sultanate period?
- a.* Tarabai *b.* Raziya Begum *c.* Mumtaz *d.* None of these

- 170.** Who divided the Indian History into Hindu, Muslim and British?
- a.* RD Bannerji *b.* JP Joshi *c.* Daya Ram Sahni *d.* James Mill

- 171.** Dual administration was established in Bengal by
- a.* Clive *b.* Warren Hastings *c.* Wellesley *d.* Dalhousie

- 172.** Who felt that childhood ought to be a time of self-learning, outside the rigid and restricting discipline of the schooling system set-up by the British?
- a.* Raja Ram Mohan Roy *b.* Mahatma Gandhi *c.* Rabindranath Tagore *d.* Bal Gangadhar Tilak

- 173.** Match the following

List I	List II
A. Rashtriya Swayamsevak Sangh	1. 1870
B. All India Muslim League	2. 1885
C. Indian Association	3. 1906
D. Indian National Congress	4. 1920

Codes

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

174. Greenwich Mean Time line through which of the following countries?
a. England *b.* USA *c.* India *d.* China

175. Mixed Economy means
a. co-existence of small and large industries
b. promoting both agriculture and industries in the economy
c. co-existence of public and private sectors
d. co-existence of rich and poor

176. What is/are function(s) of a Tehsildar?
a. They have to hear disputes *b.* They supervise the work of a Patwari
c. They ensure that land revenue is collected *d.* All of these

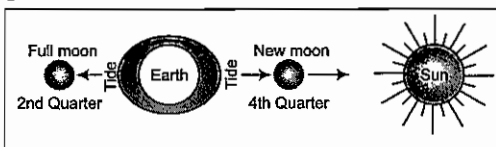
177. Which of the following is not the obligation of the Prime Minister of India?
a. He advises the President to dissolve the Parliament
b. He is the leader of the majority party in the Lok Sabha
c. He is the Nominal Head of the State
d. He is the Chief Advisor to the President of India

178. Consider the following statements
 I. Westerlies are stronger in Southern hemisphere.
 II. Westerlies are weaker in Northern hemisphere.
 III. Westerlies are weaker in Southern hemisphere.

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

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

179. The given diagram represents



a. neap tides *b.* high tides *c.* low tides *d.* spring tides

180. Match the following

List I (National Park)	List II (State)
A. Kanha National Park	1. Madhya Pradesh
B. Nokrek National Park	2. Meghalaya
C. Simlipal National Park	3. Odisha
D. Hazaribagh National Park	4. Jharkhand

Codes

a. 3 4 2 1 *b.* 4 3 2 1 *c.* 2 3 1 4 *d.* 1 2 3 4

181. The gas you use in kitchen is called Liquefied Petroleum Gas (LPG). In the cylinder, it exists as a liquid. When it comes out of the cylinder, it becomes a gas (process A), then it burns (process B). Choose the correct statement.

a. Process A is chemical change *b.* Process B is a chemical change
c. Both processes A and B are chemical changes *d.* None of these processes is a chemical change

182. Which area in France is significant for coal fields?

a. Korba *b.* Lorraine *c.* Hazaribagh *d.* Hindger

183. Indianapolis lies in the
a. USA *b.* France *c.* Japan *d.* Germany
184. Which of the following is employed to clearly view objects which cannot be seen directly due to obstruction?
a. Laser *b.* Periscope
c. Kaleidoscope *d.* None of these
185. Ozone gas is found in which layer?
a. Troposphere *b.* Stratosphere
c. Mesosphere *d.* Exosphere

186. Match the following

List I	List II
A. Shifting Cultivation	1. Rengmass
B. Pastoralism	2. Kirghiz
C. Hunter and Food Gatherers	3. Pygmies
D. Hunters	4. Eskimos

Codes

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

187. Match the following

List I (Region)	List II (Grasslands)
A. Argentina	P. Pampas
B. North America	Q. Praies
C. South Africa	R. Velds
D. Central Asia	S. Steppes
E. Astralia	5. L Velds

Codes

- a.* A B C D E *b.* A B C D E *c.* A B C D E *d.* A B C D E
a. 4 3 2 1 5 *b.* 1 4 3 2 5 *c.* 1 2 3 4 5 *d.* 2 1 3 4 5

188. Surat and Masulipatnam were important trading towns in 17th century. However, in the 18th century they lost their importance.

Which of the following was not responsible for their decline?

- a.* Loss of market and productivity because of the decline of the Mughal Empire
b. Control of sea-routes by the Portuguese and competition from Bombay
c. Fierce competition among various trading groups like Golconda nobles, Persian merchants etc.
d. Shifting of company trade centres to Bombay, Calcutta and Madras

189. Consider the following statements

- I. Upward movement of warm air is called evaporation.
 II. Condensation is occur in upper troposphere.
 III. Condensation is occur in ionosphere.

