Model Question Paper
Admission 2021 – 22 Entrance Examination

Course Name: Entrance Examination for MCA & MSc Computer Science

Venue: ....

Date: xx-xx-xxxx   **Time: xx.xx - xx.xx**

Duration: 2 Hrs   **Max.Marks:100**

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General Instructions

1   This booklet contains **50 multiple choice** objective type questions.

2   All questions carry **equal marks**.

3   **Two marks** for each correct answer and **negative 0.50 mark** for each wrong answer.

4   Each question in this booklet is followed by four probable answers which are indicated by letters A, B, C and D.

5   Candidates have to choose the best suited option from the available four options.

6   Mark your answers in the **separate OMR** answer sheet provided.

7   Shade the appropriate oval against each question in the OMR Sheet. Shade the oval completely and do not shade more than one oval

8   Multiple choices marked as answers for a question will be treated as **wrong answer.**

9   Do not make any stray marks or smudges on the OMR Sheet.

10 Do not damage or mutilate the OMR Sheet.

11 All **rough work** should be done in the space provided at the end of the booklet.

12 Calculator, Mobile phone, pager, log table etc., are not allowed.

13 Malpractices if any will **disqualify** your candidature.

14 All candidates must **return this booklet and OMR** answer sheet to the invigilator at the end of the test.

15 Invigilator will not entertain any sort questions after the commencement of the test

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Do not open this booklet until you are asked to do so

1. The determinant of identity matrix is?
    a. 1
    b. 0
    c. Depends on the matrix
    d. None of the mentioned

2. Matrices obtained by changing rows and columns is called
    a. rectangular matrix
    b. transpose
    c. symmetric
    d. None of above

3. The symmetric difference of A = {1, 2, 3} and B = {3, 4, 5} is
    a. {1, 2}
    b. {1, 2, 4, 5}
    c. {4, 3}
    d. {2, 5, 1, 4, 3}

4. The solution of the system x + y − 3x = −6 , − 7y + 7z = 7 , 3z = 9 is
    a. x = 1, y = 2, z = 3
    b. x = −1, y = 2, z = 3
    c. x = − 1, y = −2, z = 3
    d. x = 1, y = 2, z = 3

5. Graphically, the pair of equations 7x - y = 5; 21x - 3y = 10 represents two lines which are
    a. coincident
    b. intersecting at one point
    c. parallel
    d. intersecting at two points

6. Number of edges incident with the vertex v is called?
    a. Degree of a Graph
    b. Handshaking Lemma
    c. Degree of a Vertex
    d. None of the above

7. If the origin and terminus of a walk are same, the walk is known as... ?
    a. Open
    b. Closed
    c. Path
    d. None of these

8. Find the number of ways of arranging the letters of the words DANGER, so that no vowel occupies odd place.
    a. 36
    b. 48
    c. 144
    d. 96

9. If ^nP_r = 3024 and ^nC_r = 126 then find n and r.
    a. 9, 4
    b. 10, 3
    c. 12, 4
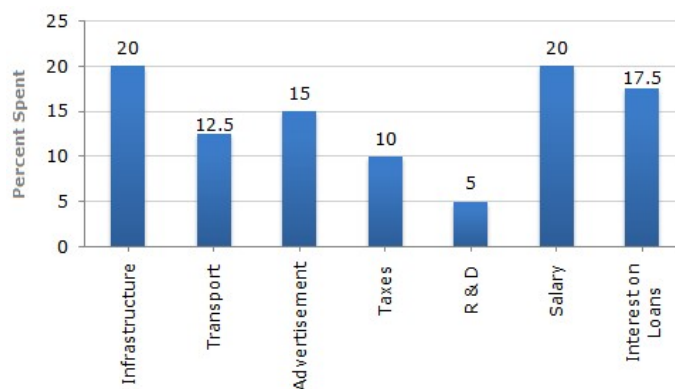   d. 11, 4

10. The inverse of 3 modulo 7 is?
    a. -1
    b. -2
    c. -3
    d. -4

11. Which of the following is a subset of set {1, 2, 3, 4}?
    a. {1, 2}
    b. {1, 2, 3}
    c. {1}
    d. All of the mentioned

