

# MENTAL ABILITY AND LANGUAGE COMPREHENSION TEST

## Part – I

(FOR Students of Class X)

Time : 90 Minutes

Max. Marks : 100

### Instructions to Candidates

Read the following instructions carefully before you open the question booklet.

1. Answers are to be given on the same OMR Answer Sheet provided for Part – I.
2. There are **100** questions in this test. All are compulsory.
3. This test consists of **two** sections.  
Mental Ability test for **50** marks.  
Language Comprehension Test (English) For **50** Marks.
4. Choose the correct answer from the options given for each question and darken the corresponding circle with black ball point pen in the OMR answer Sheet.
5. Since the time allotted for this Question Paper is very limited you should make the best use of it by not spending too much time on any one question.
6. If you do not know the answer to any question, do not waste time on it and pass on to the next one. If time permits, you can come back to the questions, which you have left in the first instance and attempt them.
7. Rough work can be done anywhere in the Question Booklet but **not** on the OMR Sheet/loose paper.
8. Every correct answer will be awarded one mark.
9. Please return the **OMR Answer Sheet only to the invigilator after completion of the test. You can retain the Question Booklets.**
10. English version of the Question paper will be considered as final in case of any dispute arising out of variation in translated version.
11. Quote your seven digit Roll number without fail for any future correspondence.

**PLEASE TURN OVER THE PAGE AND START ANSWERING.**

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**Name of the Candidate** : .....

**Enrollment Number** : .....

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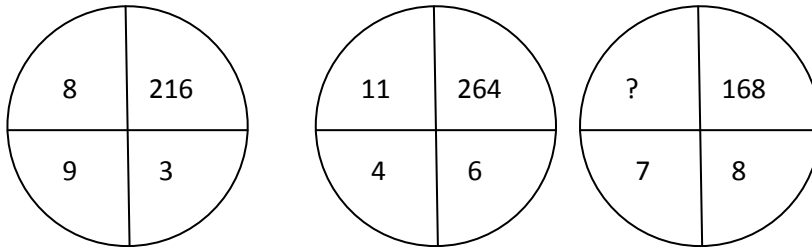
## MENTAL ABILITY TEST

**DIRECTION: (question number 1 to 5)**

In each of the following questions, the numbers/letters are arranged based on some pattern or principle. Choose the correct answer for the terms marked by the symbol (?)

1. 37, 511, 713, \_\_\_\_\_?  
(A) 474 (B) 985 (C) 1117 (D) 132
2. 6, 13, \_\_\_\_\_, 33.  
(A) 11 (B) 20 (C) 22 (D) 14
3. \_\_\_\_\_, 7, 26, 63  
(A) 1 (B) 0 (C) 2 (D) 3
4. 4, 6, 8, 9, \_\_\_\_\_.  
(A) 11 (B) 12 (C) 13 (D) 10
5. 12, \_\_\_\_\_, 56, 78.  
(A) 34 (B) 35 (C) 23 (D) 13
6. If JACK = 25 and QUEEN = 62, what is KING =?  
(A) 37 (B) 41 (C) 81 (D) 87

7.



- (A) 4 (B) 3 (C) 42 (D) 21
8. If A = +, B = ÷, C = X and D = -, then what is the value of  $\frac{1}{5}C2B\frac{1}{5}A\frac{1}{5}D\frac{1}{10}$ ?  
(A) 2.1 (B) 1.3 (C) 0.9 (D) 0.5
  9. The value of  $\frac{1}{(216)^{-2/3}} + \frac{1}{(256)^{-3/4}} + \frac{1}{(32)^{-1/5}}$  is:  
(A) 102 (B) 105 (C) 107 (D) 109
  10.  $\sqrt[3]{0.000064} =$   
(A) 0.02 (B) 0.2 (C) 2.1 (D) 3.0

11. The value of  $\frac{1}{3 + \frac{1}{1 - \frac{1}{6}}}$  is \_\_\_\_\_.

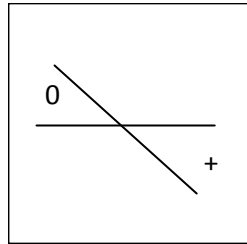
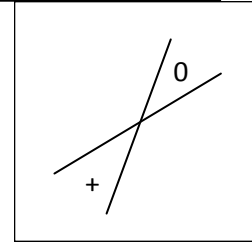
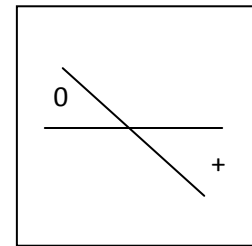
- (A)  $\frac{5}{21}$                                       (B)  $\frac{21}{5}$                                       (C)  $\frac{9}{5}$                                       (D)  $\frac{5}{9}$

12. If 'n' is a positive integer greater than 3, then  $(1 - \frac{1}{3})(1 - \frac{1}{4})(1 - \frac{1}{5}) \dots (1 - \frac{1}{n})$  is

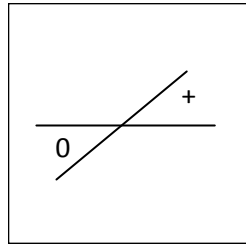
- (A)  $\frac{1}{n}$                                       (B)  $\frac{2}{n}$                                       (C)  $\frac{n-1}{2}$                                       (D)  $\frac{2}{n(n+1)}$

13. A figure is followed by its four mirror images. Select the correct mirror image from the given choices, when a mirror AB is kept above the figure:

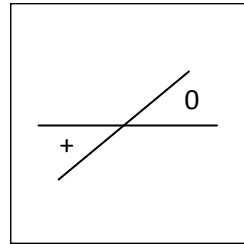
A B



(A)



(B)



(C)

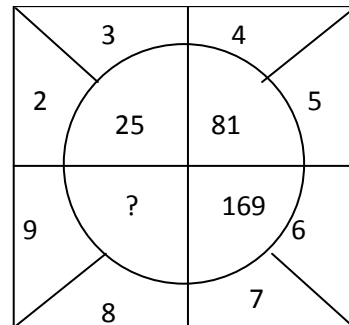
14. Find the missing letter:

- (A) J                                      (B) V  
(C) H                                      (D) M

G	Q	W
?	I	S
U	O	K

15. Insert the missing number:

- (A) 122                                      (B) 289  
(C) 92                                      (D) 242



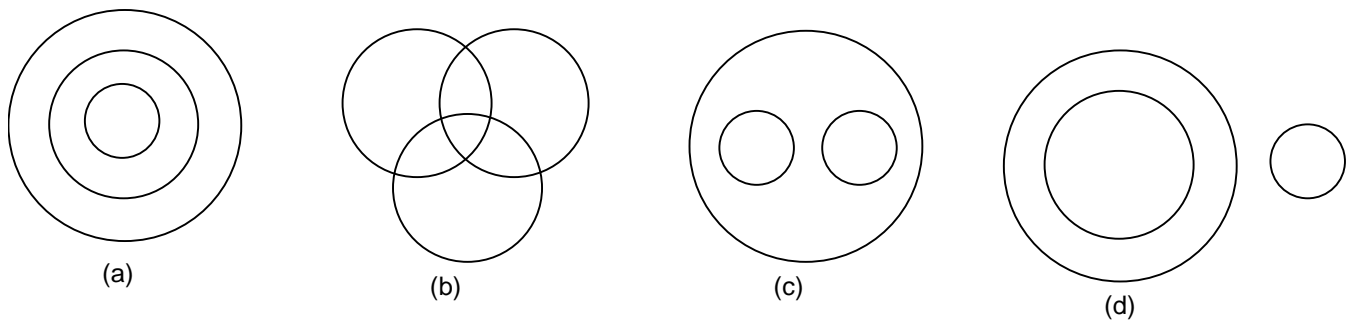
**Direction: (Question number 16 to 18)**

The first two terms are connected by some relationship. The same relationship is applicable for the next two terms, in which one is a blank space. Identify term from the given four alternatives for the blank space.