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

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

- 190.** **Assertion (A)** Bengaluru has developed as the major IT centre in India.
Reason (R) The Government of Karnataka was the first to pass and announces and IT Policy in 1992.
- a.* A is false, R is true *b.* A is true, R is false *c.* Both A and R is true *d.* Both A and R are false
- 191.** In a Republic, the Head of the State is elected by
- a.* member of Zila Parishad *b.* member of Parliament
c. people *d.* Prime Minister
- 192.** Which Article allows Governor, to have President rule in the state, if the State Government is not performing to maintain law and order?
- a.* 354 *b.* 355 *c.* 357 *d.* 356
- 193.** Which one of the following is justifiable?
- a.* Fundamental Duties *b.* Directive Principle of State Policy
c. Fundamental Rights *d.* All of these
- 194.** The boundaries of states can be altered by
- a.* President *b.* Prime Minister *c.* Governor *d.* The Indian Parliament
- 195.** Indian National Congress (INC) was defeated for the first time in
- a.* 1975 *b.* 1976 *c.* 1977 *d.* 1978
- 196.** In which society, private entrepreneurs has a prominent place?
- a.* Socialist *b.* Capitalist *c.* Gandhian *d.* Mixed
- 197.** Which of the following country has written Constitution?
- a.* India *b.* The USA *c.* Both 'a' and 'b' *d.* The UK
- 198.** Lok Sabha Secretariat function under
- a.* Prime Minister *b.* President *c.* Deputy Speaker *d.* Speaker
- 199.** 'International Woman Day' is celebrated on
- a.* 7th March *b.* 8th March *c.* 9th March *d.* 10th March
- 200.** Arrange the given President of India chronologically?
- I. Dr Zakir Hussain II. Dr Rajendra Prasad
 III. Dr VV Giri IV. Dr Sarvepalli Radhakrishnan
- The chronological order should be
- a.* I, II, III and IV *b.* IV, III, II and I *c.* II, IV, I and III *d.* III, IV, II and I

Paper I : Mental Ability Test

1. (b) Given, P O T E N T I A L
 O P S F M U H B K
 -1 +1 -1 +1 -1 +1 -1 +1 -1

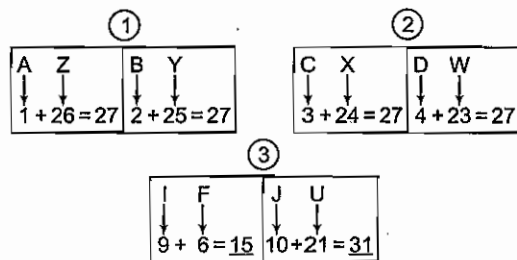
Similarly, W I N D O W
 V J M E N X
 -1 +1 -1 +1 -1 +1

2. (a) Ja Ta → Good Morning
 Ta Lu → Nice Morning
 No Pa → Heavy Silk
 Pa Lu → Nice Silk
 ∴ Good Silk → Ja Pa

3. (d) In the every column, first and last digits are add to produce central digit, i.e.,

$$\begin{aligned} -3 + 10 &= 7 \\ 20 + (-13) &= 7 \\ -13 + (-17) &= -30 \end{aligned}$$

4. (c) Every option has two pair and their total is 27 but except option (c) i.e.,



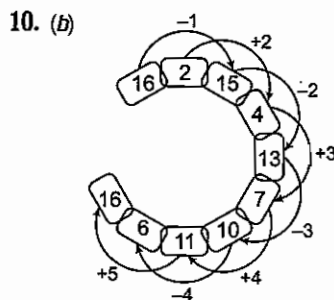
5. (b) 1 4 3 16 5 36 7 64
 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
 1¹ 2² 3¹ 4² 5¹ 6² 7¹ 8¹

6. (a) a b c d a b c d / a b c d

7. (b) Divide the given figure in the row and now add the all number by the side of middle term. After that divide by 2.

8. (d) Divide the figure either column or row and add the number. Those would be equal to 15.

9. (c) 2 22 3 36 4 52 5 70
 +14 +16 +18



11. (a) Given, $5 + 3 + 2 = 151022$

$$\begin{aligned} 5 \times 3 &= 15 \\ 5 \times 2 &= 10 \end{aligned}$$

$$\begin{aligned} \text{Then, } 15 + 10 - \text{middle number} \\ &= 25 - 3 = 22 \end{aligned}$$

So, 151022

$$\begin{aligned} 5 + 4 + 5 &= 202541 \\ 5 \times 4 &= 20 \\ 5 \times 5 &= 25 \end{aligned}$$

$$\text{Then, } 45 - 4 = 41$$

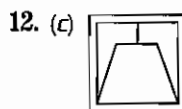
So, 202541

Similarly, $9 + 2 + 4 = ?$

$$\begin{aligned} 9 \times 2 &= 18 \\ 9 \times 4 &= 36 \end{aligned}$$

$$\text{Then, } 18 + 36 = 54 - 2 = 52$$

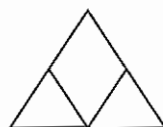
So, 183652



13. (c) As per the passage Conclusion a and b both are correct and have right option to satisfy the answer.

