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FOR KUET EXAM PREPARATION

KUET 2021 Question Paper · M.Sc. IT

EXAM	YEAR	TYPE	SUBJECT
KUET	2021	Question Paper	M.Sc. IT

Sr. No. .....

ENTRANCE TEST-2021

SCHOOL OF APPLIED SCIENCES & TECHNOLOGY

INFORMATION TECHNOLOGY

Question Booklet Series **A**

Total Questions : 60

Time Allowed : 70 Minutes

Roll No. : | | | | | | |

Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be **'Negative Marking'** for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/ herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

✦

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In questions (1-2) below choose the option which can be substituted for the given words/sentences.

1. One who breaks the established traditions and image
   (A) fatalist
   (B) iconoclast
   (C) fanatic
   (D) philogynist
2. Placing a thing beside another
   (A) impose
   (B) repose
   (C) juxtapose
   (D) expose

Choose the best possible analogies for Q3-Q4.

3. Thrust:Spear::
   (A) mangle:iron
   (B) scabbard:sword
   (C) bow:arrow
   (D) fence:epee
4. Bewilderment:Confusion ::
   (A) Bursa : sack
   (B) Bewitched : alliteration
   (C) Fantod : nervousness
   (D) Coracle : lodestar
5. Choose the word which is least like the other words.
   (A) Barber
   (B) Carpenter
   (C) Blacksmith
   (D) Tailor
6. Ted Rosen explained in an interview that_____ his new book describes actual historical events from the days of the establishment of the State, he does not_____ regarded as a history book. He even states explicitly that he _____objective facts in the book: "In writing this book, I felt bound_____ ," he said.
   (A) although / intend it to be / never claimed to present / only by my experiences and thoughts
   (B) since / object to it being / spared no effort to present / only by my personal impressions
   (C) although / intend it to be / spared no effort to present / by facts alone
   (D) since / intend it to be / never claimed to present / by facts alone
7. Following an internet advertising campaign for the beverage Trix, the director of the advertising agency that launched the campaign conducted a survey and found that Trix's sales were higher than those of the competing beverage, Platon. He concluded from this that internet advertising is more effective than advertising by means of other communications media. Which of the following does not weaken his conclusion?
   (A) The price of Trix was reduced during the course of the internet advertising campaign.
   (B) Trix's sales were higher than Platon's sales even before the start of the internet advertising campaign.
   (C) During the advertising campaign for Trix, Platon was not advertised at all.
   (D) A widespread television advertising campaign conducted a year earlier did not result in an increase in Trix's sales.

8. Which of the following options would be the best synonym for "seethe"?

(A) hate

(B) fume

(C) avoid

(D) show

9. X and Y start moving towards each other from two places 200 m apart. After walking 60 m, Y turns left and goes 20 m, and then he turns right and goes 40 m. He then turns right again and comes back to the road on which he had started walking. If X and Y walk with the same speed, what is the distance between them now?

(A) 20 m

(B) 30 m

(C) 40 m

(D) 50 m

10. Insert the missing number in the following sequence:4, 9, 20, 43, 90, ___

(A) 126

(B) 145

(C) 167

(D) 185

11. If '+' means 'brother of', 'x' means 'mother of', '-' means 'father of' and '/' means 'son of', then which of the following means V is nephew of W?

(A) V + U - W

(B) V x W - U

(C) V / W – U

(D) V / U + W

12. In a row of boys, A's position from the left end is 33rd and B's position from the right end is 25th. After interchanging their position, A's position becomes 45th from the left end. How many boys are there in the row?

(A) 67

(B) 69

(C) 70

(D) 71

13. Which of the conclusions can be made based on the statements given below?

Statements : The old order changed yielding place to new.

Conclusions : I. Change is the law of nature.

II. Discard old ideas because they are old.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Neither I nor II follows

(D) Both I and II follow

14. The police rounded up A, B and C yesterday because one of them was suspected of robbing the local bank. The 3 suspects gave following statements after intensive questioning:

A : I'm innocent.

B : I'm innocent.

C : B is the guilty one.

Who robbed the bank among the three persons, if only one of the statements will be true?

(A) A

(B) B

(C) C

(D) None of these

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15. Three persons A, B, C were sitting in a row of three chairs. When asked about their respective positions, each of them made two statements as follows. It is known that each of them made a true statement and a false statement in any order.

A : I am at the extreme left and C is at the extreme right.

B : A is between me and C and I am at extreme right.

C : I am at the extreme left and B is at the extreme right.

What are the actual positions from left to right?

