

# PART - A

## GENERAL INTELLIGENCE & REASONING

**Directions :** In question nos. 1 to 6, select the related word/letter/number from the given alternatives.

1. ADHM : ZUQN :: GIKM : ? N  
 (A) NOQS (B) TQRN  
 (C) TRPN (D) TNRP
2. 7 : 133 :: 9 : ?  
 (A) 147 (B) 99 (C) 171 (D) 158
3. 36 : 216 :: 81 : ?  
 (A) 729 (B) 629 (C) 319 (D) 826
4. Victory : Joy :: ? : Sorrow  
 (A) Defeat (B) Depression  
 (C) Melancholy (D) Cry
5. Body : Stomach :: Library : ?  
 (A) Cash (B) Book  
 (C) Headmaster (D) School
6. HAND : JBPE :: PALM : ? L M N  
 (A) RBNM (B) RBMN  
 (C) QBNN (D) RBNN

**Directions :** In question nos. 7 to 12, select the one which is different from the other three responses.

7. (A) Teaching (B) Counselling  
 (C) Instruction (D) Guidance
8. (A) (25, 49) (B) (121, 169)  
 (C) (7, 169) (D) (9, 25)
9. (A) HEAT (B) MEAT  
 (C) MEET (D) BEAT
10. (A) 8465 (B) 2643  
 (C) 4867 (D) 6243
11. (A) FhJL (B) PrtV  
 (C) KnpR (D) CegI

12. (A) Sitar (B) Violin  
 (C) Tanpura (D) Veena
13. Arrange the following words as per order in the dictionary.  
 (i) Forge (ii) Forget  
 (iii) Forgo (iv) Forgive (v) Format  
 (A) (v), (ii), (iv), (iii), (i) (B) (i), (iv), (iii), (ii), (v)  
 (C) (iii), (iv), (v), (ii), (i) (D) (i), (ii), (iv), (iii), (v)
14. Which one of the given responses would be a meaningful order of the following words?  
 (i) Police (ii) Punishment  
 (iii) Crime (iv) Judge (v) Judgement  
 (A) (i), (ii), (iv), (iii), (v) (B) (v), (iv), (iii), (ii), (i)  
 (C) (iii), (i), (iv), (v), (ii) (D) (iii), (i), (ii), (iv), (v)

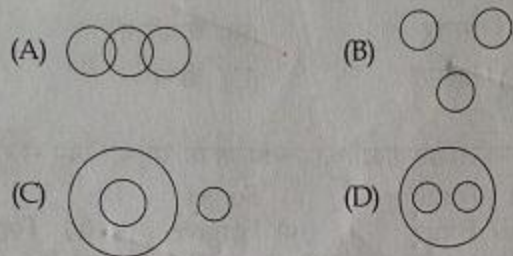
**Directions :** In question nos. 15 to 18, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

15. KJL, ONP, SRT, ?  
 (A) WVX (B) VWX  
 (C) WXV (D) VUV
16. 198, 202, 211, 227, ?  
 (A) 236 (B) 252 (C) 275 (D) 245
17. AN, BO, CP, DQ, ?  
 (A) EG (B) ER (C) EH (D) EF
18. 7, 25, 61, 121, ?  
 (A) 210 (B) 211 (C) 212 (D) 209
19. A group of alphabets are given with each being assigned a number. These have to be unscrambled into a meaningful word and correct order of letters may be indicated from the given responses.

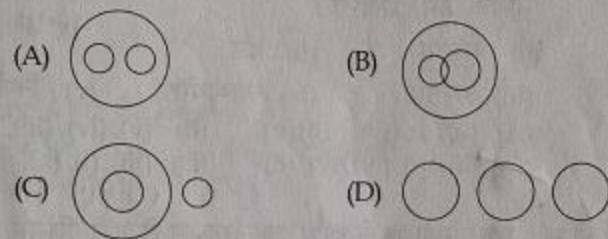
E	R	D	I	S	P
(i)	(ii)	(iii)	(iv)	(v)	(vi)

- (A) (v), (iv), (vi), (i), (ii) (iii)
- (B) (vi), (v), (iv), (ii), (iii) (i)
- (C) (ii), (iii), (iv), (v), (vi) (i)
- (D) (v), (vi), (iv), (iii), (i) (ii)

20. Which one of the following diagrams best depicts the relationship among Mammals, Cows and Cows?



21. Which of the following figure best represents the relationship amongst the Human being, Girl, Boy?



22. In a row at a bus stop, 'A' is 7<sup>th</sup> from the left and 'B' is 9<sup>th</sup> from the right. They both interchange their positions. Now A becomes 11<sup>th</sup> from the left. How many people are there in the row?

(A) 10 (B) 20 (C) 19 (D) 18

23. At present, the ratio between the ages of Arun and Deepak is 4 : 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present?

(A) 15 years (B) 19 years  
(C) 24 years (D) 12 years

24. From the given alternatives select the word which **cannot** be formed using the letters of the given word. Encouragement

(A) game (B) tear (C) neck (D) meat

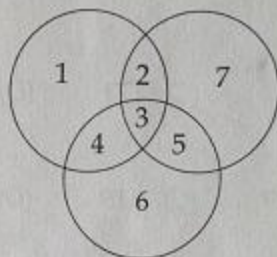
25. If DELHI is coded as 73541 and CALCUTTA as 82589662, then how would CALICUT be coded in that code?

(A) 5978213 (B) 8251896  
(C) 8543691 (D) 5279431

26. If 'JUNE' is written as 'PQRS' and 'AUGUST' written as 'WQFQMN'. How can 'GUEST' written in this same coding language?

(A) FPSMN (B) FQSMN  
(C) FQSNM (D) FQTMN

27. In the given figure, circles represent students studying three different subjects. How many students study all the three subjects?



(A) 2 (B) 3 (C) 4 (D) 1

28. Arun said, "This girl is the wife of the grandson of my mother". Who is Arun to the girl?

(A) Grandfather (B) Husband  
(C) Father-in-law (D) Father

**Directions :** In question nos. 29 and 30, some equations are solved on the basis of a certain system. On the same basis find out the **correct** answer for the unsolved equation.