14. (b) According to the statement, we should provide good teachers and equipments to existing schools now onwards.

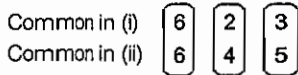
15. (c)



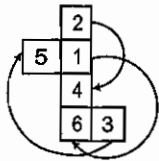
16. (a) $90 - (9 + 25 + 36 + 4) = 90 - 74 = 16$,

∴ 16 will replace the question mark because addition of all number is equal to 90.

17. (d) From (i) and (ii),



18. (b)



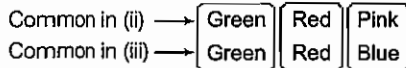
1 opposite of 6

2 opposite of 4

3 opposite of 5

∴ Only in option (b) all are different because there the combination of number not showing opposite to each other.

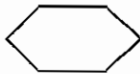
19. (b) From (ii) and (iii),



∴ Pink will be opposite to blue.

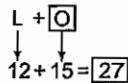
20. (c) Only option (c) breaks the rule of rotating small circle which is moving clockwise 90° but in figure (c) it rotates 180° anti-clockwise.

21. (a) In the given matrix, figure of column, first is the shape of second outer i.e.,



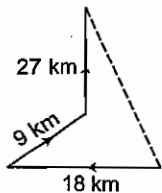
22. (c) There are only 8 peoples who are students, educated and teacher also.

23. (b) Inner and outer box of figure having opposite letter and there addition is equal to 27.



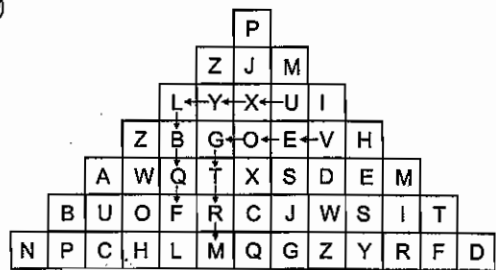
24. (a) When the mirror puts below the word ABILITY the option (a) image will be produce.

25. (b)



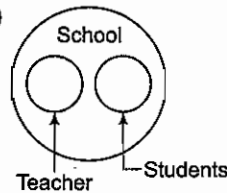
∴ Parrot is in North-West from the starting point.

26. (d)

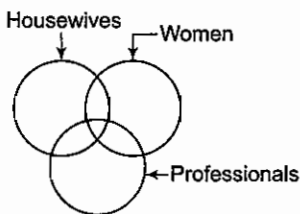


? = VEOG

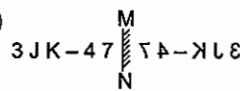
27. (b)



28. (d)



29. (b)



30. (b)

Vimal > Amit / Nidhi > Nikunj > Manish
 There is no clarity about Amit and Nidhi. Who are second / third position but it is clear that only these two people will be on this position. So, the answer will be option (b).

Solutions (Q. Nos. 31-35)

31. (b)

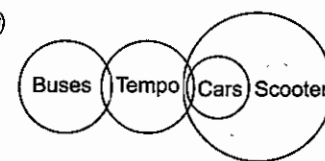
32. (b)

33. (c)

34. (d)

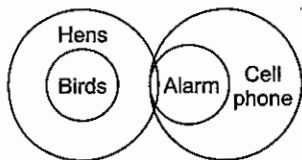
35. (b)

36. (a)

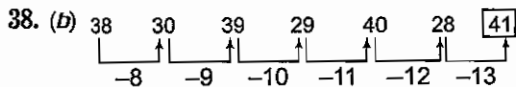


I. ✓ II. X III. X

37. (b)



I. ✓ II. ✗ III. ✗



39. (a) In the first row of figure second box contains less 1 line in outer figure diagram. So, in second row 1 box contain 4 line figure, so it will be three line in next box and same figure puts in the inner of the triangle.

40. (c) Option (c) completes the figure matrix.

41. (c) If 1 is opposite to 5 and 2 is opposite to 3, then 4 definitely lies opposite to 6. Therefore, 2 cannot lie opposite to any of the two numbers -4 or 6. Hence, 2 necessarily lies adjacent to both 4 and 6.

42. (b) Because the first two statements are true, raspberries are the most expensive of the three.

43. (a) Let Abhay's speed be x km/h.

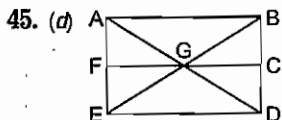
$$\text{Then, } = \frac{30}{x} - \frac{30}{2x} = 3$$

$$\Rightarrow \frac{60 - 30}{2x} = 3$$

$$\Rightarrow 6x = 30$$

$$\therefore x = 5 \text{ km/h}$$

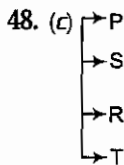
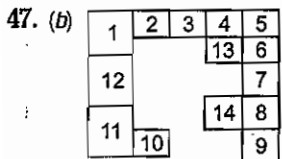
44. (d) Since, there are socks of only two colours, so two out of any three socks must always be of the same colour.