(A) A-B-C

(B) C-A-B

(C) A-C-B

(D) None of these

16. Three persons A, B and C gave these statements:

A said, either Freedom Party or Green Party won the elections.

B said, Freedom Party won.

C said, neither Freedom Party nor Green Party won the elections.

Of these persons, only one person is wrong.

Who won the elections?

(A) Freedom Party

(B) Green Party

(C) Data Inadequate

(D) None of these

17. A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?

(A) 12 days

(B) 15 days

(C) 16 days

(D) 18 days

18. The salaries of A, B and C are of ratio 2:3:5. If the increments of 15%, 10% and 20% are done to their respective salaries, then find the new ratio of their salaries.

(A) 20:33:60

(B) 21:33:60

(C) 22:33:60

(D) 23:33:60

19. Two bicyclists do the same journey by travelling respectively at the rate of 9 and 10 km an hour. Find the distance travelled when one takes 32 minutes longer than the other?

(A) 32 KM

(B) 48 KM

(C) 64 KM

(D) 72 KM

20. Three pipes A, B and C can fill a tank in 6 hours. After working at it together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. The number of hours taken by C alone to fill the tank is:

(A) 10

(B) 12

(C) 14

(D) 16

21. $\log_9 (3\log_2 (1 + \log_3 (1 + 2\log_2 x))) = 1/2$. Find x.

(A) 1/2

(B) 1

(C) 2

(D) 3/2

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

(A) 149,743

(B) 164,850

(C) 164,749

(D) 149,700

23. 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) 96

(D) 144

24. The sum and the product of the roots of equation $x^2 - kx + k^2 = 0$

(A) k, k^2

(B) k^2, k

(C) $-k, k^2$

(D) $k, -k^2$

25. The equation $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a circle, the condition will be

(A) a = b and c = 0

(B) f = g and h = 0

(C) a = b and h = 0

(D) f = g and c = 0

26. The point (4, 1) undergoes the following three transformations successively

(a) Reflection about the line y = x

(b) Transformation through distance 2 units along the positive direction of the x-axis.

(c) Rotation through an angle $\pi/4$ about the origin in the anti clockwise direction.

(A) $(-4/\sqrt{2}, 1/\sqrt{2})$

(B) $(-1/\sqrt{2}, 7/\sqrt{2})$

(C) $(-1/\sqrt{2}, 4/\sqrt{2})$

(D) $(-3/\sqrt{2}, 4/\sqrt{2})$

27. The point of intersection of $3x - y = 4$ and $x + y = 8$ is

(A) (5,3)

(B) (4,4)

(C) (3,5)

(D) (2,4)

28. Which of the following has an eccentricity greater than zero but less than one?

(A) Circle

(B) Parabola

(C) Hyperbola

(D) Ellipse

29. The minimum value of $2\sin^2\theta + 3\cos^2\theta$ is :

(A) 3

(B) 2

(C) 1

(D) 0

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30. What is the degree of first order differential equation, given by $\left(\frac{dy}{dx}\right)^{1.5} = \left(\frac{x \cos x}{\left(x^2 + \sqrt{\sin x}\right)}\right)^3$?

(A) 1

(B) 1.5

(C) 2

(D) 2.5

31. A ladder 15 meters long just reaches the top of a vertical wall. If the ladder makes an angle of 60° with the wall, then the height of the wall will be

(A) 7.3m

(B) 7.5m

(C) 7.7m

(D) 7.9m

32. The range of $\tan^{-1}x$ is

(A) [–1,1]

(B) $(0, \pi)$

(C) $(-\pi/2, \pi/2)$

(D) R

33. The number of patients who visited the cardiologist is as 63, 57, 51 and 65 in four days, then the mean absolute deviation is

(A) 5 patients

(B) 8 patients

(C) 13 patients

(D) 17 patients

34. The distribution in which mean = 60 and mode = 50, will be _____

(A) Symmetrical

(B) Positive skewed

(C) Negative skewed

(D) None of these

35. The range of the correlation coefficient is.

(A) (–1, 1)

(B) (0, 1)

(C) [–1, 1]

(D) None of these

36. If the regression coefficient of x on y and y on x are –0.5 and –0.125 respectively, then what is the correlation coefficient between x and y?

(A) –0.25

(B) 0.25

(C) –0.5

(D) 0.5

37. Among 18 students in a classroom, 7 study Mathematics, 10 study Science and 10 study Computer programming. Also, 3 study Mathematics and Science, 4 study Mathematics and Computer programming and 5 study Science and Computer programming. We know that 1 student studies all three subjects. How many of these students study none of the three subjects?

