

Entrance Sample Questions

1. $f(x)$ is a continuous function that takes only rational values. If $f(0)=3$ then $f(2)$ is equal to:

- A) 5
- B) 1
- C) 0
- D) None of these

2.

Which of the following is a possible value of

$$\sin^{-1}\left(\cos\left(\frac{43\pi}{5}\right)\right) \text{ is}$$

- A) $\frac{3\pi}{5}$
- B) $-\frac{7\pi}{5}$
- C) $\frac{\pi}{10}$
- D) $-\frac{\pi}{10}$

3.

What is $\int_0^{\frac{\pi}{2}} \frac{\sin^3 x}{\sin^3 x + \cos^3 x} dx$?

- A) π
- B) $\frac{\pi}{2}$
- C) $\frac{\pi}{4}$
- D) 0

4.

$$\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+x & 1 \\ 1 & 1 & 1+y \end{vmatrix} \text{ equals}$$

- A) $x + y$
- B) xy
- C) $x - y$
- D) $1 + x + y$

5. Solution of differential equation $x \cdot dy - y \cdot dx = Q$ represents:

- A. a rectangular hyperbola
- B. parabola whose vertex is at the origin
- C. straight line passing through the origin
- D. a circle whose center is at the origin

6.

What unit vector is parallel to the vector $-6\hat{i} + 8\hat{j}$?

- A) $-\frac{3}{2}\hat{i} + \frac{4}{3}\hat{j}$ B) $-\frac{3}{5}\hat{i} + \frac{4}{5}\hat{j}$ C) $\frac{3}{2}\hat{i} + \frac{8}{3}\hat{j}$ D) $\frac{3}{10}\hat{i} + \frac{8}{5}\hat{j}$

7. SCD, TEF, UGH, ____, WKL

- A) CMN
- B) UJI
- C) VIJ
- D) IJT

8. BINDING : BOOK

- A) criminal : gang
- B) Display : Museum
- C) Artist : carpenter
- D) Frame : picture

Q. At a small company, parking spaces are reserved for the top executives: CEO, president, vice president, secretary, and treasurer with the spaces lined up in that order. The parking lot guard can tell at a glance if the cars are parked correctly by looking at the color of the cars. The cars are yellow, green, purple, red, and blue, and the executives' names are Alice, Bert, Cheryl, David, and Enid.

- * The car in the first space is red.
- * A blue car is parked between the red car and the green car.
- * The car in the last space is purple.
- * The secretary drives a yellow car.
- * Alice's car is parked next to David's.
- * Enid drives a green car.
- * Bert's car is parked between Cheryl's and Enid's.
- * David's car is parked in the last space.

9. Who is the secretary?

- A) Enid
- B) David
- C) Cheryl
- D) Bert
- E) Alice

10. Who is the CEO ?

- A) Alice
- B) Bert
- C) Cheryl
- D) David
- E) Enid

11. Pointing to a photograph of a boy Suresh said, "He is the only son of my mother." How is Suresh related to that boy?

- A) Brother
- B) Uncle
- C) Cousin
- D) Father

12. For 5 pairs of values of x and y , the values of $x + y$ are 24, 28, 30, 33, 35, and variances of x and y are 6 and 2 respectively. Calculate the correlation coefficient between x and y .

- A) 0.97
- B) 0.98
- C) 0.99
- D) 1.00

13. If the two regression lines are perpendicular, then r is equal to .

- A) 1
- B) -1
- C) +1
- D) 0

14. In the method of least squares, the principle is to minimize the.

- A) Sum of errors
- B) Square of errors
- C) Sum of square for errors
- D) None of the above

15. Procedural biases arise in .

- A) Only complete census
- B) Only sample survey
- C) Both complete census and sample survey
- D) None of the above

16. Total number of possible samples of size 2 each drawn by SRSWR from a population of 6 members is.

- A) 64
- B) 15
- C) 30
- D) 36

17. In SRSWOR the probability that a particular member is included in the selected sample is.

- A) n/N
- B) $1/N$
- C) $1/n$
- D) N/n

18. Which of the following is a control chart for attribute.

- A) \bar{X} chart
- B) R chart
- C) np chart
- D) None of these

19. LCL and UCL are generally at equal distance from the central line , the common distance being.

- A) 2σ
- B) 3σ
- C) σ
- D) None of the above

20. 12 men can complete a work in 8 days. 16 women can complete the same work in 12 days. 8 men and 8 women started working and worked for 6 days. How many more men are to be added to complete the remaining work in 1 day?

- A) 8
- B) 12
- C) 16
- D) 24

21. If the letters of the word SACHIN are arranged in all possible ways and these words are written out as in dictionary, then the word 'SACHIN' appears at serial number :

- A) 601
- B) 600
- C) 603
- D) 602

22. Let U be the universal set, A and B be the subsets of U . If $n(U) = 450$, $n(A) = 200$, $n(B) = 205$ and $n(A \cap B) = 15$, then $n(A' \cap B')$ is equal to:

(A' and B' are the complements of A and B , respectively)

- A) 55
- B) 60
- C) 65
- D) 70

23.

Correct Marks : 1 Wrong Marks : 0

A question is given, followed by two statements. Identify which of the statements is/are sufficient to answer the question.

Question:

Four girls, A, B, C and D, and four boys, E, F, G and H, are sitting around a circular table facing the centre such that no two boys are adjacent to each other. The distances between two neighbors are equal for all the persons. Who is sitting between C and D?

Statements:

I. D is facing B, who is third to the right of E. A is facing C, and F is facing E.

II. C is facing A, who is between E and H. D is second to the left of A, and G is second to the right of H.

- A) Statement I alone is sufficient
- B) Statement II alone is sufficient
- C) Either statement I alone is sufficient or Statement II alone is sufficient
- D) Both statements I and II are needed

24. Statements: All the trucks are flies. Some scooters are flies.

Conclusions: 1) All the trucks are scooters. 2) Some scooters are trucks.

- A) Only (1) conclusion follows
- B) Only (2) conclusion follows
- C) Either (1) or (2) follows
- D) Neither (1) nor (2) follows
- E) Both (1) and (2) follow

25.

Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statements:

Farmers are warned not to use chemical fertilisers just for the sake of increasing their crop yield.

Assumptions:

I. Crop yield would decrease as a result of using organic fertilisers.

II. Chemical fertilisers carry harmful effects.

- A) Only assumption I is implicit
- B) Only assumption II is implicit
- C) Both assumptions I and II are implicit
- D) Neither assumption I nor II are implicit

Answer:

1. D

2. D

3. C

4. B

5. C

6. B

7. C

8. D

9. E

10. C

11. D

12. B

13. D

14. C

15. B

16. D

17. B

18. C

19. B

20. B

21. A

22. B

23. B

24. B

25. B