Triangles are ABG, BGC, CGD, DGE, EGF, FGA AGE, BGD, EAB, EDB, ABD and AED.

So, there are 12 triangles in the given figure.

46. (c) If there were seven shows left and five were sitcoms, this means that only two of the shows could possibly be dramas. Choices a and b may be true but there is no evidence to indicate this as fact. The fact that all of the sitcoms remained does not necessarily mean that viewers prefer sitcoms (choice d).



Hence, T will be the second to the right of S.

49. (a) $A : B = 100 : 90$

$A : C = 100 : 72$

$$B : C = \frac{B}{A} \times \frac{A}{C} = \frac{90}{100} \times \frac{100}{72} = \frac{90}{72}$$

When B runs 90 m, C runs 72 m.

$$\text{When B runs 100 m, C runs } \left(\frac{72}{90} \times 100 \right) = 80 \text{ m}$$

So, B can give C 20 m.

50. (d) Total number of routes from Bristol to Carlisle
 $= (4 \times 3 \times 2) = 24$

51. (d) Travelling leads to understanding human nature, when we interact with different people we make understand the different behaviours.

52. (c) Travels help in learning the essential and basic values of life.

53. (b) When we travel our restricted and narrow thoughts becomes wider and able to learn universal values.

54. (a) Author terms justice, love, honour and courtesy as delicate good because they are fragile and not very strong.

55. (a) Refer to the eleventh line of the passage, 'variously moulded' which means 'some form or the other'.

56. (d) From the sixth line of passage, its clear that Darnay would be sentenced to death.

57. (d) In the third line, he uses the phrase 'plainly dressed' which means ordinarily.

58. (c) Refer to seventh line, 'the young man.....grave interest' which means that in court Darnay was interested in everything around him.

59. (d) He showed his feeling when he looked at Dr Manette and his daughter (:) clear from the last line of passage.

60. (b) Refer to the first line of passage. Prisoner Charles Darnay was a young man of about twenty-five.

61. (b) Green light was just a warning.

62. (d) 'Mushroom-cloud' means cloud looking like a mushroom.

63. (b) The event is described in a detached manner. The only word that suggests that it is bad is 'ironically beautiful' but it refers to the cloud and not to the event.

64. (d) Different stages are mentioned with the help of colours.

65. (c) 'Zero hour' means last second of the time fixed.
66. (a) QRP Last word bacteria linked with deep buried this theory is explained by NASA another link and lastly the statement 'P' comes.
67. (c) RQP Problem is along with big cities can link together first link (R) second conservation and preservation another link with (Q) and lastly (P).
68. (a) and that he will accompany.
69. (b) upward revision was rejected.
70. (a) for
71. (a) Along with
72. (c) aren't you
73. (d) 'A' European (Article) before such vowels as have the sound of 'yu' as union, a university, a European is used.
74. (c) Has (singular form of sentence is used with as well as).
75. (a) Was (yesterday means past tense).
76. (c) Fanned
77. (d) 'Specify' means to mention expressly.
78. (b) 'Tie down' means of deciding a winner or to win from competitors who have died.
79. (b) 'Put in' means enter or spend (time).
80. (a) Null and void means of no use.
81. (b) Odds and ends means remaining goods.
82. (b) Length and breadth means all over.
83. (a) Hush money means a bribe.
84. (d) A white elephant means a costly but useless thing.
85. (d) To suspect a trick or deceit.
86. (b) Knocked at the door
87. (d) Door
88. (a) Disturbing
89. (d) Pass
90. (c) Noticed
91. (a) Right
92. (d) Hitting him
93. (c) Why 'so'
94. (b) 'Later' is used with reference to time.
95. (c) 'Latter' is used with reference to order.
96. (a) 'Older' is used for person as well as for things.
97. (b) 'Farther' comparison is made related with distance.
98. (b) Feeble means weak antonym should be 'strong'.
99. (b) Diminish means reduce or to decrease.
100. (b) Fickle means inconstant or changeable, so antonym should be 'constant'.

Paper II : Scholastic Aptitude Test

101. (c) In anaerobic respiration in muscles lactic acid is produced which causes muscle cramps.

102. (c)

List I	List II
A. Red eyed frog	1. Thick skin and strong sense of smell
B. Toucan	2. Thick skin and sensitive hearing
C. Big cats	3. Long large beak
D. Polar bear	4. Sticky pad

103. (d) Decrease in sea level is not a reason for shortage of usable water.
104. (a) Asexual reproduction in ginger, potato and onion takes place through stems and underground stem of ginger known as rhizome, potato-tuber, onion-bulb. In bryophyllum adventitious buds are present on leaves reproduce asexually.
105. (b) In waste water treatment plant air is pumped into water to support the growth of aerobic bacteria. These bacteria consume waste.
106. (b) In human blood circulation deoxygenated blood from body enters into heart through veins. From heart it goes to lungs for oxygenation through pulmonary artery. From

lungs it comes to heart through pulmonary vein and from heart it goes to body again.