29. If  $235 = 38$  and  $452 = 45$ , then  $345 = ?$

(A) 49 (B) 66 (C) 72 (D) 50

30.  $2 \times 3 = 49$ ,  $5 \times 6 = 2536$ ,  $1 \times 9 = 181$ ,  $4 \times 7 = ?$

(A) 1628 (B) 1649 (C) 2549 (D) 12

31. If ' $\times$ ' means '+', ' $\div$ ' means '-', '+' means ' $\div$ ' and '-' means ' $\times$ ' then what should be the value of the given equation?

$$14 \times 4 \div 70 + 10 - 2 = ?$$

(A) 33 (B) 15 (C) 30 (D) 4

32. Select the correct combination of mathematical signs to replace \* signs and to balance the given equation

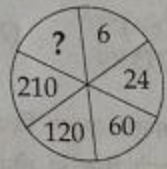
$$5 * 5 * 5 * 3 * 10$$

(A)  $\times + = \times$  (B)  $+ - \times =$   
(C)  $+ \div = \times$  (D)  $+ \div \times =$

**Directions :** In question nos. 33 and 34, select the missing number from the given responses.

**Directions :** In question nos. 39 and 40, one/two statements are given followed by two/four conclusions I, II, III and IV. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follow from the given statements.

33.



- (A) 330 (B) 336 (C) 428 (D) 420

34.

- 12 15 16  
03 04 05  
04 06 04  
40 66 ?

- (A) 104 (B) 320 (C) 25 (D) 84

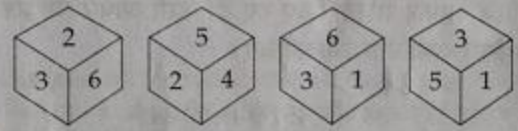
35.

Seema walks 30 m North. Then she turns right and walks 30 m then she turns right and walks 55 m. Then she turns left and walks 20 m. Then she again turns left and walks 25 m. How many metres away is she from her original position ?

- (A) 45 m (B) 50 m  
(C) 60 m (D) 55 m

36.

Four different positions of dice are as shown below. What number is opposite to face 3 ?



- (i) (ii) (iii) (iv)  
(A) 4 (B) 3 (C) 2 (D) 6

37.

After walking 10 m, Shankar turned left and covered a distance of 6 m, then turned right and covered a distance of 20 m. In the end, he was moving towards the south. From which direction did Shankar start his journey ?

- (A) West (B) North  
(C) South (D) East

38.

Six persons are sitting in a circle. A is facing B, B is to the right of E and left of C. C is to the left of D. F is to the right of A. Now D exchanges his seat with F and E with B. Who will be sitting to the left of D ?

- (A) D (B) E (C) A (D) B

39.

**Statement :** Songs always have singers to sing them.

- Conclusion I:** Singers make a song.  
**II :** There is no un - sung song.

- (A) Only conclusion II follows  
(B) Both conclusions I and II follow  
(C) Neither conclusion I nor II follows  
(D) Only conclusion I follows

40.

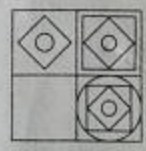
- Statements I:** Some cats are dogs.  
**II:** No dog is a Toy.

- Conclusion I:** Some dogs are cats  
**II:** Some Toys are cats  
**III:** Some cats are not Toys  
**IV:** All Toys are cats

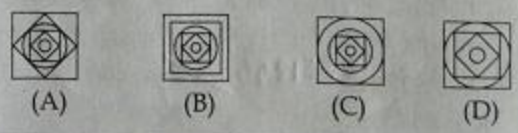
- (A) Only Conclusions I and III follow  
(B) Only Conclusions II and III follow  
(C) Only Conclusions I and II follow  
(D) Only Conclusion I follows

**Directions :** In question nos. 41 and 42, which answer figure will complete the question figure ?

41. **Question figure :**



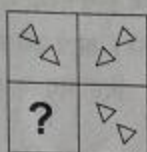
**Answer figures :**



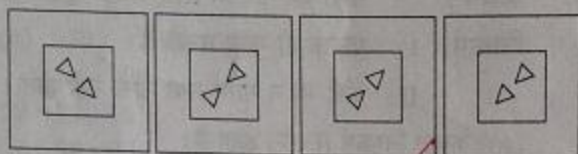
SPACE FOR ROUGH WORK



42. Question figure :



Answer figures :



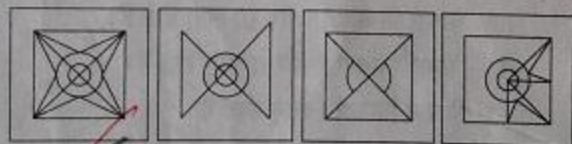
(A) (B) ~~(C)~~ (D)

Directions : In question nos. 43 and 44, select the answer figure in which the question figure is hidden/embedded.

43. Question figure :



Answer figures :

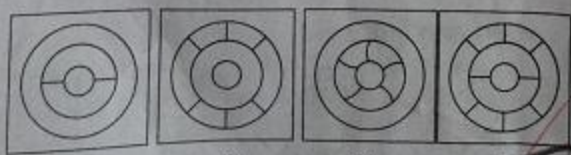


~~(A)~~ (B) (C) (D)

44. Question figure :



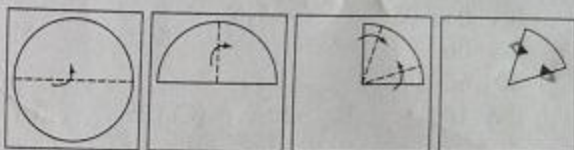
Answer figures :



(A) (B) (C) ~~(D)~~

Directions : In question nos. 45 and 46, A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened ?

45. Question figures :

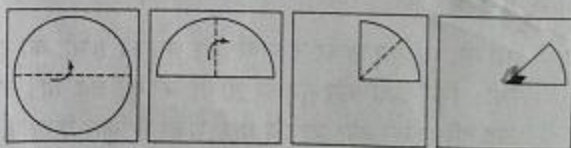


Answer figures :



(A) ~~(B)~~ (C) (D)

46. Question figures :



Answer figures :



(A) (B) ~~(C)~~ (D)

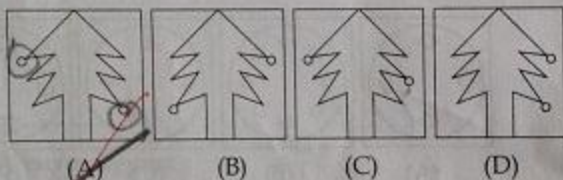
SPACE FOR ROUGH WORK

Directions : In question nos. 47 and 48, if a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure ?

