

# 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

- In a certain code, 'PLEADING' is written as 'CHMOQMFB'. How is 'SHOULDER' written in that code  
*a.* KCDQTIPV      *b.* QDCKVPIT      *c.* KCDQTIPV      *d.* TIPVQDCK
- Here are some words translated from an artificial language  
'sti nro kti' is 'clouds pour down'  
'nro bsi mit' is 'down he goes'  
'bsi nro zpi' is 'died down he'  
Which word could possibly mean he died?  
*a.* nro bsi      *b.* kti bsi      *c.* sti kti      *d.* zpi bsi
- Which group of letter is different from others?  
*a.* PBQTX      *b.* DRYSN      *c.* MEWGN      *d.* CGHKV
- 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.  
\_bbca\_bcca\_ac\_a\_cb  
*a.* abcba      *b.* acbab      *c.* bacab      *d.* bcaab
- Find the next number in the sequence.  
30, 120, 350, 720, ?  
*a.* 1150      *b.* 1300      *c.* 1200      *d.* 1342

**Directions** (Q. Nos. 6-10) Read the following information carefully and answer the questions given below.

A, B, C, D, E, F and G are sitting around a circle facing at the centre having dinner not necessarily in same order. E is neighbour of A and D. G is not between F and C. F is to the immediate right of A.

- Which of the following does not have the pair of persons sitting adjacent to each other?  
*a.* BA      *b.* CB      *c.* DE      *d.* GD
- Which of the following pairs has the second person sitting immediately to the right of the first?  
*a.* AB      *b.* CB      *c.* EA      *d.* GC
- What is the position of F?  
*a.* Third to the left of C      *b.* Second to the right of C  
*c.* To the immediate left of A      *d.* None of these
- Who are the neighbours of B?  
*a.* A and B      *b.* C and D      *c.* F and C      *d.* None of these
- Which of the following persons are sitting adjacent to each other from left to right in the order as shown.  
*a.* BGC      *b.* FBC      *c.* CDG      *d.* EDG
- Fill in the missing number in the following figure.

3C	27D	9E
7I	21K	3M
4D		7J

- a.* 11E      *b.* 28G      *c.* 35I      *d.* 48F

12. Choose the alternative which is closely resembles the water image of the given combination.

G R 9 8 A P 7 6 E S

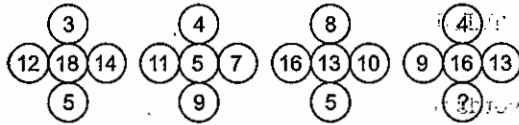
a. GK88VBL9E2

b. GR88VBL9E2

c. GK88VBL9E2

d. GK88AB19ES

13. Which number replaces the questions mark?



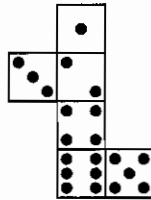
a. 5

b. 6

c. 2

d. 3

14. When the following figure is folded to form a cube, how many dots lie opposite the face bearing five dots?



a. 1

b. 2

c. 3

d. 4

15. Find the next term in the series.

2, 3, 8, 27, 112, ?

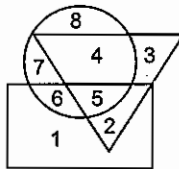
a. 226

b. 339

c. 452

d. 565

16. In the figure, triangle represents doctors, the circle represents players and rectangle represents artists.



Then, which number represents doctors who are neither players nor artists?

a. 2

b. 3

c. 4

d. 5

17. Which of the following diagram/set indicate the relation between citizen, educated and men?



a.



b.



c.



d.

18. Question given below has a problem and two Statements I and II. Decide, if the information given in the statement is sufficient to answer the problem.

Among Maddy, Nittu, Dev, Pinku and Kunal, who earns more than only the least earner among them

**Statements**

(I) Nittu earns more than Maddy and Pinku but less than only Dev.

(II) Maddy earns more than Pinku who earns less than Kunal.

a. Data in Statement I alone is sufficient

b. Data in Statements II alone is sufficient

c. Data in both statements together is sufficient

d. Data in both statements together is not sufficient

19. In this addition question, the five letters represent five different digits. What are the actual figures. There is no zero.

$$\begin{array}{r} L M N K \\ + M K N L \\ \hline N N M A \end{array}$$

- a.  $L = 4, M = 6, N = 2, K = 3, A = 7$       b.  $L = 6, M = 5, N = 2, K = 8, A = 7$   
 c.  $L = 4, M = 2, N = 6, K = 3, A = 7$       d.  $L = 6, M = 4, N = 7, K = 9, A = 2$
20. Find the missing term in the series.  
 2, 4, 2, 6, 3, 12, ?, 40  
 a. 8      b. 6      c. 11      d. 5
21. Choose the alternative which is closely resembles the mirror image of the given combination.  
 1 9 6 5 I N D O P A K  
 a. K A P O D I N I 2 9 6 1      b. P A K I N D O I 2 9 6 1      c. K A P O D I N I 2 9 6 1      d. K A P O D I N I 2 9 6 1
22. In a group of cows and hens, the number of legs are 14 more than twice the number of heads. The number of cows is  
 a. 5      b. 7      c. 10      d. 12
23. What is the product of all the number in the dial of a telephone?  
 a. 1, 58, 480      b. 1, 59, 450      c. 1, 40, 680      d. None of these
24. At the end of a business conference, the ten people present all shake hands with each other once. How many hand shakes will there be altogether?  
 a. 60      b. 45      c. 55      d. 90
25. Junaid is facing East. He turn  $100^\circ$  in the clockwise direction and then  $145^\circ$  in the anti-clockwise direction. Which direction is Junaid facing now?  
 a. East      b. North-East      c. North      d. North-West

**Directions** (Q. Nos. 26-27) Take the given statement(s) are true and decide which of the conclusions logically follows from the statements.

26. **Statements** All desks are chairs. No chair is a table. Some tables are fans. Some fans are chair.

**Conclusions**

- I. Some desks are table.  
 II. Some fans are desks.  
 III. No desks in a table.

- a. Only Conclusion I follows      b. Only Conclusion II follows  
 c. Only Conclusion III follows      d. All conclusion follow

27. **Statements** All vegetables are fruits. No vegetables are cereals. All cereals are fruits. Some cereals are healthy.

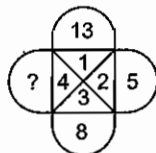
**Conclusions**

- I. Some fruits are healthy.  
 II. No vegetables is healthy.  
 III. All healthy are fruits.

- a. Only Conclusion I follows  
 b. Only Conclusion II follows  
 c. Only Conclusion III follows  
 d. Both Conclusions II and III follow

**Directions** (Q. Nos. 28-30) Find the missing number in the following questions.

28.



a. 10

b. 11

c. 12

d. 13

29.



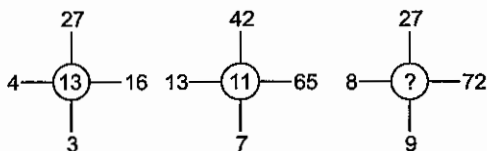
a. 5

b. 125

c. 625

d. 156

30.



a. 6

b. 9

c. 12

d. 18

31.

Television convinces viewers that the likelihood of their becoming the victims of a violent crime is extremely high, at the same time by its very nature. TV persuades viewers to passively accept whatever happens to them. Find the statement among the alternatives which must be true as per the given information.

- a. TV viewers promotes criminal behavior
- b. TV viewers are most likely to be victimized than others
- c. People should not watch TV
- d. TV promotes a feeling of helplessness vulnerability in viewers

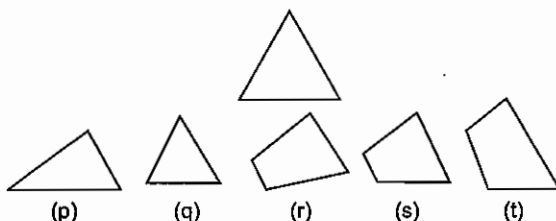
32.

During the 'Puja days', people visit those houses where 'Puja is performed they make it a point to go even, if they are not invited. Manmohan visited the house of Ajay, his office colleague during 'Puja days'. Find the statement among alternatives which must be true as per the given information.

- a. Ajay had invited Manmohan for some other function
- b. Manmohan, being a religions person, went to Ajay's house invited
- c. In Ajay's house, 'Puja' was performed
- d. Manmohan was invited by Keshav

33.

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



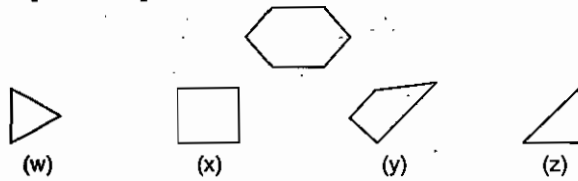
a. p

b. q

c. r

d. s

34. A pattern is given below. You have to identify which among the following pieces will not be required to complete the pattern?

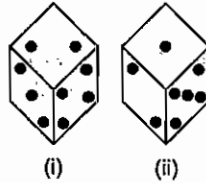


- a. w      b. x      c. y      d. z
35. Choose the alternative which is closely resembles the mirror image of the given combination.