107. (c) Clay particles are heavy as they hold more water and space between sand particles is more. Soil structure refers to the arrangement of soil particles sand slit and clay) into stable units called aggregates, which give soil its structure

108. (d)

List I	List II
A. Winnowing	1. Irrigation
B. Threshing	2. Hoe
C. Drip system	3. Separation of grain and chaff
D. Weeds	2. Separation of seeds and chaff

109. (a) Larva/caterpillar when enter the next stage of its life history called pupa. During this, it swings its head from side to side in the form of the figure of eight. During this movement of the head the caterpillars secrets fibres made of protein which harden to form silk fibres.
110. (c) 'Red Data Books' provide the information on endangered animals and plants. A Red Data Book contains lists of species whose continued existence is threatened. Each Red Data Book usually deals with a specific group of animals or plants.

111. (b) Due to presence of same genes two sisters looked exactly same. Identical twins look often the same (except certain other factors obviously make a difference, since twins even when they're identical, can be much different in certain ways).
112. (d) Baker's yeast is added to aquarium because it provides minerals and metals and absorbs heavy metals present in water and purifies it.

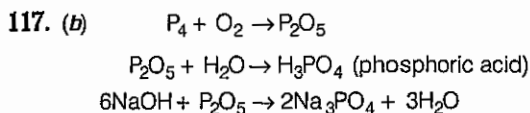
113. (a)

List I	List II
A. Lohi	1. Hosiery
B. Nali	2. Coarse wool
C. Patanwadi	3. Carpet wool
D. Marwari	4. Good quality wool hosiery

114. (c) In frogs change from tadpole to adult is controlled by thyroxin. Thyroxin production requires the presence of iodine in water.

115. (c) Polycot = Polyester + Cotton

116. (a) Malamine—Flame resistant
Nylon—Appears silk like
Teflon—Non-sticking cookwares
Cotton—Easily biodegradable



118. (b) Iron—Deposition of reddish brown layer on exposure to moist air
Copper—Formation of green layer on exposure to moist air
Potassium— Can be cut easily with a knife
Mercury— Liquid at room temperature

119. (a) Naphthalenes obtained from coal tar.

120. (d) Natural gas have main constituent CH_4 .
It is used as raw material for manufacturing of fertilizer.
It is also used for the generation of electricity.

121. (d) Head of match stick = antimony trisulphide (Sb_2S_3) + potassium chlorate ($KClO_3$)

122. (d) Candle flame 1. Outermost zone 2. Middle zone 3. Innermost zone (decreasing order of temperature)

123. (b) I. Due to green house effect radiation trap on earth atmosphere.
II. Due to green house effect earth temperature rise which is known as global warming.

124. (b) Sting-formic acid ($HCOOH$)
Calamine-zinc carbonate ($ZnCO_3$)

125. (d) Fertilizers are acidic in nature (ammonium nitrate), so soil become acidic when they are used for a long time period. Slaked lime is also used for treatment of acidic soil.

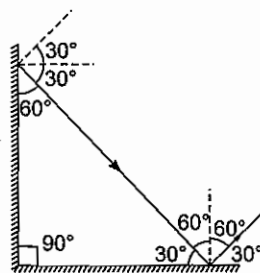
126. (a) Physical change
I. Hammering of red hot iron and make flat sheet.
II. Formation of ice by cooling water.
III. Vaporisation of sea water.

127. (c) Chemical change
I. Burning of candle wax.
II. Passing of CO_2 gas through lime water.

128. (b) The friction between the tyres of automobile and the road determines maximum acceleration of automobile and its minimum stopping distance. Driving a car on a wet road is difficult because water decreases the friction between the tyres and the road.

129. (a) (i) Plane mirror always forms virtual image of the same size of a real object.
(ii) Concave mirror forms virtual and enlarged image of a real object placed very near to it, so it is used by dentists to examine teeth.
(iii) Convex mirror always forms virtual image of smaller size of a real object.
(iv) Concave lens always forms virtual image of smaller size of a real object and it is thinner in the middle.
(v) Convex lens forms virtual and enlarged image of a real object near to it, so it is used as reading glass.
So option (a) is correct.

130. (c) This can be understood by looking at the following figure.



131. (b) Atmospheric pressure in the centre of a tropical cyclone is very low because of rising warm air.

132. (b) In the given situation if two copper plates are moved further apart from each other then smaller amount of copper will be deposited on the plate connected to negative electrode as ions takes more time to deposit because of large distance.

133. (a) Under the similar conditions an electromagnet having more number of turns of the wire wrapped will have greater strength.

134. (b) Magnetic field lines around a current carrying straight conductor are concentric circles (as shown in figure 1) so iron filings settle as circles (as shown in figure 2) in the situation given.

