

**SECTION-A**

**MATHEMATICS**

Q.1. How many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together?

- A. 920
- B. 825
- C. 720
- D. 610

Q.2. How many integers between 1000 and 9999 have exactly one pair of equal digit such as 5057 or 7702 but not 5557 or 7070?

- A. 3898
- B. 3899
- C. 3888
- D. None of these

Q.3. A problem is given to three persons P, Q, R whose respective chances of solving it are  $\frac{2}{7}$ ,  $\frac{4}{7}$ ,  $\frac{4}{9}$  respectively. What is the probability that the problem is solved?

- A.  $\frac{120}{140}$
- B.  $\frac{122}{147}$
- C.  $\frac{122}{149}$
- D.  $\frac{120}{147}$

Q.4. If each side of a square is increased by 25%, find the percentage change in its area?

- A. 65.5
- B. 65
- C. 56
- D. 56.25

Q.5. What is the sum of all 3-digit numbers that leave a remainder of '2' when divided by 3?

- A. 897
- B. 164850
- C. 164749
- D. 149700

Q.6 Given  $A = 2^{65}$  and  $B = (2^{64} + 2^{63} + 2^{62} + \dots + 2^0)$ , which of the following is true?

- A. B is  $2^{64}$  larger than A
- B. A and B are equal
- C. B is larger than A by 2
- D. A is larger than B by 1

Q.7. A bag contains 6 white and 4 black balls. Two balls are drawn at random. Find the probability that they are of same colour.

- A.  $1/2$
- B.  $7/15$
- C.  $8/15$
- D.  $1/9$

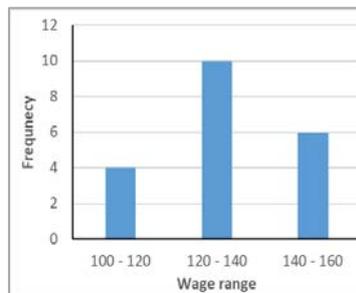
Q.8. Let, the mean of  $y_1, y_2, y_3, \dots, y_n$  be  $\bar{Y}$ . Then the value of  $\sum_{i=1}^n (y_i - \bar{Y})$  is

- A. 0
- B. 1
- C.  $\bar{Y}$
- D.  $y_n$

Q.9. In a class, the heights of five students are 70, 60, 65, 68 and 69 inches respectively. Two new students of heights 70 and 62 inches joined the class. What is the new median height of students?

- A. 66 inch
- B. 68 inch
- C. 65 inch
- D. 70 inch

Q.10. Following is the frequency histogram of wages of 20 workers in an agricultural farm. What is the average salary of the workers?



- A. 125
- B. 130
- C. 132
- D. 120

### SECTION-B

#### LOGICAL REASONING

Direction: In each of the questions below are given three statements followed by four conclusions numbered I, II, III and IV. You have to take the three given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follow(s) from the given statements disregarding commonly known facts.

- Q. 11. Statements:
- (A) Some cats are tigers
  - (B) Some tigers are wolves
  - (C) Some wolves are animals

Conclusions: I. Some animals are cats  
II. Some wolves are cats  
III. Some animals and tigers  
IV. No animals are tigers

- A. Only III follows
- B. Only either I or IV and III follows
- C. Only either I or IV and II follows
- D. None follows

Q. 12. Statements: (A) All pencils are pens  
(B) No pens are markers  
(C) All markers are erasers

Conclusions: I. No pencil is a marker  
II. No pencil is an eraser  
III. Some erasers are pens  
IV. Some markers are pencils

- A. Only I follows
- B. Only I and II follow
- C. Only II and III follow
- D. Only III and IV follow

Q. 13. What will come in place of the question mark (?) in the following numerical series

0, 6, 20, 42, 72, ?

- A. 111
- B. 110
- C. 113
- D. 103

Q. 14. What will come in place of the question mark (?) in the following numerical series

5, 7, 25, 131, 925, ?

- A. 5335
- B. 8335
- C. 8115
- D. 9665

Q. 15. Direction for Question

1. A#B means B is at 1 metre to the right of A
2. A\$B means B is at 1 metre to the North of A
3. A\*B means B is at 1 metre to the left of A
4. A@B means B is at 1 metre to the south of A
5. In the given question first person from the left is facing North

According to C@B\*A, A is in which direction with respect to C?

- A. North
- B. South
- C. North East
- D. South West

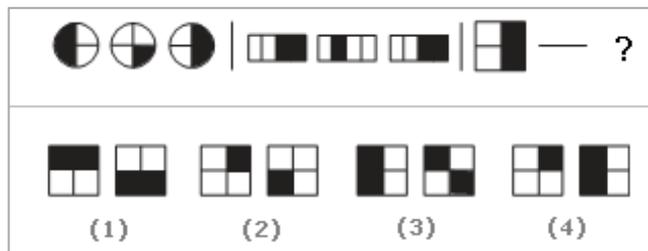
Q. 16. In a certain language “D E L H I” is written as 16 25 144 64 81. How is “A G R A” coded in that language?