ANS 43 Q 12

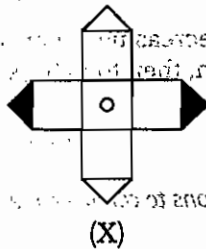
- a. AN24E01S      b. S10E42NA      c. 2NAE40S1      d. 1S04E4N2

36. A dice is rolled twice and the two positions are shown in the figure below. What is the number of dots at the bottom face when the dice is in position (i)?

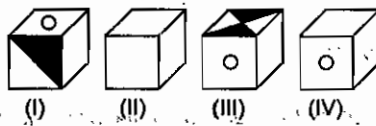


- a. 1      b. 5      c. 6      d. Cannot be determined

37. Choose the box that is similar to the box formed from the given sheet of paper (X).

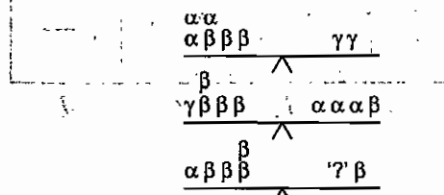


Answer Figures

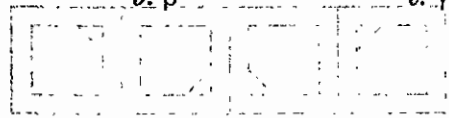


- a. Only I      b. Only II      c. Only III      d. Only IV

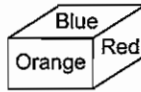
38. Which symbol replaces '?' figure below represents a balance.



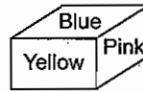
- a. alpha      b. beta      c. gamma      d. alpha-beta



39. Which colour will be on the top, if the red colour is in the bottom, two position of the dice is shown below.



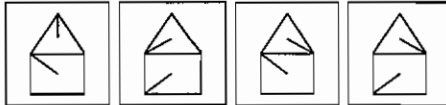
(i)



(ii)

- a. Orange      b. Pink      c. Grey      d. Yellow

40. Find the odd figure out.



(p)

(q)

(r)

(s)

- a. p      b. q      c. r      d. s

41. A river flows West to East and on the way turns left and goes in a semi-circular round a hillock and then turns left at right angles. In which direction is the river finally flowing?

- a. West      b. East      c. North      d. South

42. Panday goes for a morning walk at 6 : 00 am and returns back in half an hour. Now, when we came back he found that clock was rotated  $45^\circ$  in anti-clockwise direction. The direction of hour hand is

- a.  $30^\circ$  South of East      b.  $15^\circ$  East of North      c.  $15^\circ$  South of East      d.  $30^\circ$  North of West

43. In an examination Raj got more marks than Mukesh but not as many as Priya. Priya got more marks than Gaurav and Kavita. Gaurav got less marks than Mukesh but his marks are not the lowest in the group. Who is the second in the decending order of marks?

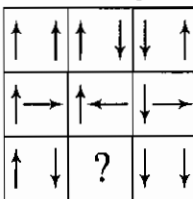
- a. Priya      b. Kavita      c. Raj      d. None of these

44. There are 40 boys and girls arranged in a queue in the decreasing order of their height. If Ranvijay is at 17th position and there are 9 boys ahead of him, then total boys behind Ranvijay, if there are 17 girls in total.

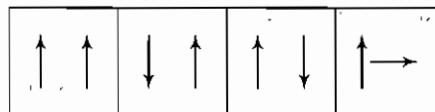
- a. 10      b. 13      c. 12      d. 17

**Directions** (Q. Nos. 45-46) Which figure will replace the 'question mark' from the options to complete the figure?

45. **Problem Figures**

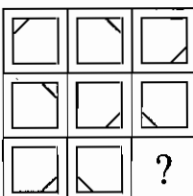


**Answer Figures**

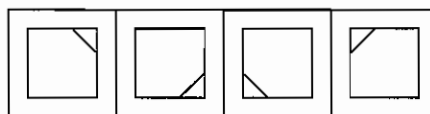


- a.      b.      c.      d.

46. **Problem Figures**



**Answers Figures**


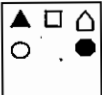




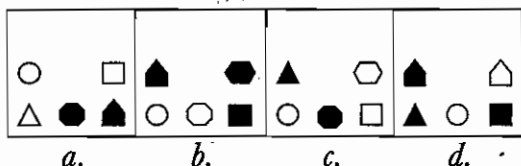
- a.      b.      c.      d.

47. A shepherd has 17 sheep. All but 8 died. How many was he left with?  
 a. Nil                      b. 8                      c. 9                      d. 17
48. Find the letter to be replaced with '?' in the given figure.

-5	1	3	2
3	0	R	3
2	?	T	2
3	4	2	5

- a. X                      b. Y                      c. W                      d. L
49. Five children are sitting in row. S is sitting next to P but not T. K is sitting next to R, who is sitting on the extreme left and T is not sitting next to K. Who are sitting adjacent to S?  
 a. K and P                      b. R and P                      c. Only P                      d. P and T

50. If  is to , then  is 



## Section B General English

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

### Passage I

I do not suggest that the cultural side of education should be ignored. On the contrary, I think, it is essential to the production of the sort of adult who best fits the modern world. But I think that what is important in cultural education should be conveyed, at any rate in the early stages, by methods far more attractive than now used. History and geography should be taught at first by means of the cinema. When taught this way, they will give pleasure; attention will be spontaneous and therefore the impression will be less temporary. In spite of reforming movements, there is still among educators a feeling that what is enjoyed without effort cannot have much educational value. It would have made children aware of the manners and customs of tribes and nation's parts utterly remote from their own. Education conducted on these lines would do more than many boors to cure provincialism in space and to more children realise that actual human beings with actual feelings can be outwardly very different from the people among whom they, but inwardly composed of the same human material. A Zulu would not appear strange, remote or savage but one like themselves.

51. The writer thinks that the cultural side of education is needed to make man  
 a. appreciate one's heritage                      b. appreciate other civilisation  
 c. suitable for modern civilisation                      d. admire his environment
52. The writer criticised traditional educators for not  
 a. using cinema as a method of teaching                      b. making learning an attractive activity  
 c. imparting information about remote tribes                      d. imparting information about various cultures
53. The response of the learners to teaching through cinema is  
 a. absorbing                      b. long-lasting                      c. enthusiastic                      d. superficial



54. The expression to cure provincialism in space and their means to get rid of  
*a.* regional feelings      *b.* obscure ideas      *c.* narrow views      *d.* selfish opinion
55. One of the goals of education should be to make children realise that  
*a.* human culture is diverse  
*b.* regional cultures should not be ignored  
*c.* they must respect value of alien culture  
*d.* there is a limpid system of human values underneath cultural diversity

## Passage 2

Under the zamindari system the landlord was recognised as the absolute owner of the land. He was responsible for the payment of land revenue to the government, which had been settled once for all under the Permanent Settlement System. The zamindari system manifested absentee landlordism at its worst and was largely responsible for the continuously deteriorating conditions of tenant farmers. The landlords became merely rent-receivers and did nothing for increasing the productivity of land held by their tenants. The pressure of population led to a gradual extension of cultivation and a greater demand for land. As a result, a large army of intermediaries between the state and the actual tiller cropped up. This also made it possible for the landlords to extort high rents from tenants. All that it amounted to was the exploitation and moral degradation of the tiller.

Immediately after independence, a strong voice was raised against these vested interests in land. As a result, a high priority was given to the abolition of the zamindari system. Accordingly, every state enacted its own legislation for the abolition of intermediary interests. By 1952, the necessary legislation had been enacted in all the states.

56. Under the zamindari system, the zamindar  
*a.* lived on the land he owned  
*b.* was the landlord of the land  
*c.* was not responsible in any way to the government  
*d.* used all the income for himself
57. The zamindari system was responsible for  
*a.* keeping the zamindars in urban places      *b.* the prosperity of the tenant-class  
*c.* increase in the productivity of land      *d.* deteriorating conditions of tenant farmers
58. Under the system, the landlords  
*a.* extorted high rents and did not contribute to increased productivity  
*b.* abandoned cultivation in order to escape the payment of land revenue to the government  
*c.* merely looked on the idleness of the tenants  
*d.* became rent-receivers who did not pay the land revenue
59. There was a demand for the abolition of the zamindari system because  
*a.* the new government supported landless labour  
*b.* the tenants were economically backward  
*c.* an army of intermediaries arose, who exploited the tillers  
*d.* the tenants wanted to own the land tilled by them
60. The abolition of the zamindari system was aimed at  
*a.* increased productivity      *b.* abolition of intermediaries  
*c.* distribution of land to the landless      *d.* supporting the vested interests in land

### Passage 3

We should preserve nature to preserve life and beauty. A beautiful landscape, full of green vegetation, will not just attract our attention but will fill us with infinite satisfaction. Unfortunately, because of modernisation, much of nature is now yielding to towns, roads and industrial areas. In a few places some natural reserves are now being carved out to avert the danger of destroying nature completely. Man will perish without nature, so modern man should continue this struggle to save plants, which give us oxygen, from extinction. Moreover, nature is essential to man's health.