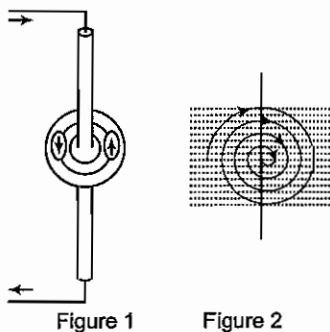
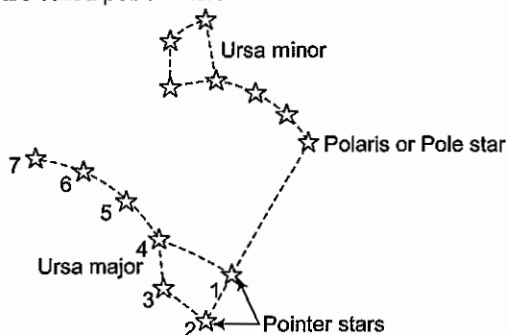


Figure 1

Figure 2

135. (c) How to locate pole star

Look straight in the direction of the stars situated at the far end of the ladle in Ursa Major (stars 1 and 2). The star of medium brightness in the direction of the above stars is the pole star (as shown in figure). The stars 1 and 2 in Ursa Major which point in the direction of the pole star are called pointer stars.



Relative positions of Ursa Major and Ursa Minor

136. (a) As we know,

$$\frac{C-0}{100-0} = \frac{F-32}{212-32}$$

$$\Rightarrow \frac{25-0}{100-0} = \frac{F-32}{180} \Rightarrow F = 77^\circ\text{F}$$

137. (a) When there is lightning and you are in jungle, go under a canopy of small trees and bushes. If you are out in the open, crouch on your feet, do not stand up or lie on the ground.

138. (a) Slope of distance time graph gives speed and in the given situation slope of distance time graph is constant, so speed must be constant.

139. (a) As we know

$$\text{Average speed} = \frac{\text{Total distance covered}}{\text{Time taken}}$$

$$\text{Average speed}_{(t=4 \text{ to } 20\text{min})} = \frac{15-5}{20-4} = \frac{10}{16} \text{ km/min}$$

140. (c) We know pressure = $\frac{\text{Thrust}}{\text{Area}}$, so cuboid will exert maximum pressure when it is kept in such a way that its contact area is minimum.

141. (b) Pen \rightarrow ₹ 5

Pencils \rightarrow ₹ 1

Pen : Pencils = 2 : 3

Pen = 2x, Pencil = 3x

Total cost of pen \rightarrow 10x and Pencils \rightarrow 3x

$$10x \times \frac{112}{100} + 3x \times \frac{110}{120} = 725$$

$$1120x + 330x = 725 \times 100$$

$$1450x = 725 \times 100$$

$$x = 50$$

$$\therefore \text{Required difference} = 3x - 2x = x = 50$$

142. (c) Let initial tax be ₹ 100.

After decreased by 15% new tax = ₹ 85

Consumption increased by 10%, then new revenue

$$= 85 \times \frac{110}{100} = ₹ 93.50$$

Then, per cent decrease in revenue = 6.5%

143. (d) $3^{1001} \times 7^{1002} \times 13^{1003}$

Cyclicity of 3 and 7 are 4.

$$\text{i.e., } 3^4 \times 7^4 \times 3^3$$

$$\Rightarrow 3 \times 9 \times 7$$

$$\Rightarrow 9$$

144. (c) $6 < \sqrt{x} < 7$

i.e., number lie between 36 and 49.

i.e., cube roots of a number lie between 3 and 4.

145. (b) Sum of interior angle = $(n-2) \times 180^\circ$

$$\text{One angle of regular polygon} = \frac{(n-2) \times 180^\circ}{n}$$

$$\text{i.e., } \frac{(n-2) \times 180^\circ}{n} = 165^\circ$$

$$\Rightarrow 180^\circ n - 360^\circ = 165^\circ n$$

$$\Rightarrow 180^\circ n - 165^\circ n = 360^\circ$$

$$\Rightarrow 15^\circ n = 360^\circ$$

$$\therefore n = 24$$

146. (b) $x \propto \frac{1}{y} \Rightarrow x \cdot \frac{1}{y}, xy = k$

$$\text{i.e., } x_1 y_1 = x_2 y_2$$

Let $x_1 = 100, y_1 = 100$ and $x_2 = 120, y_2 = ?$

Now, $100 \times 100 = 120 \times y_2$

$$y_2 = \frac{100 \times 100}{120} = 83 \frac{40}{120} = 83 \frac{1}{3}$$

i.e., y decreases by $\frac{2}{3}\%$.

147. (d) Suppose originally he had x apples.