12. If n(A) = 20 and n(B) = 30 and n(A U B) = 40 then n(A ∩ B) is?
    a. 20
    b. 30
    c. 40
    d. 10

13. Which option contains two equal sets?
    a. X = {5, 6} and Y = {6}
    b. X = {5, 6, 8, 9} and Y = {6, 8, 5, 9}
    c. X = {5, 6, 9} and Y = {5, 6}
    d. X = {5, 6} and Y = {5, 6, 3}

14. According to the symmetric matrix, which of the following statement is correct?
    a. A = AT
    b. All the diagonal elements of a symmetric matrix are One.
    c. A = -AT
    d. All the diagonal elements of a symmetric matrix are Zero.

15. The middle value of an ordered series is called:
    a. 2nd quartile
    b. 5th decile
    c. 50th percentile
    d. all the above

16. In a class test 40 students out of 50 passed with mean marks 6.0 and the overall average of class marks was 5.5. The average marks of students failed were:
    a. 2.5   b. 3.0
    c. 4.8   d. 3.5

17. Sum of the squares of the deviations about mean is:
    a. maximum   b. minimum
    c. zero   d. none of the above

18. The mean of the squares of first eleven natural numbers is:
    a. 46   b. 23
    c. 48   d. 42

19. If each observation of a set is divided by 10, the S.D. of the new observation is:
    a. 1/10th of S.D of original observations.   b. 1/100th of S.D of original observations.
    c. not changed   d. 10 times of S.D of original observations.

20. The mean of a series is 10 and its coefficient of variation is 40 percent, the variance of the series is:

a. 4   b. 8
c. 12   d. none of the above

21. If $Y_{XY} = 0$, the variables X and Y are
    a. linearly related   b. independent
    c. not linearly related   d. none of the above

22. If the variables X and Y are independent, the value of the regression coefficient is:
    a. 1   b. -1
    c. 0   d. ± 1

23. Probability is expressed as:
    a. ratio   b. proportion
    c. percentage   d. all the above

24. Classical probability is also known as:
    a. Laplace's probability   b. Mathematical probability
    c. a priori probability   d. all the above

25. If $B \subset A$, the probability, $P(A/B)$ is equal to:
    a. zero   b. one
    c. P(A)/P(B)   d. P(B)/P(A)

26. Arrange the words given below in a meaningful sequence:
    1.Presentation 2.Recommendation 3. Arrival 4.Discussion 5.Introduction
        a. 5, 3, 4, 1, 2
        b. 3, 5, 4, 2, 1
        c. 3, 5, 1, 4, 2
        d. 5, 3, 1, 2, 4

27. How many 4's are there preceded by 7 but not followed by 3?
    5 9 3 2 1 7 4 2 6 9 7 4 6 1 3 2 8 7 4 1 3 8 3 2 5 6 7 4 3 9 5 8 2 0
    1 8 7 4 6 3
        a. Four
        b. Three
        c. Six
        d. Five

28. In how many ways can we arrange the word 'FUZZTONE' so that all the vowels come together?
        a. 1440
        b. 6
        c. 2160
        d. 4320

29. Greatest Common Divisor of two numbers is 8 while their Least Common Multiple is 144. Find the
    other number if one number is 16.
        a. 108
        b. 96
        c. 36
        d. 72

30. A man goes to Mumbai from Pune at a speed of 4 km/hr and returns to Pune at speed of 6km/hr.
    What is his average speed of the entire journey?
        a. 4.8 KM/h

b. 5 Km/h

c. 4.2 Km/h

d. 5.6 Km/h

31. Anil bought a T.V with 20% discount on the labelled price. Had he bought it with 25% discount, he would have saved Rs. 500. At what price did he buy the T.V?