16. Stag: Fawn :: kangaroo : \_\_\_\_\_  
 (A) Cygnet (B) Joey (C) Infant (D) Foal
17. Whale : School :: Snake : \_\_\_\_\_  
 (A) Stack (B) Knot (C) Swarm (D) Sheaf
18. Pathology : Diseases :: Arachnology : \_\_\_\_\_  
 (A) Beetles (B) Spiders (C) Bees (D) Teddy bear

**Direction: (Question number 19 to 22)**

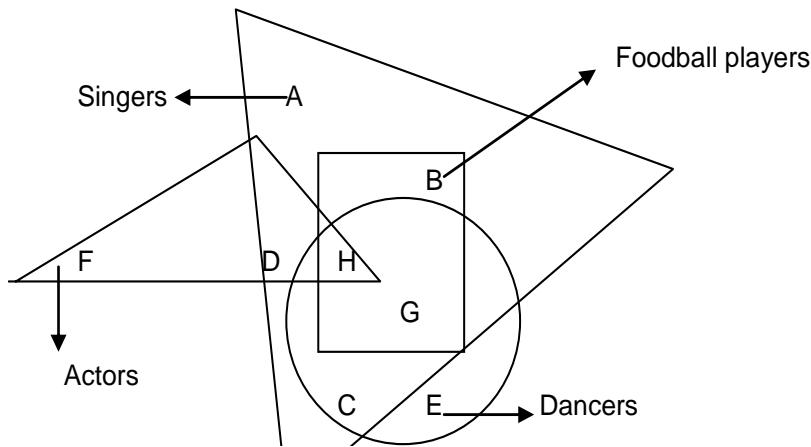
The following diagrams show some relationship among 3 times. For each group of elements, there corresponds one diagram (a), (b), (c) or (d). Select the suitable diagram



19. Rectangle, Parallelogram, Quadrilateral:  
 (A) (a) (B) (b) (C) (c) (D) (d)
20. Triangle, Polygon, Circle:  
 (A) (a) (B) (b) (C) (c) (D) (d)
21. Vegetables, Fruits, Eatables:  
 (A) (a) (B) (b) (C) (c) (D) (d)
22. Natural numbers, whole numbers, integers:  
 (A) (a) (B) (b) (C) (c) (D) (d)
23. In a certain code, LOTUS is written as ULSTO. What will MANGO be written in the code?  
 (A) MOANG (B) GMONA (C) GMAON (D) MGOAN

**Direction: (Question number 24 to 28)**

The following diagram consisting of four overlapping figures, represent four segments of population. The large triangle represent singers, the circle dancers, the rectangle football players and small triangle actors. Study the diagram and answer the questions.



24. Actors and singers but not dancers:  
 (A) F and D                      (B) F, D and H                      (C) D and H                      (D) F and H
25. Danvers who are not football players:  
 (A) C and E                      (B) C, E and H                      (C) C, H and G                      (D) E Only
26. Singers who are not dancers:  
 (A) A and D                      (B) A and B                      (C) A only                      (D) A, D and B
27. Football players who are not singers:  
 (A) B only                      (B) H only                      (C) Nil                      (D) G only
28. Name the segment of population which represent all the categories.  
 (A) D only                      (B) C only                      (C) B only                      (D) H only

**Direction: (Question number 29 to 32)**

Read the content and answer the given question.

A is shorter than B but taller than C. D is taller than B. E is taller than B but not as tall as D.

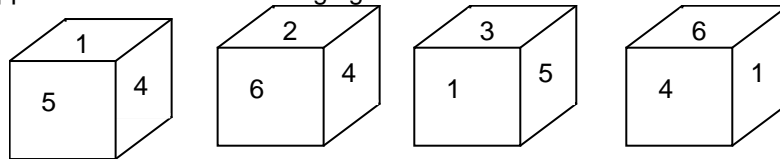
29. Who is the tallest of all?  
 (A) A                      (B) D                      (C) B                      (D) E
30. Who is the second tallest?  
 (A) E                      (B) B                      (C) D                      (D) C
31. Who comes middle in the height?  
 (A) C                      (B) E                      (C) B                      (D) A
32. Who is the shortest?  
 (A) A                      (B) B                      (C) C                      (D) D

**Direction: (Question number 33 and 34)**

Choose the word which is least like the other words

33. (A) Fungus (B) Medium (C) Strata (D) Terminus
34. (A) Hen (B) Falcon (C) Bull (D) Jenny
35. The unit digit of the number  $(986)^{205}$  is:  
 (A) 6 (B) 0 (C) 8 (D) 9
36. Find out the word that can be formed by using the letters of the word 'czechoslovakia' using once.  
 (A) kiosk (B) zeal (C) cheap (D) larva
37. If  $2*5=4110$ ,  $3*7=9121$ ,  $5*2=25110$  then  $4*8=?$   
 (A) 32116 (B) 12132 (C) 64112 (D) 16132
38. The unmatched element of the series is 4, 21, 56, 101, 201.  
 (A) 4 (B) 101 (C) 56 (D) 21

39. The number opposite to 6 for the following figures is:



- (A) 5 (B) 4 (C) 3 (D) 2

40. Reena is Sunil's sister. Janaki is Sunil's mother. Sankar is Janaki's father. Savithri is Janaki's mother. Vijaya is Sankar's mother. How is Reena related to Vijiaya?  
 (A) Daughter (B) Grandmother (C) Granddaughter (D) Great granddaughter

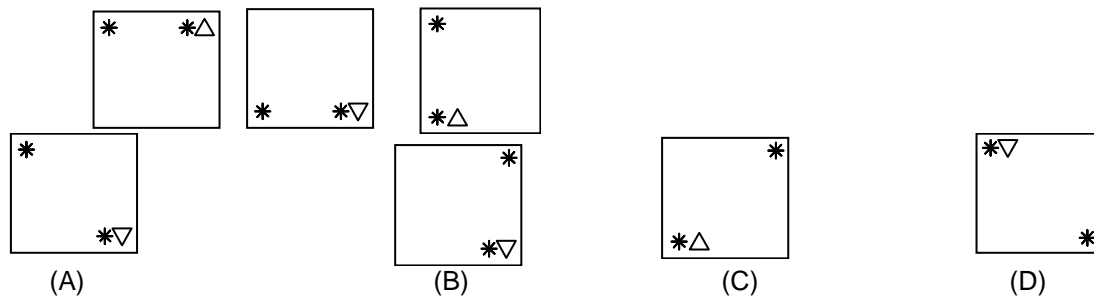
**Direction: (Question number 41 to 43)**

The next figure in the following sequence of figure is:

41. (A) (B) (C) (D)

42. (A) (B) (C) (D)

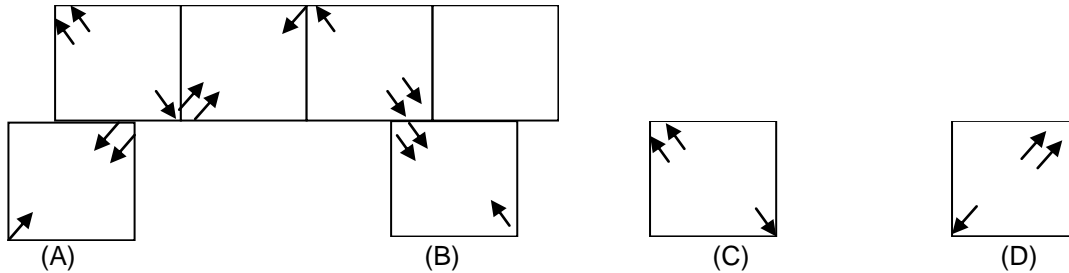
43.