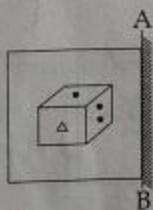
47. Question figure :



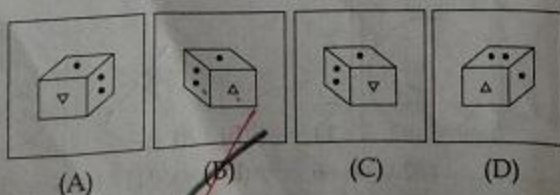
Answer figures :



48. Question figure :



Answer figures :



49. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented *first by its row and next by its column*, e.g. 'C' can be represented by 00, 12, 23, etc. and 'M' can be represented by 56, 67, 77, etc. Similarly, you have to identify the set for the given word - GOD.

Matrix I

	0	1	2	3	4
0	C	D	E	F	G
1	G	D	C	F	E
2	E	F	G	C	D
3	G	C	F	D	E
4	D	C	F	G	E

Matrix II

	5	6	7	8	9
5	L	M	N	O	P
6	O	L	M	N	P
7	L	O	M	P	N
8	N	O	P	M	L
9	P	L	M	N	O

(A) 10, 11, 65

(B) 95, 79, 12

(C) 30, 65, 40

(D) 00, 10, 75

50. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented *first by its row and next by its column*, e.g. 'B' can be represented by 01, 10, 22 etc. and 'F' can be represented by 55, 76, 86, etc. Similarly, you have to identify the set for the given word CAGE.

Matrix I

	0	1	2	3	4
0	A	B	C	D	E
1	B	C	D	E	A
2	C	D	B	A	E
3	D	C	B	E	A
4	E	B	A	C	D

Matrix II

	5	6	7	8	9
5	F	G	H	I	J
6	G	F	I	J	H
7	I	F	G	J	H
8	H	F	G	I	J
9	J	F	G	J	I

(A) 95, 82, 31, 14

(B) 20, 00, 65, 40

(C) 14, 20, 41, 86

(D) 00, 21, 41, 95

SPACE FOR ROUGH WORK

## PART - B

### GENERAL KNOWLEDGE & GENERAL AWARENESS

51. If a firm is operating at loss in the short-period in perfect competition, it should :
- (A) decrease its production and the price
  - (B) increase the production and the price
  - ~~(C) continue to operate as long as it covers even the variable costs.~~
  - (D) shut-down and leave the industry
52. For which one of the following commissions, there is no provision in the Indian Constitution ?
- (A) Election Commission
  - (B) Finance Commission
  - ~~(C) Planning Commission~~
  - (D) Union Public Service Commission
53. Which one of the following statements about PYROLYSIS, which is a process for solid waste treatment is incorrect ?
- (A) It converts the waste into solid, liquid and gas of which the resultant liquid and gas can be used to produce energy.
  - ~~(B) The process occurs at a temperature above 430°C at atmospheric pressure.~~
  - (C) The process occurs under high pressure at temperature above 430°C.
  - (D) It is a thermochemical decomposition of organic waste.
54. Which Sultan received a robe of honour from the caliph ?
- (A) Ala-ud-din Khilji
  - (B) Iltutmish
  - ~~(C) Balban~~
  - (D) Qutub-ud-din Aibak
55. Sugathakumari chosen for the award of the Saraswati Samman 2012 is an eminent poetess in \_\_\_\_\_
- (A) Kannada
  - (B) Tamil
  - (C) Telugu
  - ~~(D) Malayalam~~
56. Which one of the following is not a line of demarcation between two countries ?
- ~~(A) International Date line~~
  - (B) MacMahon Line
  - (C) Radcliffe Line
  - (D) Durand Line
57. Which of the following supports particle nature of photons ?
- (A) Diffraction
  - (B) Polarization
  - ~~(C) Photoelectric effect~~
  - (D) Interference
58. Which country won the Sultan Azlan Shah Hockey tournament in Malaysia in March 2013 ?
- (A) Malaysia
  - (B) Newzealand
  - (C) India
  - ~~(D) Australia~~
59. The heaviest naturally occurring element is :
- ~~(A) Mercury~~
  - (B) Polonium
  - (C) Thorium
  - (D) Uranium
60. Which of the following is not an operating system ?
- ~~(A) Multi user - Single tasking~~
  - (B) Single user - Single tasking
  - (C) Single user - Multitasking
  - (D) Multi user - Multitasking
61. Which one of the following languages is not specified in the Eighth schedule of the Indian Constitution ?
- (A) Urdu
  - ~~(B) English~~
  - (C) Sindhi
  - (D) Sanskrit

52. Haptens are :  
(A) Pseudoantigens  
(B) Incomplete antigens  
(C) Antibodies  
(D) Isoantigens
63. Which state in India occupies the same ranking position in respect of area and population ?  
(A) Manipur (B) Meghalaya  
(C) Nagaland (D) Gujarat
64. Sulphur dioxide bleaches colouring matter by :  
(A) Reduction (B) Dehydration  
(C) Decomposition (D) Oxidation
65. Which of the following elements is not radio-active ?  
(A) Radium (B) Plutonium  
(C) Zirconium (D) Uranium
66. Wilting of plants occurs due to excessive :  
(A) Respiration (B) Guttation  
(C) Absorption (D) Transpiration
67. Gypsum is used for improvement of :  
(A) Alkaline soils (B) Saline soils  
(C) Podsols (D) Acidic soils
68. Which of the following is an indirect tax ?  
(A) Capital Gains Tax  
(B) Excise Duty  
(C) Wealth Tax  
(D) Estate Duty
69. Indicate the correct arrangement for electromagnetic radiation in order of their increasing wavelength.  
(A) Microwave, infrared, visible, X-rays  
(B) X-rays, visible, infrared, microwave  
(C) Visible, infrared, microwave, X-rays  
(D) X-rays, infrared, visible, microwave
70. Where was the Fifth BRICS Summit hosted by South Africa in March 2013 ?  
(A) Durban (B) Johannesburg  
(C) Pretoria (D) Cape Town
71. Lake formed in a cut off river meander is called :  
(A) Playa Lake (B) Meteoric Lake  
(C) Ox-Bow Lake (D) Crater Lake
72. The rapidly growing mass of phytoplankton covering the surface water of a lake or pond is known as :  
(A) Eutrophication (B) Water bloom  
(C) Water pollution (D) Water hyacinth
73. Which is the leading state in India in "Ship Breaking" industry ?  
(A) Tamil Nadu (B) Maharashtra  
(C) Gujarat (D) West Bengal
74. The telephone line is connected through the \_\_\_\_\_ on the computer.  
(A) USB (B) Modem  
(C) Ethernet (D) PS2
75. In the nuclear reactors, moderators are used to :  
(A) Accelerate neutrons  
(B) Absorb the neutrons  
(C) Slow down the neutrons  
(D) Generate neutrons
76. When Margaret Thatcher was P.M. with which country Britain waged a war to regain control of Falkland Islands ?  
(A) Chile (B) Argentina  
(C) Brazil (D) None of the above