    a. Rs. 16000

    b. Rs. 10000

    c. Rs. 12000

    d. Rs. 5000

32. Two third of three fifth of five sixth of a number is what percentage of that number?

    a. 66 2/3 %

    b. 3 1/3 %

    c. 60%

    d. 40 %

33. Praveen starts business with Rs.3500 and after 5 months, Hari joins with Praveen as his partner. After a year, the profit is divided in the ratio 2 : 3. What is Hari's contribution in the capital?

    a. Rs 7500

    b. Rs. 8000

    c. Rs. 9000

    d. Rs. 9500

34. Mr. Govind invested an amount of Rs.13900 divided in two different schemes S1 and S2 at the simple interest rate of 14% p.a. and 11% p.a. respectively. If the total amount of simple interest earned in two years was Rs.3508, what was the amount invested in Scheme S2?

    a. Rs. 6400

    b. Rs. 6500

    c. Rs. 7200

    d. Rs. 7500

35. A bag contains 2 yellow balls, 3 white balls and 5 red balls. In how many ways can two balls be drawn from the bag?

    a. $^2C_2$

    b. $^{10}C_2$

    c. $^8C_2$

    d. $^5C_2$

Analyze the graph for the questions 36 to 40

The below bar graph shows the percentage distribution of the total expenditures of Tata Steel Ltd under various expense heads during 2020.

36. The total amount of expenditures of the company is how many times of expenditure on research and development?
    a. 27
    b. 20
    c. 18
    d. 8

37. If the expenditure on advertisement is 2.10 crores, then the difference between the expenditure on transport and taxes is?
    a. Rs. 1.25 crores
    b. Rs. 95 lakhs
    c. Rs. 65 lakhs
    d. Rs. 35 lakhs

38. What is the ratio of the total expenditure on infrastructure and transport to the total expenditure on taxes and interest on loans?
    a. 5:4
    b. 8:7
    c. 9:7
    d. 13:11

39. If the interest on loans amounted to Rs. 2.45 crores then the total amount of expenditure on advertisement, taxes and research and development is?
    a. Rs. 7 crores
    b. Rs. 5.4 crores
    c. Rs. 4.2 crores
    d. Rs. 3 crores

40. The expenditure on the interest on loans is by what percent more than the expenditure on transport?
    a. 5%
    b. 10%
    c. 20%
    d. 40%

41. Arun buys good worth Rs. 6650. He gets a rebate of 6% on it. After getting the rebate, he pays sales tax @ 10%. Find the amount he will have to pay for the goods.
    a. Rs. 6876.10
    b. Rs. 6999.20
    c. Rs. 6654
    d. Rs. 7000

42. What will be the ratio of simple interest earned by certain amount at the same rate of interest for 6 years and that for 9 years?
    a. 1 : 3
    b. 1 : 4
    c. 2 : 3
    d. None of these

43. From a point X on a level ground, the angle of elevation of the top tower is 30°. If the tower is 100 m high, the distance of point X from the foot of the tower is:
    a. 149 m
    b. 156 m
    c. 173 m
    d. 200 m

44. A 300 meter long train crosses a platform in 39 seconds while it crosses a signal pole in 18 seconds. What is the length of the platform?
    a. 320 m
    b. 350 m
    c. 650 m
    d. Data inadequate

45. On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls. The cost price of a ball is:
    a. Rs. 45
    b. Rs. 50
    c. Rs. 55
    d. Rs. 60

46. Code for letters in the word SOLE are –
    a. txza
    b. fvxy
    c. mtax
    d. vtax

47. Code for letters in the word STAR are
    a. ipaj
    b. jami
    c. paiz
    d. ajkl

48. Write in a correct sequence – (A) Rainbow (b) Rain (c) Sun (d) Happiness (e) Children
    a. dbcea
    b. deabc
    c. badce
    d. bcaed

49. In a coded language SHOP = 8256 , WORK = 9573 and HOME = 2541 then the code for SMOKE will be
    a. 84531
    b. 83451
    c. 84351
    d. 85431

50. In a coded language TRACE = 43251 and EARTH = 12347 then the code for FACT = 12347 then the code for FACT will be
    a. 9245
    b. 9254
    c. 9425
    d. 9524