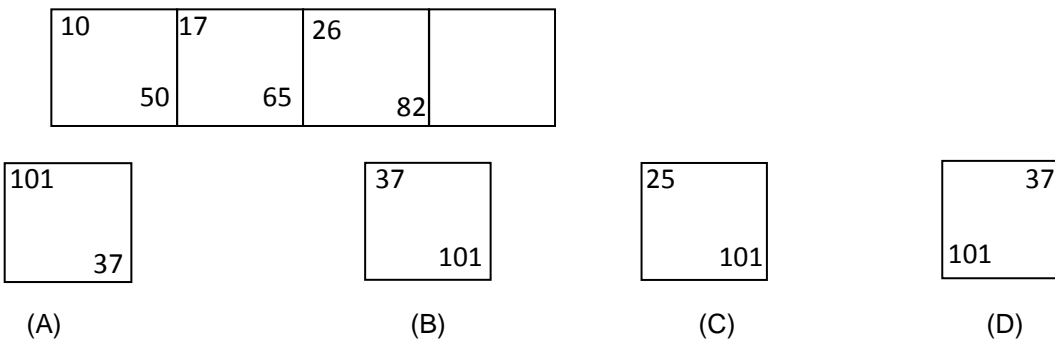
**Direction: (Question number 44 to 46)**

Choose the missing figure.

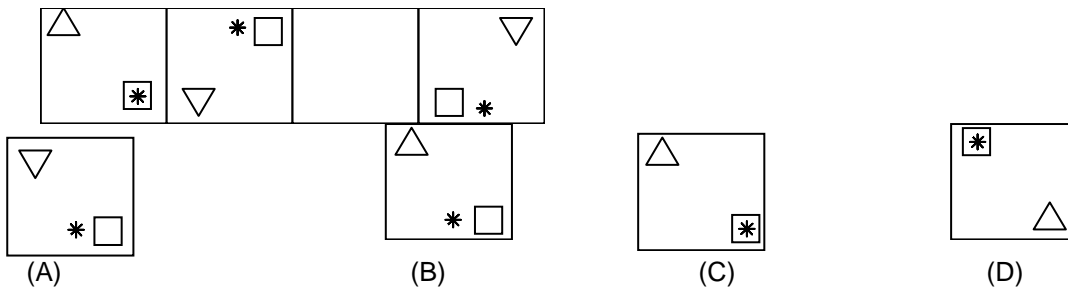
44.



45.



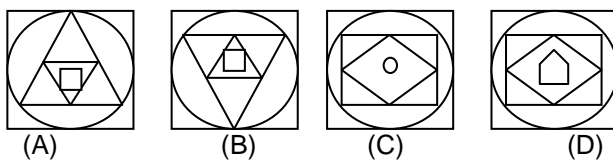
46.



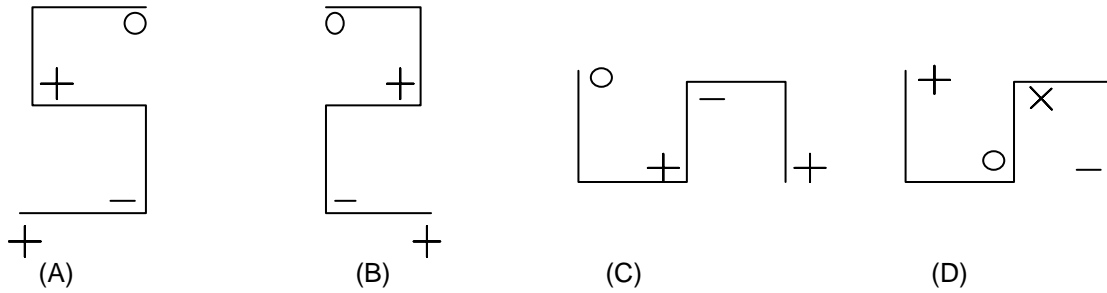
**Direction: Question number 47 to 49)**

Choose the figure which is different from others.

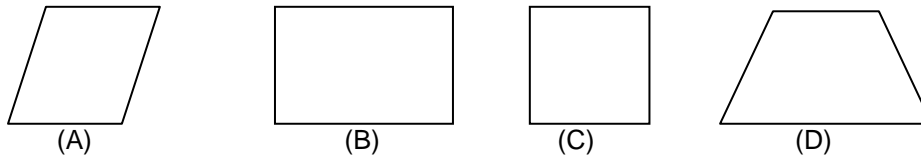
47.



48.

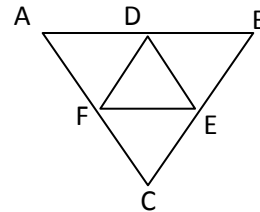


48.



50. ABC is an equilateral triangle. D, E and F are the midpoints of AB, BC and CA respectively. Then, the number of equilateral triangles in the diagram:

- (A) 5 (B) 4  
(C) 8 (D) 6



### LANGUAGE COMPREHENSION TEST (ENGLISH)

**Direction: (Question number 51 to 55)**

**Read the passage carefully and answer the questions given below:**

One of the reasons why this cleavage exists is the fact that modern technological society has reduced man to a mere automation and he is unable to realize his true potential as a human being. Is it any wonder then that the youth of today is not happy with the shape of things in the world? Impelled by idealism and a spirit of adventure, youth is determined to establish a new social order, just and fair. But it is still trying to grasp new ideas and establish new values, making experiments in living, learning and working in search of joy and happiness. It is a long and arduous quest that youth is after. We have to adopt a more positive and sympathetic approach to the problems and difficulties confronting the youth and show greater awareness and understanding of their feelings and sentiments which motivate all their actions.

51. What has man become in this technological age?  
 (A) a true human being (B) young in spirits  
 (C) almost a machine (D) none of these
52. What is the mental reaction of the young towards the present day affairs?  
 (A) they are wonder struck (B) they are confused  
 (C) they have become happy (D) they are frustrated
53. What type of society the young want to establish ?  
 (A) a society with ideal social order  
 (B) a society with new values  
 (C) a society with a just social order  
 (D) none of these



54. Which of the following the young of today is not doing?  
 (A) trying to understand new ideas  
 (B) experimenting with new ways of living  
 (C) working in search of joy  
 (D) developing a rational approach
55. What is the main idea of the passage?  
 (A) Youth is trying to create a new social order  
 (B) A sympathetic approach towards the problems is necessary  
 (C) A sympathetic attitude towards troubled youth and their problems be adopted.  
 (D) None of these

**Direction: (Question number 56 to 60)**

**Read the given poem carefully and answer the questions given below:**

**LINES WRITTEN IN EARLY SPRING**

I heard a thousand blended notes,  
 While in a grove I sat reclined,  
 In that sweet mood when pleasant thoughts  
 Bring sad thoughts to the mind.  
 To her fair works did Nature link  
 The human soul through me ran;  
 And much it grieved my heart to think  
 What man has made of man.  
 Though primrose tufts, in that green bower,  
 The periwinkle trailed its wreaths;  
 And 'tis my faith that every flower  
 Enjoys the air it breathes;  
 The birds around me hopped and played,  
 Their thoughts I cannot measure;  
 But the least motion which they made  
 It seemed a thrill of pleasure.  
 The budding twigs spread out their fan,  
 To catch the breezy air;  
 And I must think, do all I can,  
 That there was pleasure there.  
 If this belief from heaven be sent,  
 If such be Nature's holy plan,  
 Have I not reason to lament  
 What man has made of man?