77. Match the following :

- |                  |                   |
|------------------|-------------------|
| (a) Chalukyas    | (i) Malkhed       |
| (b) Hoysalas     | (ii) Vatapi       |
| (c) Rashtrakutas | (iii) Warangal    |
| (d) Kakatiyas    | (iv) Dwarasamudra |

- (A) ~~(a)-(ii) (b)-(iv) (c)-(i) (d)-(iii)~~  
(B) (a)-(iv) (b)-(iii) (c)-(i) (d)-(ii)  
(C) (a)-(i) (b)-(ii) (c)-(iii) (d)-(iv)  
(D) (a)-(iii) (b)-(ii) (c)-(iv) (d)-(i)

78. Wings of birds are :

- (A) Modified hind limbs  
(B) New structure  
(C) Integumentary outgrowth  
(D) ~~Modified fore limbs~~

79. The world's tallest statue of Mahatma Gandhi is in \_\_\_\_\_

- (A) Champaran ~~(B) Patna~~  
(C) Lucknow (D) Rajkot

80. Which one of the following is the principal source of information on Asoka's campaign against Kalinga ?

- (A) Pillar Edict VII (B) Mahavamsa  
(C) Divyavadana ~~(D) Rock Edict XIII~~

81. Gandhi's concept of Trusteeship :

- (A) Recognises right of private ownership of property  
(B) ~~Transforms the capitalistic society into an egalitarian one~~  
(C) Excludes legislative regulation of the ownership and use of wealth  
(D) Does not fix minimum or maximum income

82. A spontaneous change is one in which there is :

- (A) ~~A lowering of entropy~~  
(B) ~~A lowering of free energy~~  
(C) Increase in free energy  
(D) An increase in Internal energy

83. Among the following states, which one has adopted the "Neem" tree as the state tree ?

- (A) Maharashtra (B) Tamil Nadu  
(C) Kerala ~~(D) Andhra Pradesh~~

84. Contour line is the imaginary line joining places of equal :

- (A) Rainfall (B) Humidity  
(C) ~~Elevation~~ (D) Temperature

85. Who is the Chairperson of the National Green Tribunal ?

- (A) Justice J.S. Verma  
(B) ~~Justice Swatantra Kumar~~  
(C) Justice K.G. Balakrishnan  
(D) Justice Markandey Singh

86. Which is the first state in India to enact the Food Security Act ?

- (A) ~~Chattisgarh~~ (B) Gujarat  
(C) Tamil Nadu (D) Bihar

87. Which article of the Indian Constitution provides for equal opportunities for all citizen in Public employment ?

- (A) Article - 22 ~~(B) Article - 16~~  
(C) Article - 20 (D) Article - 25

88. Sandstone is metamorphosed to :

- (A) ~~Shale~~ (B) Slate  
(C) ~~Quartzite~~ (D) Marble



89. "Taxes on professions" can be levied by :
- (A) State government only
  - (B) both by state and union government
  - (C) by panchayats only
  - (D) Union government only
90. Which one of the following is opposite to democratic state ?
- (A) Despotism
  - (B) Republic
  - (C) Socialism
  - (D) Monarchy
91. Which one is not a function of money ?
- (A) Transfer of value
  - (B) Store of value
  - (C) Price stabilisation
  - (D) Value measurement
92. Instrument used to study the behaviour of a vibrating string is :
- (A) Barometer
  - (B) Hydrometer
  - (C) Hygrometer
  - (D) Sonometer
93. Match the following :
- |                              |            |
|------------------------------|------------|
| (a) Hunter's Commission      | (i) 1948   |
| (b) Wardha Scheme            | (ii) 1904  |
| (c) University's Act         | (iii) 1937 |
| (d) Radhakrishnan Commission | (iv) 1882  |
- (A) (a)-(iii) (b)-(ii) (c)-(iv) (d)-(i)  
(B) (a)-(iv) (b)-(ii) (c)-(iii) (d)-(i)  
(C) (a)-(iii) (b)-(iv) (c)-(i) (d)-(ii)  
(D) (a)-(iv) (b)-(iii) (c)-(ii) (d)-(i)
94. The casual organism of Polio is :
- (A) A fungi
  - (B) A virus
  - (C) A worm
  - (D) A bacteria

95. Panda belongs to the same family as that of :
- (A) Kangaroo
  - (B) Porcupine
  - (C) Whale
  - (D) Bear
96. "Closed Economy" means :
- (A) no provision for public sector
  - (B) no provision for private sector
  - (C) economic policy not well defined
  - (D) a country having no imports and exports
97. The Gandhara art flourished under :
- (A) the Kushans
  - (B) the Satavahanas
  - (C) the Guptas
  - (D) the Mauryas
98. At "Break-even point",
- (A) the industry is in equilibrium in the long-run.
  - (B) the producers suffers the minimum losses
  - (C) the seller earns maximum profit
  - (D) the firm is at zero-profit point
99. Who said : "Where there is no law, there is no freedom" ?
- (A) Bentham
  - (B) Lenin
  - (C) Marx
  - (D) Locke
100. Which one of the following statements about the Chief Justice of India (CJI) is **not** correct ?
- (A) He appoints the Chief Justice of all High Courts.
  - (B) The CJI administers the oath of office to the President
  - (C) When both the offices of the President and Vice-President fall vacant simultaneously, the CJI discharges the duties of the President.
  - (D) The CJI can hold his office till he attains the age of 65 years.