Then, $(100 - 40)\%$ of $x = 420$

$$\Rightarrow \frac{60}{100} \times x = 420$$

$$\Rightarrow x = \left(\frac{420 \times 100}{60} \right) = 700$$

$$\begin{aligned}
 148. (c) \quad 2^{48} - 1 &= (2^{24} + 1)(2^{24} - 1) \\
 &= (2^{24} + 1)(2^{12} + 1)(2^{12} - 1) \\
 &= (2^{24} + 1)(2^{12} + 1)(2^6 + 1)(2^6 - 1) \\
 &= (2^{24} + 1)(2^{12} + 1)(2^6 + 1)(2^3 + 1)(2^3 - 1) \\
 &= (2^{24} + 1)(2^{12} + 1)(2^6 + 1)(9)(7)
 \end{aligned}$$

i.e., x have two factors between 2, and 10.

149. (d) $abcd$ and $dcba$ are four-digit number.

Here, $abcd = 1000a + 100b + 10c + d$

$$dcba = 1000d + 100c + 10b + a$$

$$\text{i.e., sum} = 1001a + 110b + 110c + 1001d$$

$$= 1001(a + d) + 110(b + c)$$

$$= 1001 \times 7 + 110 \times 7$$

$$= 7(1001 + 110) = 7 \times 1111 = 7777$$

i.e., number is divisible by 7, 11, 101 but not divisible by 111.

150. (d) Let total number of herd = x

$\frac{x}{2}$ are grazing in the field.

$\frac{3}{4} \left(\frac{x}{2} \right)$ are playing.

$$\text{i.e., } \frac{1}{4} \left(\frac{x}{2} \right) = 9 \text{ are drinking water}$$

$$\text{i.e., } x = 9 \times 8 = 72$$

i.e., number of deer which are grazing field = 36

and number deer which are playing = 27

difference = 9

i.e., multiple of 9

151. (b) Let $x + y = 180^\circ$

x is a smaller angle.

$$x = 4(90^\circ - x)$$

$$x = 360^\circ - 4x, \quad 5x = 360^\circ$$

$$x = 72$$

$$\text{Thus, } y = 180^\circ - 72^\circ = 108^\circ$$

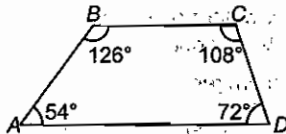
$$\text{Now, difference} = 108^\circ - 72^\circ = 36^\circ$$

152. (c) $A : B : C : D = 3 : 7 : 6 : 4$

$$3x + 7x + 6x + 4x = 360^\circ$$

$$20x = 360^\circ$$

$$x = 18^\circ$$



$$\angle A = 54^\circ, \angle B = 126^\circ, \angle C = 108^\circ$$

and $\angle D = 72^\circ$

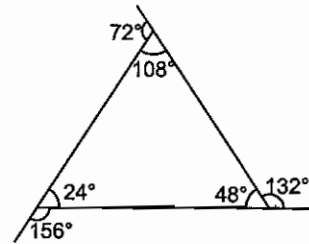
Hence, $ABCD$ is a trapezium.

153. (d) Angle $2x + 4x + 9x = 180^\circ$

$$15x = 180^\circ$$

$$\Rightarrow x = 12^\circ$$

$$\text{i.e., } 24^\circ, 48^\circ, 108^\circ$$

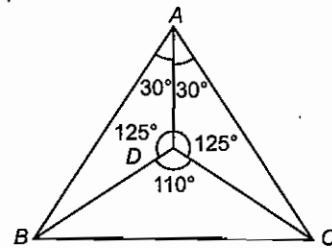


Exterior angle are, $156^\circ, 132^\circ, 72^\circ$.

Difference between smallest angle = $132^\circ - 72^\circ = 60^\circ$

154. (d) $\triangle ABD \cong \triangle ACD$

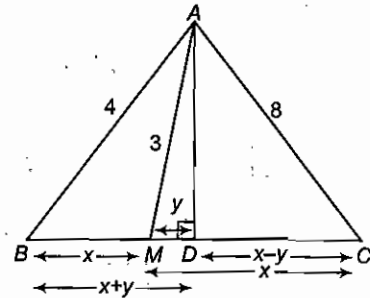
$$\angle CAD = \angle BAD = 30^\circ$$



$$\angle ADB = \angle ADC = \frac{1}{2}(360^\circ - 110^\circ) = 125^\circ$$

$$\angle ABD = 180^\circ - 155^\circ = 25^\circ$$

155. (b) $AD = \sqrt{9 - y^2}$



$$\text{In } \triangle ABD, 16 = x^2 + y^2 + 2xy + 9 - y^2$$

$$7 = x^2 + 2xy \quad \dots (i)$$

$$\text{In } \triangle ADC, 64 = (x - y)^2 + (9 - y^2)$$

$$55 = x^2 - 2xy \quad \dots (ii)$$

On adding Eqs. (i) and (ii), we get

$$62 = 2x^2$$

$$x^2 = 31$$

$$x = \sqrt{31}$$

$$BC = 2x = 2\sqrt{31} \text{ cm}$$

156. (c) $C = 2\pi r$, $A = \pi r^2$

$C' = x \cdot C = x2\pi r$

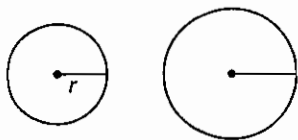
$A' = 2A = 2\pi r^2$

Since, area doubles, the radius should be $\sqrt{2}$ times.