- William Wordsworth

**On the basis of your understanding of the poem answer the following questions with the help of the given option:**

56. "Have I not reason to lament  
 What man has made of man"  
 What is the mood of the poet in these lines?  
 (A) Happiness (B) Pessimism (C) Melancholy (D) Bewilderment
57. What 'seemed a thrill of pleasure'?  
 (A) Nature's music (B) The budding twigs  
 (C) Nature's holy plan (D) Birds hopping and playing
58. Where is the poet sitting?  
 (A) By the river (B) In a wood (C) On a boat (D) In a house

59. Who hopped and played around the poet?  
 (A) Children (B) Birds (C) Rabbits (D) Snakes
60. Identify the rhyme scheme of the poem.  
 (A) aabc (B) abba (C) abab (D) aabb

**Direction: (Question number 61 to 65)**

**Fill in the blanks with the most appropriate option given below:**

The python is a huge snake, (61) to about 12 to 15 feet; the largest (62) one measuring 19 feet 2 inches (63) in West Bengal. Its (64) varies from dark brown to deep chocolate with a (65) of patches from neck to tail on its upper body.

61. (A) stretch (B) stretching (C) stretched (D) stretches
62. (A) recording (B) record (C) records (D) recorded
63. (A) find (B) found (C) finding (D) finds
64. (A) design (B) length (C) colour (D) segments
65. (A) lot (B) scarcity (C) little (D) unit

**Direction: (Question number 66 to 67)**

**Arrange the parts and complete the sentences. The beginnings of the sentences are already given. Choose the order from the options given:**

66. Gone are the days.  
 P. the flow of tourists from  
 Q. when the Dal Lake  
 R. different parts of the world  
 S. was overtaken by  
 (A) QRSP (B) QPRS (C) QSRP (D) QSPR
67. The Crafts Mela  
 P. and grander than  
 Q. what I had imagined  
 R. was much more impressive  
 S. at Suraj Khant  
 (A) SRQP (B) RQSP (C) SRPQ (D) QSRP

**Direction: (Question number 68 to 70)**

**Fill in the blanks with correct tense forms of verb, choosing from the options given:**

It was a rainy day. Traffic \_\_\_\_ (68) busy on the road. A \_\_\_\_ (69) bus hit a car badly in the market. Five commuters were badly injured and one \_\_\_\_ (70) .

68. (A) will be (B) was (C) is (D) has been
69. (A) speed (B) speeded (C) sped up (D) speeding
70. (A) was died (B) had died (C) died (D) is died

**Direction: (Question number 71 to 75)**

**Find out the meaning of the underlined idiom from the options given below:**

71. It cost her an arm and a leg to bail her husband out.  
(A) dead cheap (B) very expensive (C) peace of mind (D) physical health
72. The party did not want to nominate Balan for the presidency as he was a loose cannon.  
(A) hysterical (B) difficult (C) unpredictable (D) arrogant
73. The parents advised the girls to keep a civil tongue in the party.  
(A) maintain oral hygiene (B) relief the food  
(C) crack humorous jokes (D) speak politely
74. In order to aim a scholarship, Deepa is keeping her nose to the grindstone.  
(A) fight with a determination (B) drawing other's attention  
(C) interfere in other's affairs (D) concentrate in studies
75. The teacher treated Mohan's explanation for delayed submission of project as "cock and bull story".  
(A) probable story (B) credible idea  
(C) trust – worthy point (D) improbable tale

**Direction: (Question number 76 to 80)**

**Fill in the blanks with the most appropriate word choosing from the options given below:**

Our heritage (76) us many things about where we (77) from. Infact the spirit of any nation (78) upon its heritage, and if this knowledge (79) shaky, the nation (80) much of the important factors of existence itself.

76. (A) tell (B) tells (C) told (D) has told
77. (A) had came (B) have come (C) come (D) will come
78. (A) is founded (B) has been found (C) will be found (D) have been found
79. (A) became (B) becomes (C) becoming (D) can become
80. (A) has lost (B) will lose (C) lose (D) loses

**Direction: (Question number 81 to 85)**

**Substitute Phrasal verbs:**

81. Te match was put off due to inclement weather.  
(A) cancelled (B) stopped (C) resumed (D) postponed
82. The thieves got away with five crore looted from the train.  
(A) arrested with (B) caught (C) escaped (D) appeared
83. Not many guests turned out for the party.  
(A) departed (B) stayed (C) returned (D) appeared
84. It is difficult to put up with a quarrelsome person.  
(A) climb (B) keep up something (C) tolerate (D) quarrel
85. Mala takes after her mom.  
(A) follows (B) obeys (C) disobeys (D) looks like

**Directions : (Question number 86 to 90)**

Identify which of the four sentences is correct.

86. It seems to be the rule of the world. \_\_\_\_\_?  
(A) Isn't it (B) Does it (C) Doesn't it (D) Is it
87. Find the correct passive form:  
All in the court appreciated the verdict.  
(A) The verdict had been appreciated by all in the court.  
(B) The verdict was being, appreciated by all in the court  
(C) The verdict was appreciated by all in the court  
(D) The verdict has been appreciated by all in the court
88. Find the correct reported form:  
James said to his younger sister, " Why were you late from school yesterday?"  
(A) James asked her younger sister why she were late the previous day.  
(B) James asked his younger sister why she had been late the previous day  
(C) James asked his younger sister why she was late the previous day.  
(D) James told his younger sister why she was late yesterday.
89. Identify the complex sentence:  
(A) The roof was high for me to touch  
(B) The roof was very high and I could not touch it  
(C) The roof was very high therefore I could not touch it  
(D) The roof was so high that I could not touch it.
90. Identify which of the four sentence is correct:  
(A) Let's meet during two and three  
(B) Let's meet between two to three  
(C) Let's meet from two and three  
(D) Let's meet between two and three

**Direction : (Question number 91 and 92)**

Identify the most appropriate SYNONYM of the underlined word from the options given below.

91. The manager gave a  cursory  glance at the mails he received.  
(A) detailed (B) casual (C) thorough (D) hateful
92. Is there anything that we could do to  ameliorate  the situation?  
(A) electrify (B) justify (C) improve (D) approve

**Direction:(Question number 93 and 94)**

Identify the most appropriate ANTONYM for the underlined word from the options given below.

93. The reasoning behind the equations he derives is  infallible .  
(A) irregular (B) insignificant (C) unsuitable (D) imperfect
94. The team captains  deliberately  entered into an argument  
(A) intentionally (B) inadvertently (C) gradually (D) foolishly

**Direction: (Question number 95 to 98)**

Spot the errors.

95.  (The bride's family) (has sent us) (an invitation) (for dinner).   
(A) (B) (C) (D)
96.  (The newly started Airlines) (acquired) (a flight of aircraft) (to start its operations fleet).   
(A) (B) (C) (D)

97. (Had I been carefully) (I will) (have averted) (the accident).  
(A) (B) (C) (D)
98. (No sooner had) (Shivam returned home) (when she) (started cooking).  
(A) (B) (C) (D)

**Direction: (Question number 99 and 100)**

Choose the best meaning for the given proverb from the options given below.