61. What does 'nature' in the passage mean?  
a. Countryside covered with plants and trees      b. Physical power that created the world  
c. Inherent things that determine character      d. Practical study of plants and animals
62. Which one of the following is the correct statement?  
According to the passage  
a. beauty is only skin-deep      b. everything is beautiful in its natural state  
c. there is beauty in nature      d. nature is a moral teacher
63. What does the writer suggest?  
a. We should not modernise, so that nature can be preserved  
b. While modernising we should be careful not to destroy nature completely  
c. All nature has been destroyed by modern living  
d. Carving out natural reserves will hamper the growth of industries
64. What does 'struggle' in the passage mean?  
a. Man's struggle to exist in the world      b. Man's struggle to save nature  
c. Man's struggle to catch up with modern trends      d. Man's struggle to conserve oxygen
65. Why a beautiful landscape 'will fill us infinite satisfaction'?  
a. We love beauty      b. It is full of green vegetation  
c. It will ensure our future existence      d. It will show our command over nature

**Directions** (Q. Nos. 66-67) *In the following questions, each passage consists of five sentences. The first sentence (S<sub>1</sub>) and last sentence (S<sub>5</sub>) are given. The remaining three sentences are labelled P, Q, and R. You are required to find out the proper sequence of the three sentences.*

66. S<sub>1</sub> : It is well-known fact that Indian's love sweets  
P : most families today like to vary the cuisine, especially the dessert counter  
Q : and since the traditional Indian wedding involves several pre-wedding events with the same guest list  
R : and when it comes to celebration desserts are a must  
S<sub>5</sub> : the guests appreciate desserts with bit of twist and even low calorie desserts are much in demand.  
The proper sequence should be  
a. PRQ      b. PQR      c. RQP      d. QRP
67. S<sub>1</sub> : A wedding is an important event in every individual's life  
P : because all eyes will be on them  
Q : the reception is even more so and now-a-days, people spend more than they can afford to  
R : the bride and groom naturally try to look their best  
S<sub>5</sub> : but the guests are not far behind.  
The proper sequence should be  
a. QRP      b. RQP      c. PRQ      d. QPR

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

68. (A) A well-dressed young man entered a big textile shop one evening  
(B) \_\_\_\_\_  
(C) who thought him rich and likely to make heavy purchases.  
a. he was shown the superior variety of suitlengths and sarees  
b. he was able to draw the attention of the salesman  
c. but after casually examining them  
d. where ready-made goods were being sold
69. (A) Wild peacocks live together in large flocks in the forests of Central Africa  
(B) \_\_\_\_\_  
(C) for seeds to eat and at night fall they fly up to the trees where they perch and sleep.  
a. they scratch about in the ground during the day  
b. every peacock has several wives  
c. the male utters a harsh raucous cry  
d. the female birds build their nests on the ground

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

70. They were awaiting official \_\_\_\_\_ of the news they had heard from a friend.  
a. sanction                      b. recommendation                      c. confirmation                      d. ratification
71. Every Shakespearean hero has an internal \_\_\_\_\_ in his character.  
a. defect                      b. weakness                      c. fault                      d. flaw
72. The criminal seems to have acted in \_\_\_\_\_ with three others.  
a. collusion                      b. coalition                      c. collision                      d. cohesion
73. I think they allow their children too much \_\_\_\_\_.  
a. liberality                      b. latitude                      c. lassitude                      d. levity
74. He knew everything better than anybody else and it was an affront to his \_\_\_\_\_ vanity that you should disagree with him.  
a. overstrung                      b. overweening                      c. overwhelming                      d. overwrought
75. Being a skilled hunter, he had the habit of \_\_\_\_\_ animals before he faced them.  
a. sizing up                      b. spotting out                      c. following up                      d. rounding up
76. He is the person who is \_\_\_\_\_ to blame.  
a. mostly                      b. sure                      c. most                      d. bound
77. Soft minded individuals are \_\_\_\_\_ to embrace all kinds of superstitions.  
a. disposed                      b. eager                      c. reluctant                      d. prone
78. The point you are raising is not \_\_\_\_\_ to the subject.  
a. pertinent                      b. required                      c. fit                      d. proper
79. The facts had been \_\_\_\_\_ into them.  
a. spoken                      b. drummed                      c. dictated                      d. digested

**Directions** (Q. Nos. 80-85) *Select the correct meaning of the idioms and phrases out of the four choices given.*

- 80.** All in all  
*a.* Every thing considered  
*c.* Usually  
*b.* Undecided  
*d.* Well organised
- 81.** Breakdown  
*a.* Review  
*b.* Stop working  
*c.* Disperse  
*d.* Scatter
- 82.** Hold up  
*a.* Difficulties  
*b.* Distribute  
*c.* To raise  
*d.* Delay
- 83.** A queer fish  
*a.* A strange person  
*b.* Very familiar  
*c.* Friendly  
*d.* Irritating person
- 84.** A hard nut to crack  
*a.* Not dependable  
*b.* A difficult job  
*c.* With strictness  
*d.* Very durable
- 85.** A house of cards  
*a.* Solve one's problem  
*b.* Experienced  
*c.* Weak and fragile  
*d.* In deep trouble

**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.*

The earth is one of the known planets that circle the Sun. In (86) times, the men who studied the (87) noticed that while certain heavenly (88) seemed fixed in the sky, others seemed to (89) about. The latter they named planets or wanderers (90), astronomers have discovered that the four planets, Jupiter, Saturn, Uranus and Neptune are surrounded by poisonous gases and are so (91) that any living thing attempting to (92) on them instantly be frozen to death. Of the five remaining (93) Venus most closely resembles the Earth in size.

- 86.** *a.* modern  
*b.* ancient  
*c.* antique  
*d.* past
- 87.** *a.* Sun  
*b.* Earth  
*c.* stars  
*d.* light
- 88.** *a.* entitles  
*b.* things  
*c.* objects  
*d.* bodies
- 89.** *a.* move  
*b.* run  
*c.* roam  
*d.* jumps
- 90.** *a.* new  
*b.* modern  
*c.* future  
*d.* upstart
- 91.** *a.* dull  
*b.* frigid  
*c.* lukewarm  
*d.* cold
- 92.** *a.* stay  
*b.* set  
*c.* land  
*d.* put
- 93.** *a.* stars  
*b.* planets  
*c.* meteors  
*d.* constellations

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

- 94.** The brilliant students will be \_\_\_\_\_ scholarships.  
*a.* honoured  
*b.* awarded  
*c.* rewarded  
*d.* forwarded
- 95.** They are refugees in need of \_\_\_\_\_.  
*a.* renovation  
*b.* recapitulation  
*c.* restoration  
*d.* rehabilitation
- 96.** He works \_\_\_\_\_ from morning to evening daily without break.  
*a.* continually  
*b.* continuously  
*c.* continuing  
*d.* continued
- 97.** The \_\_\_\_\_ appearance of the person attracted our attention.  
*a.* gentle  
*b.* genteel  
*c.* kind  
*d.* graceful

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

98. Triumph  
a. Defeat                      b. Surrender                      c. Give up                      d. Retreat
99. Defile  
a. Shine                      b. Cleanse                      c. Pure                      d. Clear
100. Urban  
a. Local                      b. Villager                      c. Rural                      d. Refined

## Paper II : Scholastic Aptitude Test

101. Palaeozoic Era is known as the age of  
a. birds                      b. animals                      c. insects                      d. fishes
102. Which of the following were dominant in Coenozoic Era?  
a. Reptiles                      b. Mammals and modern flora  
c. Fishes                      d. Amphibians
103. Prokaryotic microbes were found in the age of  
a. coenozoic                      b. palaeozoic                      c. precambrian                      d. azoic
104. 'Ecological niche' of a species means  
a. specific function of a species                      b. specific place where the organism lives  
c. specific number of populations                      d. habitat and specific function of a species
105. Growth movement in response to light is called  
a. photoperiodism                      b. photosynthesis                      c. photophosphorylation                      d. phototropism
106. Influenza is caused by  
a. virus                      b. bacteria                      c. viroid                      d. fungus
107. A cell is kept in a solution for sometimes, when it bursts. The solution should be  
a. isotonic                      b. hypertonic                      c. hypotonic                      d. monotonic
108. Biogenetic law as given by Haeckel states that  
a. ontogeny recapitulates phylogeny  
b. phylogeny recapitulates ontogeny  
c. ontogeny and phylogeny go together  
d. there is no relationship between phylogeny and ontogeny
109. An evolutionary pattern characterised by a rapid increase in the number and kinds of closely related species is called  
a. convergent evolution                      b. divergent evolution                      c. adaptive radiation                      d. parallel evolution
110. Humming birds and hawk illustrate  
a. convergent evolution                      b. homology                      c. adaptive radiation                      d. parallel evolution
111. Which one of the following pairs is not correctly matched?  
a. Streptomyces — Antibiotic                      b. Serratia — Drug addiction  
c. Spirulina — Single Cell Protein                      d. Rhizobium — Biofertiliser