## PART - C

## QUANTITATIVE APTITUDE

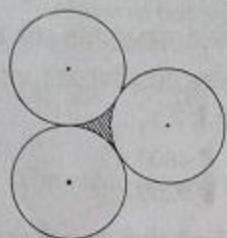
101. The ratio of two numbers is 3 : 4 and their HCF is 5. Their LCM is :  
 (A) 20 (B) 60 (C) 15 (D) 12
102. The value of  $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ$  is :  
 (A) 1 (B) 2  
 (C) undefined (D) 0
103. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. His profit percent is :  
 (A) 20% (B) 25% (C) 50% (D) 15%
104. A can do as much work as B and C together can do. A and B can together do a piece of work in 9 hours 36 minutes and C can do it in 48 hours. The time (in hours) that B needs to do the work alone, is :  
 (A) 18 (B) 24 (C) 30 (D) 12
105. A solid right circular cylinder and a solid hemisphere stands on equal bases and have the same height. The ratio of their whole surface areas is :  
 (A) 3 : 2 (B) 3 : 4 (C) 4 : 3 (D) 2 : 3
106. If area of an equilateral triangle is  $a$  and height  $b$ , then value of  $\frac{b^2}{a}$  is :  
 (A) 3 (B)  $\frac{1}{3}$  (C)  $\sqrt{3}$  (D)  $\frac{1}{\sqrt{3}}$
107. The batting average for 30 innings of a cricket player is 40 runs. His highest score exceeds his lowest score by 100 runs. If these two innings are not included, the average of the remaining 28 innings is 38 runs. The lowest score of the player is :  
 (A) 15 (B) 18 (C) 20 (D) 12
108. An article was sold at 16% gain. Had it been sold for ₹ 200 more, the gain would have been 20%. Then the cost price of the article is :  
 (A) ₹ 5000 (B) ₹ 4800  
 (C) ₹ 4500 (D) ₹ 5200
109. From the top of a hill 200 m high, the angle of depression of the top and the bottom of a tower are observed to  $30^\circ$  and  $60^\circ$ . The height of the tower is (in m) :  
 (A)  $\frac{400\sqrt{3}}{3}$  (B)  $166\frac{2}{3}$   
 (C)  $133\frac{1}{3}$  (D)  $200\sqrt{3}$
110. A copper sphere of diameter 18 cm is drawn into a wire of diameter 4 mm. The length of the wire, in metre, is :  
 (A) 2.43 (B) 243 (C) 2430 (D) 24.3
111. Triangle PQR circumscribes a circle with centre O and radius  $r$  cm such that  $\angle PQR = 90^\circ$ . If  $PQ = 3$  cm,  $QR = 4$  cm, then the value of  $r$  is :  
 (A) 2 (B) 1.5 (C) 2.5 (D) 1
112. The value of  $1 + \frac{1}{1 + \frac{2}{3 + \frac{4}{5}}}$  :  
 (A)  $\frac{12}{29}$  (B)  $\frac{8}{19}$  (C)  $\frac{48}{29}$  (D)  $\frac{2}{19}$
113. Water flows at the rate of 10 metres per minute from a cylindrical pipe 5 mm in diameter. How long it take to fill up a conical vessel whose diameter at the base is 30 cm and depth 24 cm ?  
 (A) 28 minutes 48 seconds  
 (B) 51 minutes 12 seconds  
 (C) 51 minutes 24 seconds  
 (D) 28 minutes 36 seconds

SPACE FOR ROUGH WORK

Handwritten notes and calculations at the bottom of the page, including:

- $24300$
- $100$
- $51$
- $273$
- $4/3 a^3 = 1/12$
- $38$
- $100$
- $106$
- $11$

114. Three circles of equal radius 'a' cm touch each other. The area of the shaded region is:



- (A)  $\left(\frac{\sqrt{3} + \pi}{2}\right) a^2$  sq. cm  
 (B)  $\left(\frac{6\sqrt{3} - \pi}{6}\right) a^2$  sq. cm  
 (C)  $(\sqrt{3} - \pi) a^2$  sq. cm  
 (D)  $\left(\frac{2\sqrt{3} - \pi}{2}\right) a^2$  sq. cm

115. If  $x = a - b$ ,  $y = b - c$ ,  $z = c - a$ , then the numerical value of the algebraic expression  $x^3 + y^3 + z^3 - 3xyz$  will be:

- (A)  $a + b + c$  (B) 0  
 (C)  $4(a + b + c)$  (D)  $3abc$

116. The linear equation such that each point on its graph has an ordinate four times its abscissa is:

- (A)  $y + 4x = 0$  (B)  $y = 4x$   
 (C)  $x = 4y$  (D)  $x + 4y = 0$

117. A godown is 15 m long and 12 m broad. The sum of the areas of the floor and the ceiling is equal to the sum of areas of the four walls. The volume (in  $m^3$ ) of the godown is:

- (A) 900 (B) 1200 (C) 1800 (D) 720

118. 3 men and 7 women can do a job in 5 days, while 4 men and 6 women can do it in 4 days. The number of days required for a group of 10 women working together, at the same rate as before, to finish the same job is:

- (A) 30 (B) 36 (C) 40 (D) 20

119. The value of

$$\sqrt{19.36} + \sqrt{0.1936} + \sqrt{0.001936} + \sqrt{0.00001936}$$

is:

- (A) 4.8484 (B) 4.8694  
 (C) 4.8884 (D) 4.8234

120. A shopkeeper marks the selling price of his goods in such a way that after giving a discount of 10%, he gains 17%. How much percent above the cost price is the marked price?

- (A) 36% (B) 27% (C) 30% (D) 40%

121. One of the factors of the expression  $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$  is:

- (A)  $4x + \sqrt{3}$  (B)  $4x + 3$   
 (C)  $4x - 3$  (D)  $4x - \sqrt{3}$

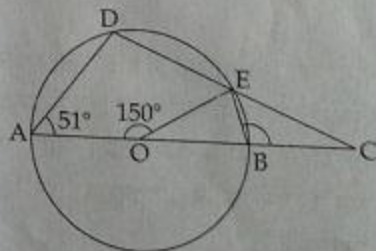
122. On a journey across Kolkata, a taxi averages 50 km per hour for 50% of the distance, 40 km per hour for 40% of it and 20 km per hour for the remaining. The average speed, in km/hour, for the whole journey is:

- (A) 42 (B) 40 (C) 35 (D) 45

123. A man ordered 4 pairs of black socks and some pairs of brown socks. The price of a black socks is double that of a brown pair. While preparing the bill the clerk interchanged the number of black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was:

- (A) 2:1 (B) 1:4 (C) 1:2 (D) 4:1

124. In the following figure, AB be diameter of a circle whose centre is O. If  $\angle AOE = 150^\circ$ ,  $\angle DAO = 51^\circ$ , then the measure of  $\angle CBE$  is:



- (A)  $115^\circ$  (B)  $110^\circ$  (C)  $105^\circ$  (D)  $120^\circ$

SPACE FOR ROUGH WORK

125. If the square of the sum of two numbers is equal to 4 times of their product, then the ratio of these numbers is:

- (A) 2:1 (B) 1:3 (C) 1:1 (D) 1:2

126. If  $a^2 + b^2 = 5ab$ , then the value of  $\left(\frac{a^2}{b^2} + \frac{b^2}{a^2}\right)$  is:

- (A) 32 (B) 16 (C) 23 (D) -23

127. In a big garden 60% of the trees are coconut trees, 25% of the number of coconut trees are mango trees and 20% of the number of mango trees are apple trees. If the number of apple trees are 1500, then the number of trees in the garden is:

- (A) 48000 (B) 50000 (C) 51000 (D) 45000

128. A sum of money placed at compound interest doubles itself in 5 years. It will amount to eight times itself in:

- (A) 15 years (B) 12 years (C) 10 years (D) 20 years

129. Minimum value of  $4\tan^2\theta + 9\cot^2\theta$  is:

- (A) 12 (B) 1 (C) 6 (D) 13

130. If 50% of  $(P - Q) = 30\%$  of  $(P + Q)$  and  $Q = x\%$  of  $P$ , then the value of  $x$  is:

- (A) 30 (B) 25 (C) 20 (D) 50

131. If  $\sin\theta - \cos\theta = \frac{1}{2}$  the value of  $\sin\theta + \cos\theta$  is:

- (A) -2 (B)  $\pm 2$  (C)  $\frac{\sqrt{7}}{2}$  (D) 2

132. If  $\operatorname{cosec}\theta - \cot\theta = \frac{7}{2}$ , the value of  $\operatorname{cosec}\theta$  is:

- (A)  $\frac{47}{28}$  (B)  $\frac{51}{28}$  (C)  $\frac{53}{28}$  (D)  $\frac{49}{28}$

133. If  $x = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$  and  $y = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ , then the value of  $x^3 + y^3$  is:

- (A) 950 (B) 730 (C) 650 (D) 970

134. A single discount equivalent to the following three successive discounts of 30%, 20% and 10% is given by:

- (A) 49.6% (B) 50.60% (C) 49.40% (D) 50.40%

135. The greatest among the following numbers of  $3\frac{1}{3}$ ,  $2\frac{1}{2}$ , 1,  $6\frac{1}{6}$  is:

- (A)  $2\frac{1}{2}$  (B) 1 (C)  $6\frac{1}{6}$  (D)  $3\frac{1}{3}$

136. The areas of two similar triangles ABC and DEF are  $20\text{ cm}^2$  and  $45\text{ cm}^2$  respectively. If  $AB = 5\text{ cm}$ , then DE is equal to:

- (A) 6.5 cm (B) 7.5 cm (C) 8.5 cm (D) 5.5 cm

137. In a triangle ABC, BC is produced to D so that  $CD = AC$ . If  $\angle BAD = 111^\circ$  and  $\angle ACB = 80^\circ$ , then the measure of  $\angle ABC$  is:

- (A)  $31^\circ$  (B)  $33^\circ$  (C)  $35^\circ$  (D)  $29^\circ$

138. In  $\triangle ABC$ ,  $\angle A + \angle B = 145^\circ$  and  $\angle C + 2\angle B = 180^\circ$ . State which one of the following relation is true:

- (A)  $CA = AB$  (B)  $CA < AB$  (C)  $BC > AB$  (D)  $CA > AB$

139. If the volumes of two right circular cones are in the ratio 4:1 and their diameters are in the ratio 5:4, then the ratio of their heights is:

- (A) 25:16 (B) 25:64 (C) 64:25 (D) 16:25

140. The proportion of acid and water in 3 samples is 2:1, 3:2 and 5:3. A mixture containing equal quantities of all 3 samples is made. The ratio of water and acid in the mixture is:

- (A) 120:133 (B) 227:133 (C) 227:120 (D) 133:227

SPACE FOR ROUGH WORK

141. A train 270 metres long is running at a speed of 36 km per hour; then it will cross a bridge of length 180 metres in :

- (A) 40 sec      ~~(B) 45 sec~~  
 (C) 50 sec      (D) 35 sec

The following table shows the productions of food-grains (in million tons) in a state for the period 1999 - 2000 to 2003 - 2004. Read the table and answer the questions 142 to 145.

Year	Production (in million tons)			
	Wheat	Rice	Barley	Other cereals
1999 - 2000	680	270	250	450
2000 - 2001	800	420	440	300
2001 - 2002	680	350	320	460
2002 - 2003	720	400	380	500
2003 - 2004	820	560	410	690

142. In 2002 - 2003, the percentage increase in the production of barley as compared to the previous year was :

- (A) 14.20      (B) 17.85  
~~(C) 18.75~~      (D) 7.90

143. During the period 1999 - 2000 to 2003 - 2004,  $x$  percent of the total production is production of wheat. The value of  $x$  is about :

- (A) 12.6      ~~(B) 37.4~~      (C) 37.8      (D) 20.2

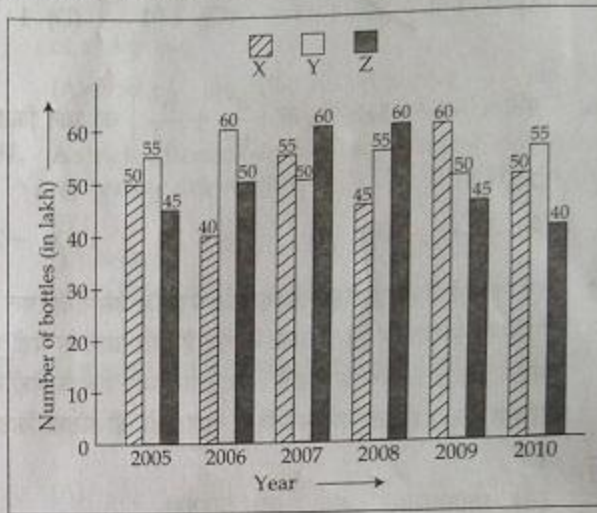
144. In the year 2003 - 2004, the increase in production was maximum over the previous year for :

- (A) Rice      (B) Barley  
~~(C) Other cereals~~      (D) Wheat

145. The difference of average production of rice and the average production of barley over the years is :

- (A) 50      (B) 60      (C) 80      ~~(D) 40~~

Production of three different flavours soft drinks X, Y and Z over a period of six years has been expressed in the following graph. Study the graph and answer the questions 146 to 150.