99. Birds of the same feather flock together.  
(A) Like poles repel : Unlike poles attract  
(B) People of dissimilar looks group together.  
(C) Diverse ideas unite people  
(D) Similarities unite people
100. Do not cast pearls before a swine.  
(A) Do not waste pearls.  
(B) Speak clever topics to the ignorant.  
(C) Avoid speaking wisdom to fools.  
(D) Pearls are costly.

# SCHOLASTIC APTITUDE TEST

## Part – II

(FOR Students of Class X)

Time : 90 Minutes

Max. Marks : 100

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**Name of the Candidate** : .....

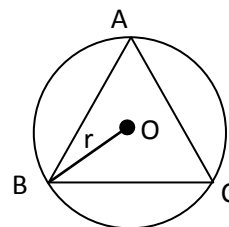
**Enrollment Number** : .....

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# MATHEMATICS

101. When  $10x^2 + x - 23$  is divided by  $(2x + 3)$ , the remainder is:  
(A) 1 (B) -2 (C) 2 (D) 0
102. If  $\alpha$  and  $\beta$  are the zeros of the polynomial  $25x^2 - 16$ , then  $\alpha^2 + \beta^2$  is:  
(A)  $\frac{32}{25}$  (B)  $\frac{25}{32}$  (C)  $\frac{25}{16}$  (D)  $\frac{16}{25}$
103. The sum of  $\frac{a^3}{b-a}$  and  $\frac{b^3}{a-b}$  is :  
(A)  $a^2 + ab + b^2$  (B)  $-a^2 - ab - b^2$  (C)  $a^2 - ab + b^2$  (D)  $a^3 - b^3$
104. Sum of the digits of two digit number is 9. The number obtained by interchanging the digits is 18 more than twice the original number. The original number is:  
(A) 72 (B) 27 (C) 36 (D) 63
105. Which of the following are irrational numbers?  
(i)  $\sqrt{2 + \sqrt{3}}$  (ii)  $\sqrt{4 + \sqrt{25}}$  (iii)  $\sqrt[3]{5 + \sqrt{7}}$  (iv)  $\sqrt{6 + \sqrt[3]{8}}$   
(A) (i), (ii) (B) (iii), (iv) (C) (i), (iii) (D) (iv), (iv)
106. For which value, point A(a, b) lies in the quadrant III:  
(A)  $a > 0, b < 0$  (B)  $a < 0, b < 0$  (C)  $a > 0, b > 0$  (D)  $a < 0, b > 0$
107. If the LCM of 12 and 42 is  $(10m + 4)$  then the value of 'm' is:  
(A) 50 (B) 8 (C)  $\frac{1}{5}$  (D) 1
108. If the perimeter of protractor is 72 cm, then it's radius is  $\left(\text{take } \pi = \frac{22}{7}\right)$ :  
(A) 7 cm (B) 21 cm (C) 14 cm (D) 3.5 cm
109. The degree of the polynomial  $(x + 1)(x^2 - x - x^4 + 1)$  is:  
(A) 2 (B) 3 (C) 4 (D) 5
110. Two right circular cones have same radii. Ratio of their slant height is 4: 3, then the ratio of their curved surface areas is:  
(A) 16: 9 (B) 2: 3 (C) 4: 3 (D) 3: 4
111. AB and CD are two chords of a circle which intersect each other externally at p. if  $AB = 4$  cm,  $BP = 5$  cm,  $PD = 3$  cm, then the length of CD is:  
(A) 10 cm (B) 12 cm (C) 8 cm (D) 11 cm
112. The radii of two concentric circles are 7 cm and 14 cm are respectively. The area between the two sectors of the circles whose central angle  $60^\circ$  is:  
(A) 154 sq. cm (B) 77 sq. cm (C) 308 sq. cm (D) 98 sq. cm
113. Arithmetic mean of 20 observations is 15. if each observation is multiplied by  $\frac{2}{3}$  then the arithmetic mean of them is:  
(A) 10 (B) 30 (C) 45 (D) 15

114. There are 6 defective items in a sample of 20 items. One item is drawn at random. The probability that it is a non-defective item is:  
 (A)  $\frac{7}{10}$  (B) 0 (C)  $\frac{3}{10}$  (D)  $\frac{2}{3}$
115. Segment of a quadrant of a circle has area equal to:  
 (A)  $\frac{r^2}{2} \left( \frac{\pi}{2} - 1 \right)$  sq. units (B)  $\left( \frac{\pi}{4} + 1 \right) r^2$  sq. units (C)  $\left( 1 - \frac{\pi}{2} \right) \frac{r^2}{2}$  sq. units (D)  $\left( \frac{\pi}{4} r^2 - 1 \right)$  sq. units
116.  $\sqrt{1 - \sin^2 A} \cdot \sqrt{\sec^2 A - 1} \cdot \sqrt{1 + \cot^2 A}$   
 (A) 0 (B) 2 (C) 1 (D) -2
117. If  $5x = \operatorname{cosec} \theta$  and  $\frac{5}{x} = \cot \theta$  then  $5 \left( x^2 - \frac{1}{x^2} \right) =$   
 (A) 25 (B) 1 (C)  $\frac{1}{5}$  (D) -5
118. If  $x = a \cos \theta$ ,  $y = \sin \theta$ , then  $x^2 + y^2 =$   
 (A) 1 (B) a (C)  $a^2$  (D)  $a^2 + b^2$
119. If the diagonals of a rhombus are 30 cm and 40 cm, then the length of side of rhombus is:  
 (A) 20 cm (B) 22 cm (C) 25 cm (D) 45 cm
120. Equilateral triangle ABC is inscribed in a circle. If side of the triangle = 24 cm, then the radius is  
 (A)  $6\sqrt{3}$  cm (B)  $12\sqrt{3}$  cm  
 (C)  $8\sqrt{3}$  cm (D) 6cm

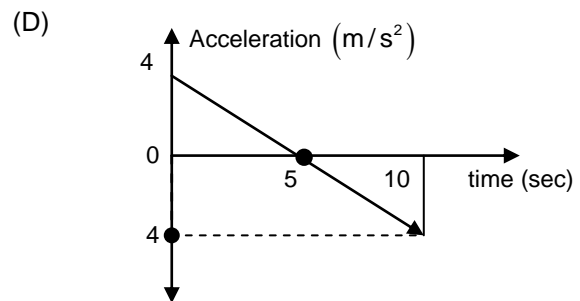
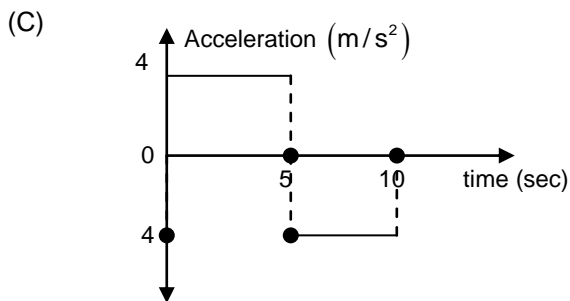
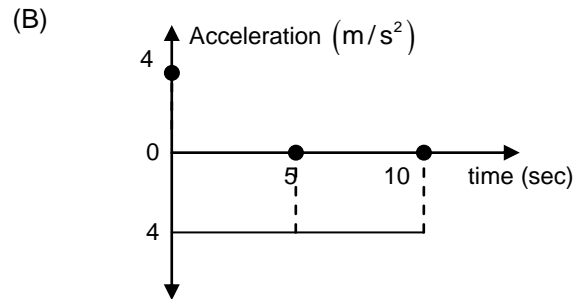
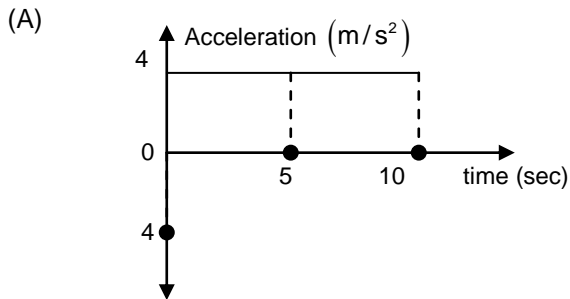
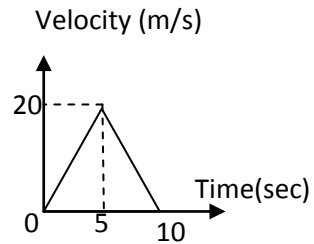