112. Mycoplasma is not affected by penicillin as it lack  
*a.* cell wall                      *b.* sexual reproduction    *c.* ribosomes                      *d.* plasma membrane
113. Viral genome, incorporated and integrated with bacterial genome is referred to as  
*a.* prophage                      *b.* RNA                      *c.* DNA                      *d.* Both a and c
114. The hormone that regulates the calcium level of blood is  
*a.* parathormone                      *b.* estrogen                      *c.* insulin                      *d.* thyroxine
115. The gas supplied in cylinders for cooking is  
*a.* marsh gas                      *b.* LPG  
*c.* mixture of  $\text{CH}_4$  and  $\text{C}_2\text{H}_6$                       *d.* mixture of ethane and propane
116. The metal constituent of chlorophyll is  
*a.* iron                      *b.* potassium                      *c.* manganese                      *d.* magnesium
117. Match the following

List I (Fuel gases)	List II (Major constituents)
A. CNG	1. Carbon monoxide, hydrogen
B. Coal gas	2. Butane, propane
C. LPG	3. Butane, ethane
D. Water gas	4. Hydrogen, methane, CO

**Codes**

A B C D

*a.* 2 1 3 4

A B C D

*b.* 3 4 2 1

A B C D

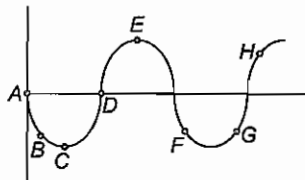
*c.* 2 4 3 1

A B C D

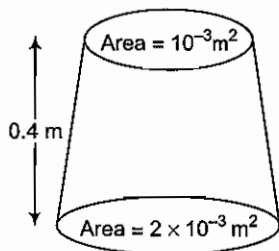
*d.* 3 1 2 4

118. The major portion of combustible part of gobar gas is  
*a.* methane                      *b.* ethane                      *c.* ethylene                      *d.* acetylene
119. Which of the following forms a colloidal solution?  
*a.* Ammonium chloride    *b.* Starch                      *c.* Copper sulphate                      *d.* Common salt
120. A mixture of ammonium chloride and sodium chloride can be separated by  
*a.* decantation                      *b.* filtration                      *c.* sublimation                      *d.* distillation
121. Which of the following is expected to show electrophoresis?  
*a.* A solution of common salt                      *b.* Gold sol  
*c.* A solution of sodium carbonate                      *d.* Solution of sugar in water
122. The best method to separate the dyes from ink is  
*a.* chromatography                      *b.* filtration                      *c.* sublimation                      *d.* distillation
123. Which one of the following is an optical property of a colloid?  
*a.* Tyndall effect                      *b.* Brownian movement    *c.* Coagulation                      *d.* Electrophoresis
124. The chloride of a metal has the formula  $\text{MCl}_3$ . The formula of its phosphate will be  
*a.*  $\text{MPO}_4$                       *b.*  $\text{M}(\text{PO}_4)_2$                       *c.*  $\text{M}_2\text{PO}_4$                       *d.*  $\text{M}_3\text{PO}_4$
125. How many moles are in 5 g of calcium?  
*a.* 0.125 mole                      *b.* 0.25 mole                      *c.* 0.375 mole                      *d.* 0.5 mole
126. Which of the following represents 1?  
*a.* Mass of C-12 atoms                      *b.* Mass of O-16 atoms  
*c.*  $1/12$ th of mass of C-12 atoms                      *d.* Mass of H-atom

127. Which one among the following is the main ingredient in cement?  
*a.* Gypsum      *b.* Limestone      *c.* Clay      *d.* Ash
128. The diagram below shows the propagation of a wave. Which points are in same phase?



- a.* F and G      *b.* C and E      *c.* B and G      *d.* B and F
129. Which one of the following emit sound of higher pitch?  
*a.* Mosquito      *b.* Lion      *c.* Man      *d.* Woman
130. Why the dam of water reservoir is thick at the bottom?  
*a.* Quantity of water increases with depth      *b.* Density of water increases with depth  
*c.* Pressure of water increase with depth      *d.* Temperature of water increase with depth
131. Two pieces of metal when immersed in a liquid have equal upthrust on them, then  
*a.* Both pieces must have equal weights      *b.* Both pieces must have equal densities  
*c.* Both pieces must have equal volumes      *d.* Both are floating to the same depth
132. A uniformly tapering vessel is filled with a liquid of density  $900 \text{ kg/m}^3$ . The force that acts on the base of the vessel due to the liquid is ( $g = 10 \text{ m/s}^2$ )



- a.* 3.6 N      *b.* 7.2 N      *c.* 9.0 N      *d.* 14.4 N
133. The tidal waves in the sea are primarily due to  
*a.* The gravitational effect of the Moon on the Earth  
*b.* The gravitational effect of the Sun on the Earth  
*c.* The gravitational effect of Venus on the Earth  
*d.* The atmosphere effect of the Earth itself
134. If a car covers  $2/5$ th of the total distance with  $v_1$  speed and  $3/5$ th distance with  $v_2$ , then average speed is  
*a.*  $\frac{1}{2}\sqrt{v_1 v_2}$       *b.*  $\frac{v_1 + v_2}{2}$       *c.*  $\frac{2v_1 v_2}{v_1 + v_2}$       *d.*  $\frac{5v_1 v_2}{3v_1 + v_2}$
135. The numerical ratio of displacement to the distance covered is always  
*a.* less than one      *b.* equal to one  
*c.* equal to or less than one      *d.* equal to or greater than one
136. A truck and a car are moving with equal velocity. On applying the brakes both will stop after same distance, then  
*a.* acceleration is not negative      *b.* time will not be same  
*c.* time will be same      *d.* None of these

137. Which of the following describes the motion correctly?  
*a.* Uniform accelerated *b.* Uniform decelerated  
*c.* Non-uniform accelerated *d.* There is not enough data for generalisation
138. Protons and neutrons are bound in a nucleus by the  
*a.* Short range 'weak interaction'  
*b.* Short range 'strong interaction'  
*c.* Long range 'electromagnetic interaction'  
*d.* Long range 'gravitational interaction'
139. Which one among the following waves are called waves of heat energy?  
*a.* Radio waves *b.* Infrared waves  
*c.* Ultraviolet waves *d.* Microwaves
140. Which one among the following is used to make periscopes?  
*a.* Concave lens *b.* Concave mirror  
*c.* Plane mirror *d.* None of these
141. Zero is  
*a.* a natural number *b.* a whole number *c.* a positive number *d.* a negative integer
142. If  $b = 4$ ,  $c = 9$ , then the value of  $\sqrt{bc} + \sqrt{b} + 5$  is  
*a.* 11 *b.* 13 *c.* 17 *d.* 19
143. Raj get 10% less marks than Rohit in an examination. What percentage of marks does Rohit gets more than Raj?  
*a.*  $11\frac{1}{6}\%$  *b.*  $11\frac{1}{9}\%$  *c.*  $12\frac{1}{9}\%$  *d.* None of these
144. A card is drawn at random from a pack of 52 playing cards. The probability that drawn card being a red king is  
*a.*  $\frac{1}{13}$  *b.*  $\frac{1}{26}$  *c.*  $\frac{2}{13}$  *d.*  $\frac{4}{13}$
145. The median of the following data is  
 2, 4, 6, 8, 10, 12, 14  
*a.* 6 *b.* 9.5 *c.* 10 *d.* 8
146. Volume of a cube is  $729 \text{ cm}^3$ . The length of its diagonal is  
*a.*  $9\sqrt{3}$  *b.*  $6\sqrt{3}$  *c.*  $8\sqrt{3}$  *d.*  $7\sqrt{3}$
147. ABCD is a trapezium in which  $AB \parallel CD$ , if  $AB = 7 \text{ cm}$ ,  $DC = 3 \text{ cm}$  and the area of the trapezium is  $18 \text{ cm}^2$ , then the area of  $\triangle ABC$  is  
*a.*  $8\frac{2}{5} \text{ cm}^2$  *b.*  $7\frac{2}{5} \text{ cm}^2$  *c.*  $5\frac{2}{5} \text{ cm}^2$  *d.*  $6\frac{2}{5} \text{ cm}^2$
148. An angle  $\theta^\circ$  is one-fourth of its supplementary angle. What is the measure of the angle  $\theta^\circ$ ?  
*a.*  $36^\circ$  *b.*  $40^\circ$  *c.*  $45^\circ$  *d.*  $52^\circ$
149. If  $\cot \theta = \frac{7}{8}$ , then the value of  $\frac{(1 + \sin \theta)(1 - \sin \theta)}{(1 + \cos \theta)(1 - \cos \theta)}$  is  
*a.*  $\frac{40}{65}$  *b.*  $\frac{49}{64}$   
*c.*  $\frac{45}{54}$  *d.*  $\frac{49}{74}$