146. The approximate decline in the production of flavour Z in 2010 as compared to the production in 2008 is :

- ~~(A) 33%~~      (B) 22.5%      (C) 42%      (D) 25%

147. The average annual production was maximum in the given period for the flavour :

- ~~(A) Y only~~      (B) Z only  
 (C) X and Z      (D) X only

148. What percent of the total production of flavour X in 2005 and 2006 combined is the total production of flavour Z in 2007 and 2008 combined ?

- ~~(A) 102.25~~      (B) 115.57  
 (C) 133.33      (D) 96.67

149. The percentage of rise/fall in production from the previous year is maximum for the flavour Y in this year :

- ~~(A) 2007~~      (B) 2008      (C) 2009      (D) 2006

150. The difference (in lakh bottles) between the average production of flavour X in 2005, 2006, 2007 and the average production of flavour Y in 2008, 2009 and 2010 is :

- (A) 2.4      (B) 0.5      (C) 1.5      ~~(D) 5~~

SPACE FOR ROUGH WORK

Handwritten calculations:  

$$\frac{270}{180} = 1.5$$

$$\frac{180}{450} = 0.4$$

$$1.5 \times 0.4 = 0.6$$

$$36 \times 0.6 = 21.6$$

$$270 + 21.6 = 291.6$$

$$\frac{291.6}{36} = 8.1$$

PART - D

ENGLISH COMPREHENSION

**Directions :** In question numbers 151 to 155, some parts of the sentences have errors and some are correct. Find out which part of a sentence has an error and blacken the oval [●] corresponding to the appropriate letter (A, B, C). If a sentence is free from error, blacken the oval corresponding to (D) in the Answer Sheet.

151. When one hears of the incident /  
 (A)  
about the plane crash /  
 (B)  
he feels very sorry. / No Error.  
 (C) (D)
152. I went there / with a view to survey /  
 (A) (B)  
the entire procedure. / No Error.  
 (C) (D)
153. It had laid / in the closet /  
 (A) (B)  
for a week before we found it. / No Error.  
 (C) (D)
154. He was present / in the court / to give witness /  
 (A) (B) (C)  
No Error.  
 (D)
155. He laughed / on her /  
 (A) (B)  
as she fell off the tree. / No Error.  
 (C) (D)

**Directions :** In question numbers 156 to 160, sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four and indicate it by blackening the appropriate oval [●] in the Answer Sheet.

156. There are not solitary, free-living creatures ; every form of life is \_\_\_\_\_ other forms.  
 (A) dependent on (B) parallel to  
 (C) overshadowed by (D) segregated from
157. I'll take \_\_\_\_\_ now as I have another appointment somewhere else.  
 (A) departure (B) my leave  
 (C) permission (D) leave from work

158. A garden knife is \_\_\_\_\_ used for light pruning.  
 (A) generally (B) compulsorily  
 (C) systematically (D) daily
159. Serious threat to our ecology and environment can be \_\_\_\_\_ with organic cultivation.  
 (A) hastened  
 (B) impeded  
 (C) aggravated  
 (D) combated
160. 'My India' by Corbett deals \_\_\_\_\_ the author's familiarity with and love of India.  
 (A) in (B) of (C) at (D) with

**Directions :** In question numbers 161 to 165, out of the four alternatives, choose the one which best expresses the meaning of the given word and mark it in the Answer Sheet.

161. Abnormal (असामान्य)  
 (A) Unnatural (B) Aggressive (अक्रिय)  
 (C) Unique (असदृश) (D) Informal (अनौपचारिक)
162. Venal (धोखेबाज)  
 (A) Corrupt (B) Comprehensible (संग्रह्य)  
 (C) Legible (पढ़ने योग्य) (D) Forgivable (माफ करने योग्य)
163. Conjuror (जादूगर)  
 (A) Magician (B) Jester  
 (C) Performer (D) Trickster
164. Invoice (चलाना)  
 (A) Word (B) Sound  
 (C) Statement (D) Language
165. Ameliorate (दुखद सुधारना)  
 (A) Improve (सुधारा) (B) Degrade (अपमानित करना)  
 (C) Motivate (प्रेरणा) (D) Agree (सहमत)

Directions : In question numbers 166 to 170, choose the word opposite in meaning to the given word and mark it in the Answer Sheet.

166. Debacle (हारना)  
~~(A) Success (जीतना)~~ (B) Response (उत्तर देना)  
 (C) Acceptance (अपनाना) (D) Agreement (सहमति, करार)
167. Abusive (दुरुपयोगी)  
 (A) Laudatory (प्रशंसापूर्ण) (B) Profuse (प्रचुर, अत्यधिक)  
 (C) Effusive (जलना हुआ) ~~(D) Noble (पर उच्च)~~
168. Amorphous (अनिश्चित)  
 (A) Amoral (नापसंद) ~~(B) Definite (निश्चित)~~  
~~(C) Perfect (पूर्ण)~~ (D) Irregular (अव्यवस्थित)
169. Unitary (जोड़ना)  
~~(A) Single (अकेला)~~ (B) Triple  
~~(C) Multiple~~ (D) Double
170. Adulteration (मिलावट)  
~~(A) Purification (शुद्धि)~~ (B) Normalization  
~~(C) Rejuvenation (उत्थान)~~ (D) Consternation

Directions : In question numbers 171 to 175, four alternatives are given for the Idiom/Phrase underlined in the sentence. Choose the alternative which best expresses the meaning of the Idiom/Phrase and mark it in the Answer Sheet.