## SCIENCE

121. Two cars A and B accelerate in the ratio of 2: 3 respectively. If they both accelerate for equal time, the ratio of their change in velocity is:  
 (A) 2: 3 (B) 3: 2 (C) 1:1 (D) 1: 2
122. Two cars X and Y accelerate at the rate of  $2 \text{ m/s}^2$  and  $3 \text{ m/s}^2$  respectively from rest. The ratio of time taken by the cars X and Y is 4: 5. In that given ratio of time interval if the distance travelled by car X is 100 km then the distance travelled by car Y is:  
 (A)  $\frac{1875}{8}$  km (B)  $\frac{375}{2}$  km (C)  $\frac{1875}{4}$  km (D)  $\frac{375}{4}$  km
123. A car driver travelling with a uniform velocity of  $2 \text{ m/s}$  notices a railway level crossing at a distance of 435 m from him. And also he notices that it is going to be closed in 10 seconds. First he decides to cross the level crossing hence he accelerates his car at the rate of  $2 \text{ m/s}^2$  for five seconds. Then he decides to stop the car. So he applies brake and stops the car exactly before the level crossing (without following the timer). Calculate the minimum rate at which he has to decelerate the car so that he stops the car exactly before the level crossing  
 (A)  $1.8 \text{ m/s}^2$  (B)  $18 \text{ m/s}^2$  (C)  $0.18 \text{ m/s}^2$  (D)  $3.6 \text{ m/s}^2$
124. Two files A and B revolve around a light in concentric circular path. The radius of circular path of A is twice of B. A travels with a uniform linear speed of  $4 \text{ m/s}$  while B travels with a uniform linear speed of  $3 \text{ m/s}$ . when A completes three full rounds then B would have completed:  
 (A) 4 rounds (B) 3 rounds (C) 2 rounds (D) 1 round



125. If the under given velocity (Vs), time graph can be changed into acceleration (Vs) time graph, then which one of the given options represents acceleration (Vs) time graph:



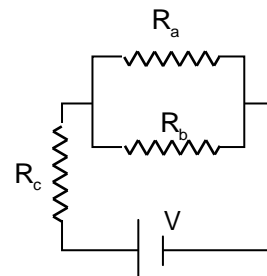
126. A boy travels along a circular path of radius 'r' m. when his angular displacement is  $\frac{\pi}{3}$  radians then his linear displacement is:

- (A)  $r\sqrt{2}$  m                      (B) r m                      (C)  $2\sqrt{r}$  m                      (D)  $\frac{\pi r}{3}$  m

127. From a tower of height 20 m a boy throws a stone in the vertically upward direction with a velocity of 40 m/s and at the same time a girl drops another identical stone from the same tower. When the momentum of the stone dropped by the girl is maximum what will be displacement of the stone projected in the upward direction from the top of the tower? (Take acceleration due to gravity of earth as  $10 \text{ m/s}^2$ )
- (A) 60 m                      (B) 40 m                      (C) 20 m                      (D) 0 m

128. If all  $R_a = R_b = R_c$  then the number of electrons travelling through  $R_a$  in every second is:

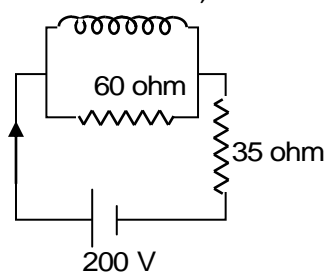
- (A) Half the number of electrons travelling through  $R_b$   
 (B) Equal to the number of electrons travelling through  $R_c$   
 (C) Twice the number of electrons travelling through  $R_c$   
 (D) Half the number of electrons travelling through  $R_c$



129. The heat energy produced by the given coil in the given circuit in five minutes is:

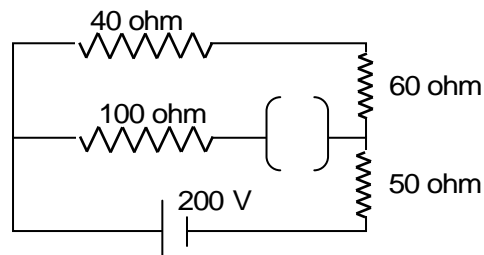
- (A)  $6 \times 10^5$  J (B)  $5.4 \times 10^5$  J  
 (C)  $6 \times 10^4$  J (D)  $5.4 \times 10^4$  J

Coil rated 200 V, 10 A



130. The net current in the circuit is:

- (A) 2 A (B)  $\frac{4}{3}$  A  
 (C) 1 A (D)  $\frac{2}{3}$  A



131. A stone of mass 500 gm is dropped from a certain height. When it is exactly at the midpoint of its free fall, the kinetic energy possessed by it is 800 J. What is the height from where it is dropped? (take acceleration due to gravity of earth as  $10 \text{ms}^{-2}$ )

- (A) 320 m (B) 160 m (C) 80 m (D) 240 m

132. A car of mass 2,000 Kg travelling with a uniform velocity of 2 m/s accelerates till its velocity becomes 22 m/s. The work done on the car is:

- (A) 4.8 KJ (B) 480 KJ (C) 48 KJ (D) 500 KJ

133. The engine of a bus of mass 5,000 kg accelerates the bus from 2 m/s to 20 m/s in 120 seconds. The power expended by the bus is:

- (A) 8,250 W (B) 8.25 W (C) 82.5 W (D) 825 W

134. Tincture of iodine is a solution used as an antiseptic to clean wounds. This is prepared by dissolving solid iodine in:

- (A) Alcohol (B) Water (C) Carbon di sulphide (D) Ether

135. You are provided with 64 g of sulphur in container A and 64 g of  $\text{O}_2$  in container B. Which will have more number of molecules? (Atomic mass of S = 32, O = 16)

- (A) 64 g of S  
 (B) 64 g of  $\text{O}_2$   
 (C) Both have equal number of molecules  
 (D) Cannot calculate with the given information

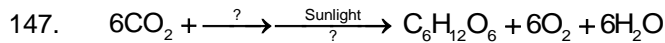
136. Shyam and Hari have 2 identical pieces of marble chips with same mass. They take equal volumes of dil. HCl with the same concentration in two different test tubes. Shyam puts the marble piece directly into the acid whereas Hari powdered the marble piece and puts it into the test tube. What will be the correct observation made?