- A. 1 71 71
- B. 1 49 289 1
- C. 1 49 324 1
- D. 1 81 289 1

Q. 17. If HE is coded as 40 and SHE is coded as 760, then how can ME be coded?

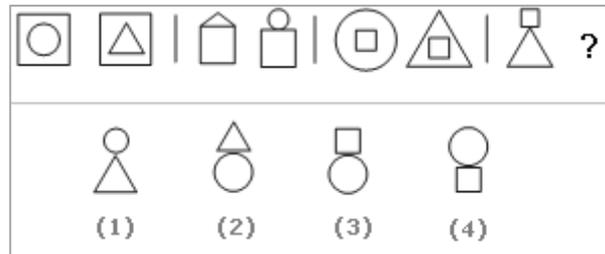
- A. 165
- B. 65
- C. 265
- D. 166

Q. 18. Look carefully at the sequence of symbols to find the pattern. Select correct pattern.



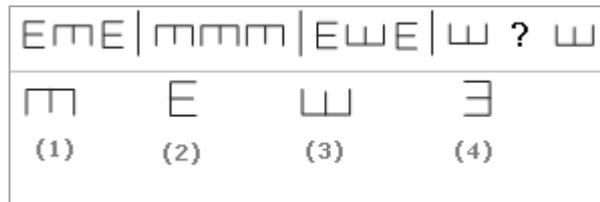
- A. 1
- B. 2
- C. 3
- D. 4

Q. 19.



- A.1
- B. 2
- C.3
- D.4

Q. 20.



- A.1
- B. 2
- C.3
- D.4

Q. 21. A is B's sister. C is B's mother. D is C's father. E is D's mother. Then, how is A related to D?

- A. Granddaughter
- B. Grandfather
- C. Grandmother
- D. Daughter

Q. 22. Botany: Plants :: Entomology:?

- A. Skin
- B. Germs
- C. Snakes
- D. Insects

Q. 23. Lungs: Pulmonary :: Kidney:?

- A. Renal
- B. Digestive
- C. Circulatory
- D. None of the above

Q. 24. What would come next in the following series?

A10, D15, G20, J25\_\_\_\_\_

- A. N18
- B. O20
- C. M16
- D. None of these
- E.

Q. 25. If "FISH" is coded as 3 and "ORANGE" is coded as 5 and "APPLE" is coded as 4, then how will you code "UMBRELLA"

- A. 6
- B. 7
- C. 8
- D. 9

## SECTION-C

### ENGLISH COMPREHENSION

Read the following passages to answer questions from 26 to 30.

**Passage-1** The villager has customarily been very conservative in his attitude and approach. He is reluctant to change his traditional way of thinking and doing things. His attitude, in many respects is 'home made is best' for instance, most cattle farmers in the villages, prefer to feed their cows and buffaloes with a home-mix comprising of local oil cakes like mustard or cottonseed, pulses, jaggery, salt, etc.

It takes numerous visits, hard convincing, daily trials and experiments to convince the rural cattle farmers that compound feeds, scientifically formulated, improve the yields of milk, without any incremental costs. The age old values and attitudes towards caste, creed, women, time and money take time to change. The villager has traditionally been a believer in the philosophy of *Karma* or fate. He has found it more convenient to blame his economic destitution, poor living conditions and strained social status on *Bhagya*, *Karma* or fate.

The security that the villagers find in the 'status quo' acts as a disincentive to change and experiment, in the short-run. Many of these antiquated attitudes, value systems and outlooks are changing due to improved levels of awareness and education. However, the rate of change is sluggish. Attitudes they have fossilised over the centuries, do take time to change.

Q. 26. The villager is conservative in his attitude and approach, the statement best implies

- A. The villager does not like to work hard
- B. The villager is not innovative
- C. The villager is reluctant to change his traditional approach, way of thinking and doing things
- D. The villager has no interest to progress

Q.27. Which of the following is a correct statement derived from the passage?

- A. Age old values, attitudes and outlooks are changing very fast
- B. Age old values, attitudes and outlooks are changing very slow
- C. There is no change in the thoughts and approaches
- D. Improved levels of awareness alone can lead to change in society.

**Passage-2:** *According to the author, In the social production of their life, men enter into definite relations that are indispensable and independent of their will; these relations of production correspond to a definite stage of development of their material forces of production. The sum total of these relations of production constitutes the economic structure of society-the real foundation, on which rises a legal and political superstructure and to which correspond definite forms of social consciousness. The mode of production of material life determines the social, political and intellectual life process in general. It is not the consciousness of men that determines their being, but, on the contrary, their social being that determines their consciousness. At a certain stage of their development, the material productive forces in society come in conflict with the existing relations of production, or-what is but a legal expression for the same thing-with the property relations within which they have been at work before. From forms of development of the productive forces these relations turn into their fetters. Then begins the epoch of social revolution.*

Q.28. According to the author which of the following is the real foundation on which rises a superstructure?

- A. Technology
- B. Institution
- C. Economic structure of society
- D. None of the above

Q.29. Social, political and intellectual life processes in general are determined by

- A. The means of political life
- B. The mode of production of material life
- C. The mode of production of culture
- D. The means of livelihood

Q.30. According to the passage which of the following statement(s) is/are correct?

- A. The consciousness of man determines their being
- B. Social being determines their consciousness
- C. Both A and B are correct statements
- D. None of the statements is correct