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PAPER – 3:
QUANTITATIVE APTITUDE

QUESTIONS

1. If x = 2 +$\sqrt{3}$ and y = 2 $-\sqrt{3}$ then value of $x^2 + y^2$ =

   (a) 14

   (b) 4

   (c) 2

   (d) 6

2. if $y = e^{a \log x} + e^{x \log a}$, then $\frac{dy}{dx}$ =

   (a) $x^a + a^x$

   (b) $a\,x^{a-1} + a^x \log a$

   (c) $a\,x^{a-1} + x\,a^{x-1}$

   (d) $x^x + a^a$

3. The sum of the series 1 + 11 + 111 + ... to n terms is _____.

   (a) $\frac{1}{27}(10^{n+1} - 9n - 10)$

   (b) $10^{n+1} - 9n - 10$

   (c) $\frac{1}{81}(10^{n+1} - 9n - 10)$

   (d) None of these

4. If arithmetic mean between roots of a quadratic equation is 8 and the geometric mean between them is 5, the equation is_____.

   (a) x^2- 16x – 25 = 0

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(b) $x^2 - 16x + 25 = 0$

(c) $x^2 - 16x + 5 = 0$

(d) None of these.

5. For a group of 200 persons, 100 are interested in music, 70 in photography and 40 in swimming, Further, more 40 are interested in both music and photography, 30 in both music and swimming, 20 in photography and swimming and 10 in all the three. How many are interested in photography but not in music and swimming?

(a) 30

(b) 15

(c) 25

(d) 20

6. A Supreme Court Bench consists of 5 judges. In how many ways, the bench can give a majority decision?

(a) 10

(b) 5

(c) 15

(d) 16

7. ₹ 1,25,000 is borrowed at compound interest at the rate of 2% for the 1st year, 3% for the second year and 4% for the 3rd year. Find the amount to be paid after 3 years.

(a) ₹ 125678

(b) ₹ 136587

(c) ₹ 163578

(d) ₹ 136578

8. The difference between compound interest and simple interest on a certain sum for 2 years @ 10% p.a. is ₹ 100. Find the sum:

(a) ₹ 10,100

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(b) ₹ 10,950

(c) ₹ 10,000

(d) ₹ 9,900

9. Flow much amount is required to be invested every year as to accumulate ₹6,00,000 at the end of 10th year, if interest is compounded annually at 10% rate of interest?

(a) ₹ 37,467

(b) ₹ 37,476

(c) ₹ 37,647

(d) ₹ 37,674

10. Paul borrows ₹ 20,000 on condition to repay it with compound interest at 5% p.a. in annual instalment of ₹ 2,000 each. Find the number of years in which the debt would be paid off.

(a) 10 years

(b) 12 years

(c) 14 years

(d) 15 years

11. The number in place of question mark in: 7, 26, 63, 124, 215, ?, 511 is

(a) 342

(b) 343

(c) 441

(d) 421

12. In certain code language, BOARD is coded as CQDVI, what is the code for the word CONSULTING?

(a) DQQWZRARNQ

(b) DQQWZARQWQ

(c) DQQWZRAQWQ

(d) None of these

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Directions (Illustrations 13-14) Study the following information carefully and answer the questions given below.

Six friends A, B, C, D, E and F are sitting in a row facing towards North. C is sitting between A and E. D is not at the end. B is sitting at immediate right of E. F is not at the right end but D is sitting at 3rd left of E.

13. How many persons are there to the right of D?

    (a) One

    (b) Two

    (c) Three

    (d) Four

14. Which of the following is sitting to the left of D?

    (a) F

    (b) C

    (c) E

    (d) A

15. The distribution of profits of a company follows:

    (a) J-shaped frequency curve

    (b) U-shaped frequency curve

    (c) Bell-shaped frequency curve

    (d) Any of these

16. Median of a distribution can be obtained from:

    (a) Historgarm

    (b) Frequency Polygon

    (c) Less than type ogives

    (d) none of these

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17. Frequency density corresponding to a class interval is the ratio of
    (a) Class Frequency to the Total Frequency
    (b) Class Frequency to the class Length
    (c) Class frequency to the class Frequency
    (d) Class Frequency to the Cumulative Frequency.
18. If all observations in a distribution are increased by 6, then the variance of the series will be _____
    (a) Increased
    (b) Decreased
    (c) Unchanged
    (d) None of these.
19. Which measure of dispersion is base on the absolute deviation only?
    (a) Range
    (b) Standard Deviation
    (c) Mean Deviation
    (d) Quartile Deviation
20. The mean of 100 students was 45. Later on, it was discovered that the marks of two students were misread as 85 and 54 instead of 58 and 45. Find correct mean.
    (a) 68
    (b) 36
    (c) 44.64
    (d) 52
21. Rupesh is known to hit a target in 5 out of 9 shots whereas David is known to hit the same target in 6 out of 11 shots. What is the probability that the target would be hit once they both try?
    (a) 79/99

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(b) 10/13

(c) 14/26

(d) 13/18

22. In a business venture, a man can make a profit of ₹ 50,000 or incur a loss of ₹ 20,000. The probabilities of making profit or incurring loss, from the past experience, areknown to be 0.75 and 0.25 respectively. What is his expected profit?

(a) ₹ 33,500

(b) ₹ 34,500

(c) ₹ 35,500

(d) ₹ 32,500

23. Find the probability of a success for the binomial distribution satisfying the following relation

4 P (x = 4) = P (x = 2) and having the parameter n as six.

(a) 1/3

(b) 1/2

(c) 1/5

(d) 1/8

24. An experiment succeeds thrice as after it fails. If the experiment is repeated 5times, what is the probability of having no success at all?

(a) 1/1023

(b) 1/1024

(c) 1/1005

(d) 1/1008

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25. If the two quartiles of a normal distribution are 47.30 and 52.70 respectively, what is the mode of the distribution? Also find the mean deviation about median of thisdistribution.

    (a) 3.80

    (b) 3.40

    (c) 3.20

    (d) 4.20

26. X follows normal distribution with mean as 50 and variance as 100. What is P(x≥ 60)? [Given $\varphi(1) = 0.8413$]

    (a) 0.20

    (b) 0.40

    (c) 0.16

    (d) 0.30

27. Number of misprints per page of a thick book follows

    (a) Normal distribution

    (b) Poisson distribution

    (c) Binomial distribution

    (d) Standard normal distribution

28. If for a Poisson variable X, f(2) = 3 f(4), what is the variance of X?

    (a) 2

    (b) 4

    (c) $\sqrt{2}$

    (d) 3

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29. If the points of inflexion of a normal curve are 40 and 60 respectively, then its mean is

(a) 40

(b) 45

(c) 50

(d) 60

30. Fisher's index number satisfies the _____ tests

(a) Time Reversal Test

(b) Factor Reversal Test

(c) both

(d) none

SUGGESTED ANSWERS/HINTS

1.	**(a)**	2.	**(b)**	3.	**(c)**	4.	**(b)**	5.	**(d)**
6.	**(d)**	7.	**(d)**	8.	**(c)**	9.	**(c)**	10.	**(d)**
11.	**(a)**	12.	**(c)**	13.	**(d)**	14.	**(a)**	15.	**(a)**
16.	**(c)**	17.	**(b)**	18.	**(c)**	19.	**(c)**	20.	**(c)**
21.	**(a)**	22.	**(d)**	23.	**(b)**	24.	**(a)**	25.	**(c)**
26.	**(c)**	27.	**(b)**	28.	**(a)**	29.	**(c)**	30.	**(c)**

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