- (A) Reaction in Shyam's test tube will be faster (B) Reaction in Hari's test tube will be faster  
 (C) Both reactions will happen in the same speed (D) No reaction happens in both the test tubes

137. PH paper is separately dipped into 2 different solutions X and Y. Colour of pH paper turned pale green in X and blue in Y. X and Y are most probably:

- (A) X – water, Y – NaOH (B) X – NaOH, Y –  $\text{H}_2\text{O}$   
 (C) X – HCl, Y – NaOH (D) X – NaOH, Y – HCl

138. An element has two shells and has double the number of electrons in its valence shell than the first shell. The valency of the element could be:  
 (A) 8 (B) 4 (C) 2 (D) 6
139. Priya and karthik wanted to study about diffusion among liquids they took identical beakers and poured 100 mL of H<sub>2</sub>O in both the beakers. Priya heated the water to 50° C but karthick maintained the water at room temperature. They both added 5 drops of ink into the beaker, what will they notice?  
 (A) Colour of ink spreads faster in Priya's beaker  
 (B) Colour of ink spreads faster in Karthick's beaker  
 (C) Colour of ink spread at the same rate in both beakers  
 (D) In both the beakers, ink drops settle down at the bottom without spreading
140.  $\frac{27}{13}$  Al loses electrons and forms trivalent cation. This ion will have  
 (A) 13 electrons and 14 protons (B) 10 electrons and 13 protons  
 (C) 10 electrons and 10 protons (D) 14 electrons and 13 protons
141. When CO<sub>2</sub> gas is passed through lime water, the solution turns milky, This is due to the formation of:  
 (A) CaCO<sub>3</sub> (B) CaO (C) Ca(HCO<sub>3</sub>)<sub>2</sub> (D) Ca(OH)<sub>2</sub>
142. A set of students went on a nature trip where one of the students disturbed the honey comb, by throwing a stone on it. Few students were stung by the bee. A person gathering medicinal plants, came to their rescue and applied the extract of some leaves, which relieved the students of their pain. The chemical nature of leaf would have been  
 (A) Acidic (B) Basic (C) Neutral (D) Mildly acidic
143. Metal A reacts with water to give B. 'B' is used for white washing. On heating B gives C. C reacts with water to give back B. Identify A, B and C.
- |     | A   | B                   | C                   |
|-----|-----|---------------------|---------------------|
| (1) | Ca  | CaO                 | Ca(OH) <sub>2</sub> |
| (2) | CaO | Ca                  | Ca(OH) <sub>2</sub> |
| (3) | Ca  | Ca(OH) <sub>2</sub> | CaO                 |
| (4) | CaO | Ca(OH) <sub>2</sub> | Ca                  |
144. P, Q and R are 3 metals that undergo chemical reactions as follows:  
 $P_2O_3 + 2Q \rightarrow Q_2O_3 + 2P$   
 $2P + 3RO \rightarrow P_2O_3 + 3P$   
 $2RSO_4 + 2Q \rightarrow Q_2(SO_4)_3 + 2R$   
 Observe the reactions and arrange the metals in the increasing order of their reactivity.  
 (A) R, P, Q (B) Q, P, R (C) P, Q, R (D) Q, R, P
145. Which among the following is the correct representation of 360 g of water (H = 1, O = 16)  
 (I) 2 moles  
 (II) 20 moles  
 (III)  $6.022 \times 10^{23}$  molecules  
 (IV)  $1.2044 \times 10^{25}$  molecules  
 (A) (I) and (III) (B) (II) and (IV) (C) (I) and (IV) (D) (II) and (III)
146. Metallic copper can be used to retrieve Silver from silver nitrate solution. This is because  
 (A) Cu is less reactive than Ag (B) Cu is more reactive than Ag  
 (C) Cu and Ag have same reactivity (D) Cu does not react with AgNO<sub>3</sub>



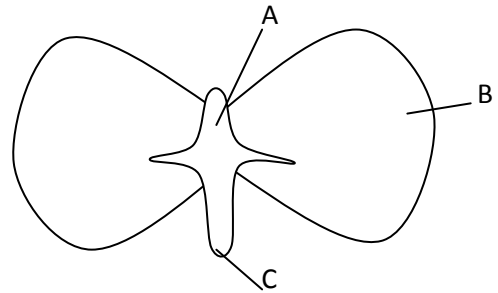
Which two raw materials required for photosynthesis are missing in the above equations?

- (A) Oxygen and Water (B) Oxygen and Calcium  
(C) Water and Chlorophyll (D) Chlorophyll and Oxygen

148. In bamboo plant, the water reaches all the parts of the plant. Name the force that helps in this process  
(A) Diffusion (B) Transpirational pull (C) Gravitational pull (D) Translocation

149. Choose the correct arrangement of the parts A, B & marked in the given figure.

- (A) Cotyledon, Plumule and Radicle  
(B) Plumule, Cotyledon and Radicle  
(C) Radicle, Plumule and Cotyledon  
(D) Radicle, Cotyledon and Plumule



150. The production of orchids by the method of Tissue Culture is also known as :  
(A) Vegetative propagation (B) Micro propagation (C) Fragmentation (D) Regeneration
151. If a nail is hammered into the tree trunk, then the position of the nail after few years will be:  
(A) Same (B) Above (C) Lower (D) Nail will disappear
152. Which one of the following is the correct hierarchy of classification?  
(A) kingdom, Division, Class, Order, Family, Genus, Species  
(B) Kingdom, Division, Order, Class, Family, Genus, Species  
(C) Kingdom, Division, Class, Order, Genus, Family, Species  
(D) Kingdom, Division, Class, Order, Family, Species, Genus
153. What will happen to the cell, if the medium has a lower concentration of water than the cell?  
(A) Bulge (B) Shrink (C) No change (D) Cannot be predicted
154. Assertion (A) : People entering into the burning place die due to suffocation  
Reason (R) : Smoke contains large amount of carbon mono oxide, a toxic gas  
(A) (A) is correct and (R) is wrong (B) (R) explains (A)  
(C) (R) does not explain (A) (D) (A) is wrong but (R) is correct
155. Study the relationship of the given pairs and choose the correct option to fill in the blank.  
Oestrogen : Oogenesis  
Prolactin : Lactation  
Oxytocin : \_\_\_\_\_  
(A) Thickness of endometrium  
(B) Secondary sexual character  
(C) Rhythmic contraction of uterus during delivery of the baby  
(D) Provides protection against intestinal and respiratory functions
156. The carcinogenic toxic gas released during cigarette smoking is:  
(A) Nitrogen oxide (B) Methyl Iso cyanate (C) Methyl mercury (D) Benzopyrene
157. Geetha is unable to walk in a straight line. Which part of the brain is affected?  
(A) Cerebrum (B) Cerebellum (C) Medulla oblongata (D) Hypothalamus
158. In a case of snake bite, doctor treats the patient, with preformed antibodies. What type of immunity it develops?  
(A) Innate immunity (B) Naturally Active Acquired immunity  
(C) Artificially Active Acquired immunity (D) Naturally Passive Acquired immunity

159. Match the organisms given in Column- I with the nutritional processes given in Column – II

	COLUMN - I		COLUMN - II
(A)	Leech	(I)	Holozoic Nutrition
(B)	Amoeba	(II)	Autotrophic Nutrition
(C)	Mushroom	(III)	Parasitic Nutrition
(D)	Green plant	(IV)	Saprophytic Nutrition

(A) (II), (IV), (I), (III)                      (B) (III), (I), (IV), (II)                      (C) (I), (IV), (III), (II)                      (D) (IV), (III), (II), (I)