150. The shadow of a tower is 15 m, when the Sun's elevation is  $30^\circ$ . What is the length of the shadow, when the Sun's elevation is  $60^\circ$ ?
- a. 3 m                      b. 4 m                      c. 5 m                      d. 6 m
151. The distance of the point A (8, -6) from the origin is
- a. 5 units                      b. 7 units                      c. 10 units                      d. 12 units
152. Find the surface area of a cuboid 10 m long, 5 m broad and 3 m high.
- a. 104 sq m                      b. 140 sq m                      c. 170 sq m                      d. 190 sq m
153. 30% of a three-digit number is 190.8. What will be 125% of that number?
- a. 759                      b. 779                      c. 785                      d. 795
154. The ratio of ages of Mohan and Sohan is 4 : 3. If the sum of their ages are 42 yr, then the age of Mohan is
- a. 18 yr                      b. 20 yr                      c. 24 yr                      d. 28 yr
155.  $\frac{1}{4}$  of  $\frac{3}{5}$  of  $\frac{6}{5}$  of a number is 54. What is the number?
- a. 280                      b. 300                      c. 320                      d. 350
156. The total cost of 12 pens and 5 pencils is equal to ₹ 111. Also, the cost of 1 pencil is ₹ 5 less than the cost of 1 pen. What will be the cost of 8 pens and 9 pencils?
- a. ₹ 89                      b. ₹ 91                      c. ₹ 97                      d. ₹ 98
157. The difference between the simple interest (SI) and compound interest (CI) for 2 yr at 4% per annum is ₹ 20. The principal will be
- a. ₹ 11000                      b. ₹ 11500                      c. ₹ 12500                      d. ₹ 12800
158. The remainder when  $12x^3 - 13x^2 - 5x + 9$  is divided by  $(3x + 2)$  is
- a. 1                      b. 2                      c. 3                      d. 4
159. Sum of roots is -1 and sum of their reciprocal is  $\frac{1}{6}$ , then equation is
- a.  $x^2 - 6x + 1 = 0$                       b.  $x^2 - x + 6 = 0$                       c.  $6x^2 + x + 1 = 0$                       d.  $x^2 + x - 6 = 0$
160. The diagonal of a square field measures 50 m. The area of square field is
- a. 1250 m<sup>2</sup>                      b. 1200 m<sup>2</sup>                      c. 1205 m<sup>2</sup>                      d. None of these
161. Which of the following is the official language of Sri Lanka?
- a. Tamil                      b. Sanskrit                      c. Sinhala                      d. English
162. Power-sharing or sharing of power is desirable as
- a. to reduce the possibility of conflict between social groups  
b. power-sharing is the very spirit of democracy.  
c. it ensures the stability of political order  
d. All of the above
163. In which of the following countries the Principles of Federal Government not adopted?
- a. Britain                      b. USA  
c. India                      d. Switzerland

164. The social differences in society are based on  
*a.* gender                      *b.* religion                      *c.* caste                      *d.* All of these

165. Match the following

List I	List II
A. Communalist	1. A person who believes in equal rights and opportunities for women and men
B. Feminist	2. A person who believes that religion is the principal basis of community
C. Secularist	3. A person who thinks that caste is the principal basis of community
D. Castiest	4. A person who does not discriminate others on the basis of religious beliefs

Codes

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

166. Which one of the following ideas was not initially included in the Preamble of the Constitution of India?

*a.* Liberty                      *b.* Equality                      *c.* Socialist                      *d.* Justice

167. Which of the following was the biggest source for the Constitution of India?

*a.* The Government of India Act, 1935  
*b.* Constitution of USA  
*c.* Constitution of England  
*d.* The Indian Independence Act, 1947

168. What is the meaning of the word 'Secular' as used in the Preamble to the Constitution?

*a.* Monotheism                      *b.* Polytheism  
*c.* Abnegation of all religions                      *d.* Freedom of religion and worship to all citizens

169. The control of the preparation of electoral rolls for Parliament and Legislative elections in India vest with

*a.* Election Commission                      *b.* Cabinet                      *c.* Parliament                      *d.* the President

170. Which one of the following writs is issued by a court in case of illegal detention of a person?

*a.* Habeas Corpus                      *b.* Mandamus                      *c.* Certiorari                      *d.* Quo-warranto

171. Who among the following has been called the 'Napoleon of India'?

*a.* Chandragupta                      *b.* Samudragupta                      *c.* Ashoka                      *d.* Harshavardhana

172. Who was the greatest conqueror of France?

*a.* George Washington                      *b.* Louis Phillippe  
*c.* Napoleon Bonaparte                      *d.* Hitler

173. Match the following

List I	List II
A. Haryanka Dynasty	1. Bindusara
B. Maurya Dynasty	2. Kadphises-I
C. Satvahan Dynasty	3. Udyain
D. Kushan Dynasty	4. Gautami putra Satakarni

Codes

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

174. Rearrange the followings into chronological order
- I. Chinese Revolution
  - II. French Revolution
  - III. Russian Revolution
  - IV. American Revolution
- The chronological order should be
- a. II, III, IV, I      b. I, III, II, IV      c. IV, II, III, I      d. III, II, I, IV
175. Gold Mines in India are located mainly at
- a. Kolar      b. Raniganj      c. Jadugoda      d. Balaghat
176. Consider the following statements
- I. The Gujjar Bakarwals of Jammu and Kashmir belong to the nomadic people.
  - II. In winter, they moved on to high levels.
  - III. In summer, they came down to the low hills of shiwalik hills.
  - IV. Every year, they moved annually between their summer and winter grazing grounds.
- Which of the above statement(s) is/are correct?
- a. I and IV      b. I, II and III      c. II, III and IV      d. I, III and IV
177. Which country came to be known as the 'Bread Basket of the World'?
- a. Russia      b. USA      c. India      d. Vietnam
178. What was the first historical novel written in Bengal?
- a. Anguriya Binimoy      b. Anandamath  
c. Bau Thakuranir Haat      d. Kapaalkundala
179. Bhatiali is the song of
- a. fisherfolk community      b. carpenter community  
c. tribal people      d. None of these
180. **Assertion (A)** Foresters and villagers had very different ideas of what a good forest should look like.  
**Reason (B)** Villagers wanted forests to satisfy their needs and the forest department wanted trees of particular species.
- a. A is true and B is the reason of A  
b. A is true, but B is not the reason of A  
c. A is true, but B is false  
d. Both A and B are true, but B is not the reason of A
181. India's most important potential water power region is
- a. Himalayas      b. Western Ghats      c. Eastern Ghats      d. Vindhyas
182. Which of the following statement(s) is/are true about 'People as Resource'?
- a. Population as an asset for the economy rather than a liability
  - b. Population becomes human capital when there's investment made in the form of education, training and medical care
  - c. Human capital is the stock of skill and productive knowledge embodied in them
  - d. All of the above
183. The process through which individuals or groups are excluded from facilities, benefits and opportunities that others enjoy is known as?
- a. Social exclusion      b. Vulnerability  
c. Poverty      d. Disparities

**184. Match the following**

List I	List II
A. Availability of food	1. Food within the reach of every person
B. Accessibility	2. Food production within the country
C. Affordability	3. Stock of food grains produced by the government
D. Buffer stock	4. Enough money to buy safe, sufficient and nutritious food

**Codes**

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

- 185.** The total income of the country divided by its total population is termed as  
*a.* average income      *b.* per capita income      *c.* national income      *d.* developmental income
- 186.** The large section of Indian society engaged in economic activities of primary sector. The primary sector refers to  
*a.* production of goods and services by exploiting natural resources.  
*b.* it forms the base for all other products that we subsequently make.  
*c.* most of the natural products, we get from agriculture, dairy, fishing, forestry. This is also called agriculture and related sector.  
*d.* All of the above
- 187.** Formal sources of credit does not include?  
*a.* Banks      *b.* Cooperatives      *c.* Friends and relatives      *d.* Rural banks
- 188.** Removing tax barriers or restrictions set by the government is known as?  
*a.* Globalisation      *b.* Privatisation      *c.* Disinvestment      *d.* Liberalisation
- 189.** The details given on the packing of the commodity such as price, date of manufacturing, date of expiry, ingredients used etc., an example of which of the following rights of the consumer?  
*a.* Right to choose      *b.* Right to be informed      *c.* Right to appeal      *d.* Right to represent
- 190.** Which of the following days is observed as the World Human Rights Day?  
*a.* 24th October      *b.* 10th December      *c.* 24th May      *d.* 21st September
- 191.** India's first census was held in the year 1872, but the first complete census held in regularly started from  
*a.* 1891      *b.* 1991      *c.* 1881      *d.* 1851
- 192.** Near about how much per cent of area of Indian land is plain  
*a.* 25%      *b.* 30%      *c.* 45%      *d.* 65%
- 193. Match the following**

List I	List II
A. Primitive subsistence farming	1. Use of higher doses of modern inputs
B. Intensive subsistence farming	2. Practised on small patches of land with the help of primitive tools
C. Commercial farming	3. Practised in areas of high population pressure on land

**Codes**

A B C	A B C	A B C	A B C
a. 3 2 1	b. 2 3 1	c. 1 2 3	d. 3 1 2

- 194.** Balaghat mines is in  
*a.* Bihar      *b.* Jharkhand      *c.* MP      *d.* Andhra Pradesh

195. Which among the following is not a mineral based industry?  
*a.* Iron and steel      *b.* Cement      *c.* Machine tools      *d.* Edible oil
196. The first train of India steamed off from  
*a.* Delhi to Agra      *b.* Mumbai to Thane      *c.* Thane to Orissa      *d.* None of these
197. Which of the following is true?  
I. India is bounded by the young fold mountains in the North-West, North and North-East.  
II. Standard meridian of India is passing through Mirzapur.  
III.  $82^{\circ} 30' E$  is standard meridian of India.  
IV. Indian landmass has a central location between the East and West Asia.  
Select the correct answer using the codes given below  
*a.* I, II and III      *b.* I, II, III and IV      *c.* I, III and IV      *d.* II and III
198. The fold of great himalayas are  
*a.* symmetrical in nature      *b.* asymmetrical in nature  
*c.* Both 'a' and 'b'      *d.* None of these
199. The world's largest drainage basin is of  
*a.* Nile river      *b.* Amazon river      *c.* Hudson river      *d.* None of these
200. Which of the following force is responsible for deflecting winds towards the right in Northern hemisphere and towards left in Southern hemisphere?  
*a.* Gravitational force      *b.* Coriolis force      *c.* Both 'a' and 'b'      *d.* Cohesive force

## Paper I : Mental Ability Test

1. (c) Code for P L E A D I N P



Similarly, S H O U L D E R

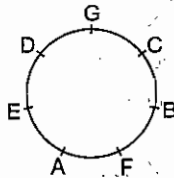


2. (d) sti nro kti — clouds pour down  
nro bsi mit — down he goes  
bsi nro zpi — died down he

So, code for died is zpi, then possible code for he died is 'zpi bsi'.