171. I tried to feel his pulse on the issue, but in vain.  
~~(A) find his views~~ (B) enlighten him  
~~(C) argue with him~~ (D) guide him
172. For this act of indifference he will be taken to task by the authority.  
~~(A) he will get an official reprimand from the authority.~~  
 (B) he will be rewarded by the authority.  
 (C) he will tender his resignation to the authority.  
 (D) he will be entrusted with an official job.
173. You need to have something up your sleeve if the present plan does not work.  
 (A) have some honest means  
 (B) have some hidden sources of money  
 (C) have a secret pocket in the sleeve  
~~(D) have an alternative plan~~
174. The new manager ruled the roost from day one.  
~~(A) exercised authority~~  
 (B) rushed through work  
 (C) got paid very handsomely  
~~(D) created good impression~~
175. Despite his initial arrogance he had to eat humble pie.  
~~(A) he had to yield under pressure~~  
 (B) he maintained composure  
 (C) he failed to protest eventually  
 (D) he accepted the food offered
- Directions : In question numbers 176 to 180, a part of the sentence is underlined. Below are given alternatives to the underlined part at (A), (B) and (C) which may improve the sentence. Choose the correct alternative. In case no improvement is needed your answer is (D).
176. The gentry of the town was invited.  
 (A) is invited (B) has been invited  
~~(C) were invited~~ (D) No improvement
177. After the written exam, you will also have an oral exam.  
 (A) practical ~~(B) viva voce~~  
 (C) vocal (D) No improvement
178. The regular use of alcohol, only in small quantities, tends to cause mischief in many ways to various organs of the body.  
 (A) though in small quantities  
~~(B) even in a little quantity~~  
~~(C) even in small quantities~~  
 (D) No improvement
179. If you were the Prime Minister of India what steps would you have taken to end unemployment?  
 (A) will you take (B) will you be taking  
~~(C) would you take~~ (D) No improvement
180. A high school student is not even understanding the basics of Chemistry and Physics.  
~~(A) does not understand even~~  
 (B) was not even understanding  
 (C) has even not understood  
 (D) No improvement

**Directions :** In question numbers 181 to 185, out of the four alternatives choose the one which can be substituted for the given words/sentence.

181. A person who attends to the diseases of the eye is an :

- (A) oculist (B) optimist  
(C) obstetrician (D) optician

182. The study of worms and insects.

- (A) taxidermy (B) entomology  
(C) ornithology (D) paleontology

183. A person who devotes his/her life for the welfare of others.

- (A) altruist (B) hermit  
(C) volunteer (D) martyr

184. A person who shows off his learning :

- (A) pedant (B) educationist  
(C) exhibitor (D) researcher

185. Written law of a legislative body.

- (A) statute (B) stature  
(C) static (D) statue

**Directions :** In question numbers 186 to 190, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word and mark your answer in the Answer Sheet.

186. (A) rhythm (B) rhithim  
(C) rhythim (D) rhythm

187. (A) indogeneous (B) indigenous  
(C) indegenous (D) indigeneous

188. (A) saccarine (B) sacarine  
(C) sachharine (D) saccharine

189. (A) revolutionize (B) revoulutionize  
(C) revvolutionize (D) revollutionize

190. (A) disentry (B) dysentry  
(C) diesentry (D) dysentery

**Directions :** In question numbers 191 to 200, you have two passages with 5 questions in each passage. Read the passage carefully and choose the best answer to each question out of the four alternatives and mark it by blackening the appropriate oval [●] in the Answer Sheet.

### Passage I (Q.No. 191-195)

It is not luck but labour that makes me. Luck, says an American author, is ever waiting for something to turn up ; labour with keen eyes and strong will always turns up something. Luck lies in bed and wishes the postman would bring him news of a legacy, labour turns out at six and with busy pen and ringing hammer lays the foundation of competence. Luck whines, labour watches, Luck relies upon chance, labour upon character. Luck slips downwards to self-indulgence ; labour strides upwards and aspires to independence. The conviction, therefore, is extending that diligence is the mother of good luck. In other words, a man's success in life will be proportionate to his efforts, to his industry, to his attention to small things.

191. Which one of the following words in the passage indicates that the writer does not ultimately reject the element of luck ?

(A) 'Luck whines'

(B) 'Diligence is the mother of good luck'.

(C) 'Luck ..... wishes the postman would bring him news'.

(D) 'Luck ..... is ever waiting'.

192. Which pair of words means the same thing ?

(A) Labour and industry

(B) Industry and legacy

(C) Diligence and legacy

(D) Legacy and labour



193. Which one of the following statements sums up the meaning of the passage ?

- (A) Luck waits and complains without working while labour achieves success although it complains.
- (B) Luck is self-indulgent, but labour is selfless.
- (C) Luck often ends in defeat but labour produces luck
- (D) Luck waits without exertion, but labour exerts without waiting.

194. '\_\_\_\_\_ Labour turns out at six and with busy pen and ringing hammer lays the foundation of competence'. What does this statement mean ?

- (A) Labour lays the foundation of the building.
- (B) The writer and the labourer are the true eyes of the society.
- (C) There is no worker who works so hard as the labourer who begins his day at six in the morning.
- (D) Hardwork of all kinds makes people different.

195. Which one of the statements is true about the passage ?

- (A) Success depends only on hardluck.
- (B) Expectation of good luck always meets with disappointment.
- (C) Success is exactly proportionate to hard work.
- (D) Luck is necessary for success.

#### Passage II (Q.No. 196-200)

Violence has played a great part in the world's history. It is today playing an equally important part and probably it will continue to do so for a considerable time. It is impossible to ignore the importance of violence in the past and present. To do so is to ignore life. Yet violence is undoubtedly bad and brings an unending trail of evil consequences with it. And worse even than violence are the motives of hatred, cruelty, revenge and punishment which very often accompany violence. Indeed, violence is bad, not intrinsically, but because of these motives that go with it. There can be violence without these motives; there can be violence for a good object as well as for an evil object. But it is extremely difficult to separate violence from these motives, and therefore, it is desirable to avoid violence as

far as possible. In avoiding it, however, one cannot accept a negative attitude of submitting to other and far greater evils. Submission to violence or the acceptance of an unjust regime based on violence is the very negative of the spirit of non-violence. The non-violence method, in order to justify itself, must be dynamic and capable of changing such a regime of social order.

196. The word 'dynamic' in the concluding line of the passage means :

- (A) active
- (B) energetic
- (C) capable of change and progress
- (D) all of the above

197. Which of the following statements is **incorrect** ?

- (A) Only violence can be used against violence.
- (B) Violence is not inherently evil.
- (C) Violence is a historically accepted fact.
- (D) Violence cannot be ignored.

198. 'Violence without these motives' is possible only in :

- (A) practice
- (B) reality
- (C) dream
- (D) theory

199. 'Indeed, violence is bad, not intrinsically, but because of these motives that go with it'. This suggests :

- (A) Violence is basically good.
- (B) Violence is bad only when it is associated with certain motives.
- (C) Violence is bad because the people who exercise it are bad.
- (D) Violence is basically bad.

200. Non-violence, according to the writer, means :

- (A) violence without the evil motives.
- (B) giving in to the tyranny of the powerful.
- (C) accepting violence as a fact of life.
- (D) none of the above.