160. Mendel crossed tall plant with dwarf plant in his famous experiment on *Pisum sativum*. In the first generation, he got only tall plants. Because:  
 (A) The parental plants were heterogenous to their characters  
 (B) The soil was fertile  
 (C) The parental plants were pure to their character  
 (D) The tallness character was a recessive character

## SOCIAL SCIENCE

161. The treaty concluded after the II Indo – China war was  
 (A) Treaty of Nanking                      (B) Treaty of Peking                      (C) Treaty of Shimonoseki                      (D) Treaty of London
162. Mussolini was the editor of Socialist Newspaper called  
 (A) New India                      (B) Avanti                      (C) Mein Kempf                      (D) Social contract
163. The working languages of the United Nations are \_\_\_\_\_  
 (A) Arabic and Chinese                      (B) Chinese and English  
 (C) English and French                      (D) Russian and Spanish
164. The Indian who headed the United Nations General Assembly in 1953 was \_\_\_\_\_  
 (A) Mrs. Vijayalakshmi pandit                      (B) Moovalur Ramamirdham Ammaiyar  
 (C) Dr. Muthulakshmi reddy                      (D) Dr. S. Dharmambal
165. Pick the odd man out:  
 Neelakesi, Choolamani, Yapperumkalam, Kundalakesi  
 (A) Choolamani                      (B) Kundalakesi                      (C) Neelakesi                      (D) Yapperumkalam
166. \_\_\_\_\_ was known as the 'World's First Compiler of Law'  
 (A) Napoleon III                      (B) Hammurabi                      (C) Confucius                      (D) Cheops Khufu
167. Plato wrote  
 (A) The Republic                      (B) The law of Twelve tables  
 (C) Justinian Code                      (D) Meditations
168. \_\_\_\_\_ was defeated in the battle of Waterloo.  
 (A) Hitler                      (B) Mussolini                      (C) Stalin                      (D) Napoleon Bonaparte
169. The Brihadeeshwara temple was built by the  
 (A) Cheras                      (B) Pandyas                      (C) Pallavas                      (D) Cholas
170. The Tower temples were also known as \_\_\_\_\_  
 (A) Ziggurants                      (B) Phramids                      (C) Hanging Garden                      (D) Tower of Badel
171. "Man is the maker of his own destiny" was stressed by \_\_\_\_\_  
 (A) Gauthama                      (B) Mahavira                      (C) Laotze                      (D) Zoroaster
172. The Longitude that helps us to calculate the Indian Standard time is;  
 (A) 80° E                      (B) 82° 30' E                      (C) 82° 50' E                      (D) 81° E

173. The Sorrow of Bihar is  
 (A) kosi (B) Yamuna (C) Brahmaputra (D) Ganga
174. "There is enough for everybody's need and not for anybody's greed". It was voiced out by:  
 (A) Mahatma Gandhi (B) Jawaharlal Nehru (C) Medha patkar (D) Indira Gandhi
175. The main objective of National Forest Policy is to:  
 (A) Bring 33% of geographical area under forests (B) Bring 20% of geographical area under forests  
 (C) Maintain 30% of geographical area under forests (D) Bring 35% of geographical area under forests
176. Compressed Natural Gas (CNG) is becoming more popular because:  
 (A) Available at cheaper rate (B) Low emission of carbon dioxide  
 (C) It is used in power and fertilizer (D) None of the above
177. Choose the correct order of arrangements, the types of coal according to its quality/ carbon content  
 (A) Anthracite, Bituminous, Lignite, Charcoal. (B) Anthracite, Charcoal, Bituminous, Lignite  
 (C) Anthracite, Lignite, Charcoal, Bituminous (D) Bituminous, Lignite, Anthracite, Charcoal
178. The first state in India which has made roof top rainwater harvesting structure compulsory to all the houses across the state:  
 (A) Rajasthan (B) Maharashtra (C) Karnataka (D) Tamil Nadu
179. Srirangam, is a/ an \_\_\_\_\_ area.  
 (A) Island (B) Plateau (C) Coastal Plain (D) Hilly
180. Shrinking of forest cover is mainly because of:  
 (A) Over population (B) Urbanization (C) Industrializations (D) Farming activities
181. 'Finland of Tamilnadu' is:  
 (A) Kancheepuram (B) Villupuram (C) Ooty (D) Tirunelveli
182. Geographical surname, "Detroit of Southern Asia" refer to:  
 (A) Bengaluru (B) Mumbai (C) Chennai (D) New Delhi
183. Which article of our Constitution prohibits any child below the age of 14 from working in dangerous, hazardous employment like mining?  
 (A) 19 (B) 23 (C) 24 (D) 26
184. Name the presidency Constituency in which women were enfranchised for the first time in India.  
 (A) Madras (B) Bombay (C) Calcutta (D) Bengal
185. The President of World Bank is always the citizen of:  
 (A) UK (B) USA (C) Russia (D) France
186. Name the country which has single party system.  
 (A) China (B) Britain (C) Singapore (D) Ghana
187. Which Indian state has its own Constitutions?  
 (A) Jammu and Kashmir (B) Maharashtra (C) Uttarakhand (D) Nagaland
188. Here are some of the guiding values of the Constitutions and their meanings. Match them correctly:
- |     | Guiding Values |       | Meaning   |
|-----|----------------|-------|---|
| (A) | Sovereign      | (I)   | Government will not favour any religion           |
| (B) | Republic       | (II)  | People have the supreme right to make decision    |
| (C) | Fraternity     | (III) | The state is ruled by the elected representatives |
| (D) | Secular        | (IV)  | People should live like brothers and sisters      |
- (A) (II), (I), (IV), (III) (B) (III), (IV), (I), (II) (C) (IV), (III), (II), (I) (D) (II), (III), (IV), (I)

189. What is the role of Amnesty International?  
 (A) To work for international peace  
 (B) To stop arms race in the world  
 (C) Collecting information about condition of International prisoners  
 (D) None of the above
190. \_\_\_\_\_ is rightly known as the 'Guardian of the Constitution'.  
 (A) District Court (B) Magistrate Court (C) High Court (D) Supreme Court
191. Which state has bicameral legislatures?  
 (A) Tamil Nadu (B) Gujarat (C) Bihar (D) Kerala
192. Name the Chief Election Commissioner of India  
 (A) Nassim Zaidi (B) Rajesh Lakhoni (C) H.S. Brahma (D) V.S. Sampath
193. Pick the odd man out:  
 (A) Mrs. Sumitra mahajan (B) Mrs. Sushma Swaraj  
 (C) Mrs. Meera kumar (D) Mrs. Najma Heptullah
194. The growth rate of a country is decided by \_\_\_\_\_.  
 (A) The growth in literacy rate (B) The growth in employment opportunities  
 (C) The quality of the population (D) the growth of the economy
195. The state that has the lowest Infant Mortality Rate in India is:  
 (A) Andhra Pradesh (B) Tamil Nadu (C) Kerala (D) Rajasthan
196. The head of the Planning Commission in India is :  
 (A) The Vice President (B) The Prime Minister (C) The President (D) A Cabinet Minister
197. Pick the odd man out:  
 (A) Income Tax (B) Road Tax (C) Water Tax (D) Property tax
198. The process of withdrawal of United Kingdom from the European Union is called:  
 (A) BREXIT (B) BRIXTON (C) BRICS (D) BREXTON
199. If a mother is taking care of children and household activities within the walls of the house, what kind of activity is she performing ?  
 (A) Market activity (B) Non – market activity  
 (C) Economic activity (D) Non – economic activity
200. 'Green Revolution' is associated with the production of:  
 (A) Sugar (B) Pulses (C) Wheat (D) Cereals