3. (c) Only group (c) contains a vowel.  
 4. (b) The series is a b b c / a c / b c c a / b a / c a b / c b  
 5. (d) Series is  $3^3 + 3 = 30$   
 $5^3 - 5 = 120$   
 $7^3 + 7 = 350$   
 $9^3 - 9 = 720$   
 $11^3 + 11 = \boxed{1342}$

**Solutions** (Q. Nos. 6-10) Data is arranged as →



6. (a) Each one of CB, DE and GD is a pair of persons sitting adjacent to each other while BA is not.  
 7. (c) B is second to the right of A and the immediate left of C, while G is to the immediate left of D. But A sits immediately to the right of E.  
 8. (d)  
 9. (c) F and C are neighbours of B.  
 10. (b) Clearly, the group sitting adjacent to each other is FBC.

11. (b) In first row English alphabet are skipped by 1.  
 In second row English alphabet are skipped by 2.  
 So, In third row English alphabet are skipped by 3.  
 Also, the middle number is product of the two adjacent number

$$3 \times 9 = 27$$

$$7 \times 3 = 21$$

$$4 \times 7 = \boxed{28}$$

So, missing number is 28G.

12. (c) The correct water images will be the option (c).  
 13. (c) Middle number is equal to sum of left and right number minus sum of upper and lower number

$$i.e., (12 + 14) - (3 + 5) = 18$$

$$26 - 8 = 18$$

$$18 = 18$$

$$Also, (11 + 7) - (4 + 9) = 5$$

$$18 - 13 = 5$$

$$5 = 5$$

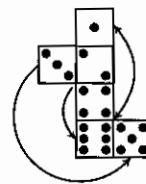
$$\therefore (13 + 9) - (4 + ?) = 16$$

$$22 - 4 - ? = 16$$

$$22 - 4 - 16 = ?$$

$$? = 2$$

14. (c)



From the figure 1 is opposite to 4.

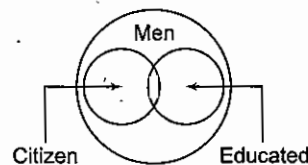
2 is opposite to 6.

So, 3 will be opposite to 5.

15. (d) Pattern of the series is  $\times 1 + 1, \times 2 + 2, \times 3 + 3, \times 4 + 4, \dots$   
 So, next term is  $112 \times 5 + 5$   
 $= 560 + 5 = 565$

16. (b) The required region must be the one which lies inside the triangle but outside the circle and rectangle *i.e.*, 3.

17. (c)



Some educated or citizens.

Some citizens are educated.

But both educated and citizen are men.

18. (d) From I, we have  
Dev > Nittu > Maddy > Pinku or Dev > Nittu > Pinku > Maddy

From II, we have

Dev > Nittu > Kunal > Maddy > Pinku or

Dev > Nittu > Maddy > Kunal > Pinku

Hence, either Kunal or Maddy earns more than only the least earner *i.e.*, Pinku so data in both statements is not sufficient to answer the question.

19. (c) 
$$\begin{array}{cccc} 4 & 2 & 6 & 3 \\ 2 & 3 & 6 & 4 \\ \hline 6 & 6 & 2 & 7 \end{array}$$

So, option (c) is correct.

20. (a) Pattern of series is  $\times 2, -2, \times 3, -3, \times 4, -4, \times 5, \dots$

So, missing term is  $12 - 4 = 8$ .

21. (d) The correct mirror mags will be given in option (d).

22. (b) Let there be  $x$  cows and  $y$  hens.

Then,  $(4x + 2y) - 14 = 2(x + y)$

$$4x + 2y - 14 = 2x - 2y$$

$$4x - 2x = 14$$

$$2x = 14$$

$$x = \frac{14}{2} = 7$$

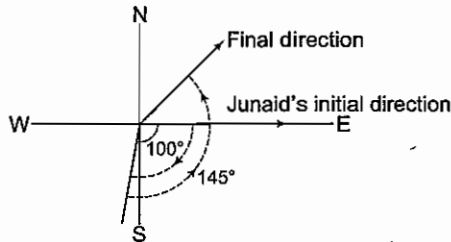
23. (d) The dial contains a zero also so the product of all number will be equal to zero.

24. (b) First person can have 9 hand shakes and then second person have 8 and so on.

So, total hand shakes

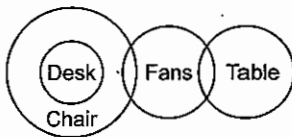
$$= 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 45$$

25. (b)



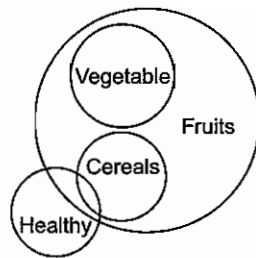
So, finally Junaid is facing North-East now.

26. (c)



From the given information only Conclusion III follows.

27. (a)



So, from given information all only Conclusion I follows.

28. (c) The arrangement is  $5 + 3 = 8$   
 $8 + 4 = 12$   
 $12 + 1 = 13$

So, missing number is 12.

29. (c) Clearly  $(3 + 2)^2 = 25$

$$(15 + 6)^2 = 441$$

$$(10 + 7)^2 = 289$$

So, missing number is  $(12 + 13)^2 = 625$

30. (c) We have,  $(27 + 3) + (16 + 4) = 13$

$$(65 + 13) + (47 + 7) = 11$$

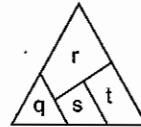
$$(27 + 9) + (72 + 8) = 12$$

So, missing number is 12.

31. (d) From the given information only option (d) can suitably follows.

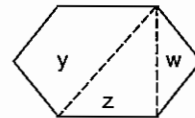
32. (c) From the given information in Ajay's house 'Puja' was performed *i.e.*, why Manmohan have gone to his house.

33. (a)



So, (p) is the extra or odd image.

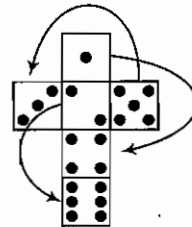
34. (b)



So, (x) is odd figure out.

35. (b) Correct mirror image will be the option (b).

36. (c)



Dice can be drawn in expanded form as shown above, so number of dots in bottom with position (i) is '6'.

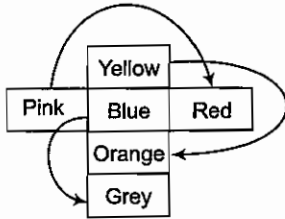
37. (d) The fig (X) is similar to the form VI. So, when the cube is formed by folding the sheet shown in fig (X), then  $\blacksquare$  is one of the faces of the cube and this face lies opposite to the face bearing a circle. Also, one of the blank faces lies opposite to another blank face and yet another blank face lies opposite to the fourth blank face. Thus, out of the four blank.

38. (c)  $\alpha\alpha = \gamma$   
 $\beta\beta\beta = \gamma$   
 $\beta\beta\beta$

$\alpha + \beta \beta \beta = \gamma$   
 $\alpha = \beta \beta \beta$

So, '?' must be replaced by  $\gamma$ .

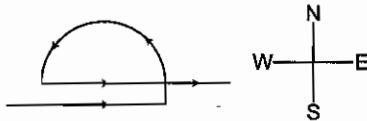
39. (b)



Elongated pattern is drawn as above, so colour opposite to red is 'pink'.

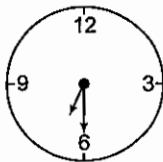
40. (c) Only in figure (r), both the line segments appear on the vertices common to both the triangle and square.

41. (b)

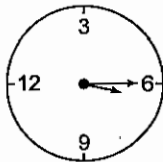


So, finally river is flowing in East direction.

42. (c) When Panday come after the walk the time in the watch is



and if clock is rotated  $45^\circ$  in anti-clockwise direction the portion of both hands is

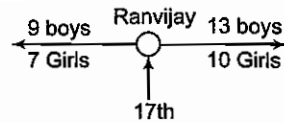


Also, hour hand moved by  $\frac{1^\circ}{2} \times 30 = 15^\circ$

So, portion of hour hand is  $15^\circ$  South of East.