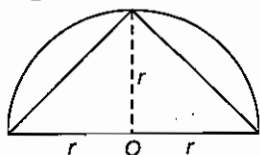
i.e., $r' = \sqrt{2}r$

Hence, $C' = \sqrt{2}(2\pi r)$

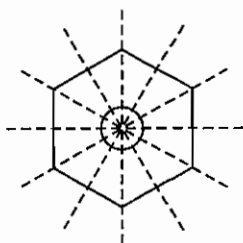
So, $x = \sqrt{2}$



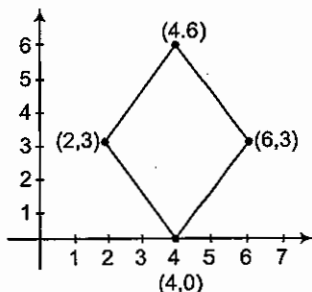
157. (c) $\frac{1}{2} \times (2r) \times r = \frac{2r^2}{2} = r^2$



158. (a) $x = \frac{360^\circ}{12} = 30^\circ$



159. (c) Rhombus



Clearly, all sides are equal but the angle between the sides is not 90, so it is a rhombus.

160. (c) 21, 39, 39, 45, 54, 54, 56, 56, 56, 77, 84, 84

Mode = 56

Median = $\frac{54 + 56}{2} = 55$

Range = $84 - 21 = 63$

Mean = $\frac{56 + 55 + 63}{3}$
 $= \frac{174}{3} = 58$

161. (d) Dhangadeva built Kandariya Mahadeva temple, Rajarajadeva built Rajarajeshvara temple devoting Lord Shiva, Rajendra I built the city of Gangaikondacholapuram to commemorate victory over Ganga valley and Babur followed Chahar Bagh strategy for gardens.

162. (b)

163. (a) Alvars saints of South India were followers of Lord Vishnu. Nayanars were worshippers of Lord Shiva.

164. (a) During Mughal period Bakhshi was responsible for paying salaries to soldiers. Faujdar was army general. Sadr-ur-Sadar was responsible to take care of religious behaviour of people. Kotwal look after the law and order of city.

165. (a)

166. (b) Kathak word evolved from the word 'Katha' (Story tellers), Kathak later developed by Bhakti Saint. Nawab Wajid Ali Shah of Awadh patronaged Kathak and later by Mughals.

167. (d) Kanchipuram was the capital of Pallava nearly 1400 yr ago. Later Masulipatnam emerged as an important town during Narsimhavarmn. Hampi was the capital of Vijayanagara kingdom during Sultanate period. Mumbai emerged as an important town during colonial period.

168. (d) Garh was divided into Chaurasi, into Barhots and later into smallest unit known as Village.

169. (b) Raziya was the only women Sultan during Sultanate period.

170. (d) James Mill divided Indian history into Hindu, Muslim and British.

171. (a)

172. (c) Tagore felt that childhood ought to be a time of self-learning, outside the rigid and restricting discipline of the schooling system set up by the British. Tagore wanted to combine elements of modern Western civilisation with what he saw as the best within Indian tradition.

173. (b) (A) Rashtriya Swayamsevak Sangh-1920
 (B) All India Muslim League-1906
 (C) Indian Association-1870
 (D) Indian National Congress-1885

174. (a) 75. (c) 76. (d) 77. (c)

178. (d) Westerlies are stronger in Southern hemisphere due to clear water bodies. Winds move very fast in absence of hurdles. Northern hemisphere is occupied by landmasses.

179. (d) Diagram represent spring tides.

180. (d) 181. (b)

182. (b) Lorraine area in France is significant for coal fields.

183. (a) Indianapolis lies in the United States of America.

184. (b) 185. (b)

186. (d) (4) Shifting cultivation = Rengmass
 (2) Pastoralism = Kirghiz
 (3) Hunter and Food Gatherers = Pygmies
 (4) Hunters – Eskimos

187. (c)

Region	Grasslands
1. Argentina	Pampas
2. North America	Prarie
3. South Africa	Velds
4. Central Asia	Steppes
5. Australia	Velds

188. (c)
 189. (d) Concept is evaporation *i.e.*, upward movement.
 190. (a)
 191. (c) In a Republic the head of the state is elected by people.

192. (d) Article 356 allows Governor, to have President rule in the State if the State Government is not performing to maintain law and order.

193. (c)

194. (d) The boundaries of states can be altered by the Indian Parliament.

195. (c) INC was defeated for the first time in 1977.

196. (b) In capitalist society private entrepreneurs have a prominent place.

197. (c) Indian and US Constitution.

198. (d) Loksabha secretariat functions under Speaker.

199. (b) 'International Women Day is celebrated on 8th March.

200. (c) Correct sequence is Dr Rajendra Prasad, Dr Sarvepalli Radhakrishnan, Dr Zakir Hussain and Dr V V Giri.