(A) 1

(B) 2

(C) 3

(D) 4

38. For matrix A, $(A^3) = I$, A^{-1} is equal to _____

(A) A^2

(B) A^{-2}

(C) Can't say

(D) None of the mentioned

39. A cow is tied with a 14 ft. long rope in the centre of a field. If the cow can graze the grass of 100 ft^2 area per day. What will be the time taken by the cow in grazing the grass of whole field?

(A) 6 Days

(B) 12 days

(C) 18 Days

(D) 24 Days

40. Evaluate the Limit:

$$\lim_{x \to 0}\left(\frac{1-\cos x}{x^2}\right)$$

(A) 1/6

(B) 1/2

(C) -1/6

(D) -1/2

41. Consider a 64 TB (tera-byte memory) wherein each byte is addressable. Minimum size of address bus for this memory is

(A) 26

(B) 36

(C) 46

(D) 56

42. A class B IP address has the subnet mask 255.255.248.0, then how many maximum host will be possible in the network?

(A) 2046

(B) 2048

(C) 4094

(D) 4096

43. The Media Access Control Address consists of how many bits?

(A) 16

(B) 32

(C) 48

(D) 64

44. Which of the following field in IPv4 datagram is not related to fragmentation?

(A) TOS

(B) Flags

(C) Offset

(D) Identifier

45. Instruction Queue of 8086 is _____ byte long.

(A) 5

(B) 6

(C) 7

(D) 8

46. A stack-organized computer uses which of the following ?

(A) Direct addressing

(B) Zero addressing

(C) Index addressing

(D) All of the above

47. The type of mapping used by cache memory is/are
    (A) Associative mapping
    (B) Direct mapping
    (C) Set-associative mapping
    (D) All of the above

48. The two's complement of the signed decimal number -78_{10} is _____.
    (A) 11001110_2
    (B) 01001110_2
    (C) 10110010_2
    (D) 10110001_2

49. Choose the pure virtual function definition from the following.
    (A) virtual void f()=0 { }
    (B) void virtual f()=0 { }
    (C) virtual void f() {} = 0;
    (D) None of the above

50. Assume that there are 3 page frames which are initially empty. If the page reference string is 1, 2, 3, 4, 2, 1, 5, 3, 2, 4, 6, the number of page faults using the optimal replacement policy is_____.
    (A) 5
    (B) 6
    (C) 7
    (D) 8

51. When searching for the key value 60 in a binary search tree, nodes containing the key values 10, 20, 40, 50, 70, 80, 90 are traversed, not necessarily in the order given. How many different orders are possible in which these key values can occur on the search path from the root to the node containing the value 60?
    (A) 35
    (B) 720
    (C) 7
    (D) 5040

52. Consider the array A[]= {6,4,8,1,3} apply the insertion sort to sort the array. Consider the cost associated with each sort is 20 Units, what is the total cost of the insertion sort when element 1 reaches the first position of the array?
    (A) 20
    (B) 40
    (C) 60
    (D) 80

53. Consider the following scenario: T1 consists of 6 operations and T2 consists of 4 operations then the number of concurrent schedules possible is:
    (A) 17280
    (B) 3628798
    (C) 127
    (D) 210

54. Specifying that only people who satisfy certain criteria receive a questionnaire is a feature of a
    (A) Purposeful sample
    (B) Convenient sample
    (C) Controlled sample
    (D) Stratified sample

55. A Relation R with attributes (A, B, C, D, E) with the functional dependencies A —> C, B —> D and (A, B) —> E. In terms of normalization, this table is in
    (A) 1NF
    (B) 2NF
    (C) 3NF
    (D) BCNF

56. Relation R has 7 tuples and 5 attributes. Relation R2 has 0 tuples and 5 attributes. A Cartesian Product between R and S would have how many tuples?
    (A) 27
    (B) 25
    (C) 7
    (D) 0

57. Which of the following provides an interface by which application programs can access and process SQL databases in a platform independent manner?

(A) ADO

(B) ODBC

(C) ADO.NET

(D) OLE DB

58. Two parts of Morphing algorithms are :

(A) Wrap & Dissolve

(B) Tweening & Dissolve

(C) Warp & Tweening

(D) Tweening & Wrap

59. Aspect ratio is generally defined as the ratio of the :

(A) Horizontal to vertical points

(B) Vertical to horizontal points

(C) Vertical to (horizontal + vertical) points

(D) Either A or B, depending on the convention followed

60. EPS image file format is used for :

(A) Vector graphics

(B) Bitmap

(C) Both (A) & (B)

(D) None of these

ROUGH WORK

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