43. (c) Arrangement in descending order of marks is given by Kavita < Gaurav < Mukesh < Raj < Priya  
 So, Raj is at second place.

44. (b)



As, 10 girls are behind Ranvijay, so total boys behind him =  $23 - 10 = 13$  boys

45. (a) In each row, the second figure is obtained from first by reversing the direction of second arrow and third figure is obtained by reversing the direction of both the arrows.

46. (d) In each row the consecutive figures are rotated by  $90^\circ$  clockwise direction to obtain the next figure.

47. (b) All but 8 means all except 8 died. So, he was left with 8 sheeps.

48. (a)  $5 \times 3 \times 1 = 15 = 0$

$3 \times 2 \times 3 = 18 = R$

$5 \times 2 \times 2 = 20 = T$

$2 \times 3 \times 4 = 24 = \boxed{X}$

So, ? should be replaced by X to complete the figure.

49. (d) Arrangement of children can be done in the following way

$R \rightarrow K \rightarrow P \rightarrow S \rightarrow T$

So, adjacent to S are P and T.

50. (b) Each symbol is moved  $\frac{1}{2}$  side in anti-clockwise direction

and then last symbol is replaced by a new symbol.

Also, the black figure become white and white figure become black.

51. (c) The writer thinks that the cultural side of education is needed to make man suitable for modern civilisation. It make aware of the manners and customs of tribes and nations.

52. (b) The writer criticised traditional educators for not making learning an attractive activity, there are strict rules and regulations followed in the ancient time.

53. (b) Refer to 5th sentence : 'Impression will be less temporary' or long lasting.

54. (c) 'Space' means distance of nations from each other, 'time' means past and present. So, narrow views covers both of these.

55. (d) Writer suggested that there might be the diversity in culture and behaviour but the human values never changes with time.

56. (b) Under the zamindari system, the zamindar was the landlord of the land and recognised as the absolute owner of the land.

57. (d) The zamindari system was responsible for deteriorating conditions of tenant farmers clear from the third line of first paragraph in the passage.

58. (a) Under the system, the landlords extorted high rents and did not contribute in increasing the productivity of land held by their tenants.



59. (c) An army of intermediaries arose who exploit and morally degrade the tillers against these vested interests in land, abolition of the zamindari system was demanded.
60. (b) The abolition of the zamindari system was aimed at abolition of intermediaries.
61. (a) Nature in the passage means countryside covered with plants and trees.
62. (c) There is beauty in nature which attracts us and gives infinite satisfaction.
63. (b) Writer suggest to preserve our nature because nature is essential to man's good health and happiness too.
64. (b) Man's struggle to save nature from destroying it completely.
65. (a) Human beings love beauty and are always fascinated towards it.
66. (c) RQP  
We link statement (R) with (S<sub>1</sub>) with the help of desserts. Next statement (Q) will go correct and last one (P).
67. (a) QRP  
Statement (Q) is going along with (S<sub>1</sub>), bride and groom is the second and last one all eyes will be on bride and groom linked together.
68. (b) He was able to draw the attention of the salesman.
69. (a) They scratch about in the ground during the day.
70. (c) News is to be confirmed; agreements are ratified.
71. (d) For character 'flaw' which means defect is the most appropriate.
72. (a) 'Collusion' means 'in conspiracy with'.
73. (b) Latitude means 'laxity' or 'freedom'.
74. (b) 'Overweening' is used for too much pride.
75. (a) 'Sizing up' estimating its physical strength.
76. (c) No other word suit, 'sure' can be used only if the latter part is 'to be blamed'.
77. (a) 'Disposed' means have a tendency.
78. (a) 'Pertinent' means relevant.
79. (b) With preposition 'into' only drummed can go.
80. (a) 'All in all' means every thing considered.
81. (b) 'Break down' means stop working / functioning.
82. (d) 'Hold up' means to delay.
83. (a) 'A queer fish' means a strange person.
84. (b) Means 'a difficult job'.
85. (c) 'A house of cards' means 'weak and fragile'.
86. (b) Here 'ancient' is the right word to go.
87. (c) Here 'stars' is the appropriate choice.
88. (d) Along with heavenly-'bodies' is correct.
89. (a) 'Move' about is the right word.
90. (b) 'Modern' is the right word.
91. (d) In further lines frozen is used therefore it must be 'cold'.
92. (c) We use to 'land' on the planets.
93. (b) Here we are discussing about 'planets'.
94. (b) Brilliant students will be 'awarded'.
95. (d) 'Rehabilitation' means restore to effectiveness or normal life.
96. (b) He works 'continuously'.
97. (a) 'Gentle' means generous, courteous or kind.
98. (a) Triumph means a great success or achievement while the opposite of it should be 'defeat'.
99. (b) Defile means make dirty, foul, corrupt while cleanse means purify from sin or guilt.
100. (c) Urban means situated in a town or city therefore opposite will be rural.

## Paper II : Scholastic Aptitude Test

101. (b)      102. (b)      103. (b)      104. (b)
105. (d)      106. (a)      107. (c)      108. (a)
109. (b)      110. (c)      111. (c)      112. (d)
113. (d)      114. (c)
115. (b) Cooking gas is LPG (Liquified Petroleum Gas). Main constituent of this gas is butane.
116. (d) Magnesium (Mg) metal is the constituent of chlorophyll, the green colouring pigment of plants. In the chlorophyll the four N-atoms of the porphyrin ring system are bonded to the magnesium atom.
117. (b)
118. (a) Methane is the main component of gobar gas.
119. (b) Starch forms a colloidal solution. Beside this all the three are ionic solids and form a true solution.
120. (c) Ammonium chloride is a sublimate, so it can be seperated from NaCl by sublimation.
121. (b)
122. (a) Chromatography is the technique by which dyes can be seperated from Ink.
123. (a)
124. (a) In  $MCl_3$  oxidation state of M is +3. So, the formula of its phosphate is  $MPO_4$ .
125. (a)  $\because$  Atomic mass of Ca is 40.  
 $\therefore$  Number of moles of Ca =  $\frac{5}{40} = 0.125$

126. (c)  $\frac{1}{12}$  mass of C-12 atoms is considered as  $1 \mu$ .

127. (b) The composition of cement is CaO (lime) or limestone 62%, silica ( $\text{SiO}_2$ ) 22%, alumina ( $\text{Al}_2\text{O}_3$ ) 7.5%, magnesia (Mgo) 2.5%, etc. Thus, limestone is the main ingredient in cement.

128. (d)      129. (a)      130. (c)      131. (c)

132. (b)      133. (a)      134. (d)      135. (c)

136. (c)      137. (d)

138. (b) Size of the nucleus is very small in which nucleons (protons + neutrons) are bound by short range 'strong interaction'

139. (b) Radio waves ( $10^5$  Hz) are used in telecommunication. Microwaves are used in radar. Infrared waves are used for heating and ultraviolet waves are sun rays.

140. (c) Plane mirror is used for making a periscope to see things deep under water.

141. (b) Zero is a whole number.

142. (b)  $\sqrt{bc} + \sqrt{b} + 5 = \sqrt{4 \times 9} + \sqrt{4} + 5$   
 $= \sqrt{36} + 2 + 5 = 6 + 7 = 13$

143. (b) Rohit more percentage than Raj =  $\frac{10}{100 - 10} \times 100\%$   
 $= \frac{10 \times 100}{90} \%$   
 $= 11\frac{1}{9} \%$

144. (b)  $P = \frac{\text{Number of red kings}}{\text{Total number of cards}} = \frac{2}{52} = \frac{1}{26}$

145. (d) 2, 4, 6, 8, 10, 12, 14

Here, number of observation is 7 i.e., odd.

$\therefore$  Median =  $\left(\frac{n+1}{2}\right)$ th term =  $\left(\frac{7+1}{2}\right)$ th term  
 $= \left(\frac{8}{2}\right)$ th term = 4th term = 8

$\therefore$  Median = 8

146. (a) We know that, volume of a cube =  $a^3$

$\Rightarrow 729 = a^3$

$\Rightarrow (a)^3 = (9)^3 \Rightarrow a = 9$

$\therefore$  Length of its diagonal =  $a\sqrt{3} = 9\sqrt{3}$

147. (c) Area of trapezium =  $\frac{1}{2}(7+3) \times h$

$18 = \frac{1}{2} \times 10 \times h$

$h = \frac{18}{5}$  cm

Area of  $\triangle BCD = \frac{1}{2} \times 3 \times \frac{18}{5} = 5\frac{2}{5}$  cm<sup>2</sup>

148. (a) If the sum of two angles is  $180^\circ$ , the angles are said to be supplementary.

$\therefore$  The supplementary angle of  $\theta^\circ$  is  $(180^\circ - \theta^\circ)$ .

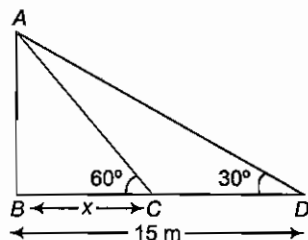
Given that,  $\theta^\circ = \frac{1}{4}(180^\circ - \theta^\circ)$

$\Rightarrow 4\theta^\circ = 180^\circ - \theta^\circ \Rightarrow 5\theta^\circ = 180^\circ$

$\therefore \theta = 36^\circ$

149. (b)  $\frac{(1 + \sin \theta)(1 - \sin \theta)}{(1 + \cos \theta)(1 - \cos \theta)} = \frac{(1)^2 - (\sin \theta)^2}{(1)^2 - (\cos \theta)^2}$   
 $= \frac{1 - \sin^2 \theta}{1 - \cos^2 \theta}$   
 $= \frac{\cos^2 \theta}{\sin^2 \theta} = \left(\frac{\cos \theta}{\sin \theta}\right)^2$   
 $= (\cot \theta)^2 = \left(\frac{7}{8}\right)^2 = \frac{49}{64}$

150. (c) Let the length of the shadow BC be x m.



$\therefore$  In  $\triangle ABC$ ,

$\tan 60^\circ = \frac{AB}{BC} = \frac{AB}{x}$

$\Rightarrow \sqrt{3} = \frac{AB}{x}$

$\Rightarrow AB = x\sqrt{3}$  ... (i)

In  $\triangle ABD$ ,  $\tan 30^\circ = \frac{AB}{BD} = \frac{AB}{15}$

$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{15}$

$\Rightarrow AB = \frac{15}{\sqrt{3}}$  ... (ii)

From Eqs. (i) and (ii), we get

$x\sqrt{3} = \frac{15}{\sqrt{3}}$

$\therefore x = 5$  m

151. (c) Distance of a point A (8, -6) from the origin O(0, 0) is

$OA = \sqrt{(8)^2 + (-6)^2} = \sqrt{64 + 36}$

$OA = \sqrt{100} = 10$

$\therefore OA = 10$  units

152. (d) Given that,  $l = 10$  m,  $b = 5$  m and  $h = 3$  m

$\therefore lb = 10 \times 5 = 50$  m<sup>2</sup>

$bh = 5 \times 3 = 15$  m<sup>2</sup>

$hl = 10 \times 3 = 30$  m<sup>2</sup>

$\therefore$  Surface area =  $2(lb + bh + hl)$

$= 2(50 + 15 + 30)$

$= 2 \times 95$

$= 190$  sq m

153. (d) Let the number be  $x$ .

$$\therefore x \times \frac{30}{100} = 190.8$$

$$\therefore x = \frac{190.8 \times 100}{30} = 636$$

$$\therefore \text{Required number} = 636 \times \frac{125}{100} = 795$$

154. (c) Let the respective age of Mohan and Sohan be  $4x$  yr and  $3x$  yr.

$$3x + 4x = 42$$

$$7x = 42$$

$$x = 6$$

$$\therefore \text{Age of Mohan} = 4x$$

$$= 4 \times 6$$

$$= 24 \text{ yr}$$

155. (b) Let the required number be  $x$ .

According to the question,

$$x \times \frac{6}{5} \times \frac{3}{5} \times \frac{1}{4} = 54$$

$$\Rightarrow x = \frac{54 \times 100}{18} = 300$$

$$\therefore x = 300$$

156. (b) Let the cost of 1 pencil be  $x$ .

$$\therefore \text{Cost of 1 pen} = (x + 5)$$

Now, according to the question,

$$12(x + 5) + 5x = 111$$

$$\Rightarrow 12x + 60 + 5x = 111$$

$$\Rightarrow 17x = 111 - 60 = 51$$

$$\Rightarrow x = \frac{51}{17} = 3$$

$$\Rightarrow x = 3$$

$$\therefore \text{Cost of 1 pencil} = ₹ 3$$

$$\text{and cost of 1 pen} = (3 + 5) = ₹ 8$$

$$\therefore \text{Total cost of 8 pens and 9 pencils}$$

$$= (8 \times 8 + 9 \times 3) = (64 + 27)$$

$$= ₹ 91$$

157. (c) Let principal be ₹  $x$ .

Then, simple interest

$$= \frac{x \times 4 \times 2}{100} = \frac{2x}{25}$$

and compound interest

$$= \left[ x \times \left( 1 + \frac{4}{100} \right)^2 - x \right] = \frac{51x}{625}$$

$$\therefore \frac{51x}{625} - \frac{2x}{25} = 20$$

$$\therefore \frac{51x - 50x}{625} = 20$$

$$\Rightarrow \frac{x}{625} = 20$$

$$x = 20 \times 625 = 12500$$

$$x = ₹ 12500$$

158. (c) Let  $p(x) = 12x^3 - 13x^2 - 5x + 9$

$$\text{and } q(x) = (3x + 2) = 3 \left( x + \frac{2}{3} \right)$$

$$= 3 \left[ x - \left( -\frac{2}{3} \right) \right]$$

When  $p(x)$  is divided by  $(3x + 2)$  and the remainder is  $p \left( -\frac{2}{3} \right)$ .

$$\text{Now, } p \left( -\frac{2}{3} \right) = 12 \left( -\frac{2}{3} \right)^3 - 13 \left( -\frac{2}{3} \right)^2 - 5 \left( -\frac{2}{3} \right) + 9$$

$$= 12 \times \frac{-8}{27} - 13 \times \frac{4}{9} + \frac{10}{3} + 9$$

$$= -\frac{96}{27} - \frac{52}{9} + \frac{10}{3} + 9$$

$$= \frac{-96 - 156 + 90 + 243}{27} = \frac{81}{27} = 3$$

$\therefore$  Required remainder = 3

159. (d) Let the roots be  $\alpha$  and  $\beta$ .

$$\text{Then, } \alpha + \beta = -1$$

(given)

$$\text{and } \frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{6}$$

$$\Rightarrow \frac{\beta + \alpha}{\alpha\beta} = \frac{1}{6}$$

$$\Rightarrow -\frac{1}{\alpha\beta} = \frac{1}{6}$$

$$\Rightarrow \alpha\beta = -6$$

$\therefore$  Required equation is  $x^2 + x - 6 = 0$ .

160. (a) Area of square =  $\frac{1}{2} \times (\text{Diagonal})^2$

$$= \frac{1}{2} (50)^2 = \frac{1}{2} \times 50 \times 50 = 1250 \text{ m}^2$$

161. (c) Sinhala is the official language of Sri Lanka.

162. (d) The power-sharing or division of power can be done between Central-State Government, between socio-economic groups.

163. (a) In Britain, the whole political power lies in the hands of British Parliament i.e., House of Lords and House of Commons. The units have no role to play in Governance or law making.

164. (d) Difference or inequality are based on the notions of gender, sex, religion etc.

165. (a)

166. (c) Socialist Idea introduced through 42nd constitutional Amendment Act, 1976.

167. (a) The Government of India Act, 1935, was the biggest source for the Constitution of India.

168. (a) The state has no religion of its own.

169. (a) It is the function of the Election Commission to prepare and update the electoral rolls or voters list.

170. (a) People can move to the judiciary in the case of illegal detention.

171. (b) Samudragupta believed in the policy of war and conquest and because of his bravery and generalship he is called the 'Napoleon of India'.
172. (c) Napoleon established hegemony over most of continental Europe and sought to spread the ideals of French Revolution.
173. (a)
174. (c)
175. (a) Kolar Mines in Karnataka is known for Gold production.
176. (a) They are nomadic people who in search of pastures for their animals go on migrating from one place to the other.
177. (b) From the late 19th century, there was a dramatic expansion of wheat production in the USA. In 1919, 74 million acres of land in the USA was under wheat production.
178. (a) Bhudev Mukhopadhyay wrote this novel in 1857.
179. (a) The life of this community and the river is intimately tied and they adopt a particular style of singing.
180. (a) Villagers wanted forests for different needs like, fuel, fodder and leaves. They were dependent on forest for their food, medicine and livelihood. On the other hand, the forest department wanted trees which were suitable for building ships and railways. Thus, particular species like teak and sal were promoted to grow and others were cut in the forests.
181. (a) Himalayas specially in North-Eastern region has very huge potential for water power generation.
182. (d) All the statements are correct.
183. (c) As it is one of the major causes of social inequality and poverty in India.
184. (b)
185. (b) Per capita Income
186. (d) Primary sector include activities like- agriculture, animal husbandry, bee-keeping, mining, forestry etc.
187. (c) Banks, Cooperatives and Regional Rural Banks falls under formal credit sector and controlled and regulated by RBI.
188. (d) Removing the taxes on exports and imports are major features of the trade policies of the government.
189. (b) Through Consumer Protection Act, these are mandatory for the producers to provide it on the commodities.
190. (b) 10th December
191. (c) First census was held under Lord Mayo then Viceroy of India. In 1872, during Lord Ripon period of 1881, census held in regularly after every interval of 10 yr.
192. (c) 45%
193. (b)
194. (c) MP
195. (d) Edible Oil
196. (b) Mumbai to Thane
197. (c)
198. (b) Himalayas is tallest and youngest fold mountains in the world.
199. (a) Nile river—Regarded as the longest river in the world flows in Africa. In the ancient Egyptian language the Nile is called great river.  
Hudson—It flows in New York in the United States.
200. (b) Gravitational force—The force of attraction between all masses in the universe.  
Cohesive force—It is a force of attraction between the molecules of the same substance.