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FOR KUET EXAM PREPARATION

KUET 2022 Question Paper · M.Sc. IT

EXAM	YEAR	TYPE	SUBJECT
KUET	2022	Question Paper	M.Sc. IT

Sr. No. 160

ENTRANCE TEST-2022

SCHOOL OF APPLIED SCIENCES AND TECHNOLOGY

INFORMATION TECHNOLOGY

Question Booklet Series **D**

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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(2022) Information

1. Octal subtraction of $(123)_8$ from $(315)_8$ will give :
   (A) 172
   (B) 192
   (C) 215
   (D) 116

2. What will be the value of X + X as per idempotent law?
   (A) 0 always
   (B) 1 always
   (C) X always
   (D) 2X always

3. _____ is a special cache that contains the table entries of those pages that have been most recently used.
   (A) Translation lookaside buffer
   (B) Memory Address Buffer
   (C) Page Table Buffer
   (D) Job Control Buffer

4. In which of the following addressing modes the address of the operand is specified by a register pair ?
   (A) Register Addressing Mode
   (B) Register Indirect Addressing Mode
   (C) Direct Addressing Mode
   (D) None of the above

5. Identify the incorrect statement among the following :
   (A) #include "stdio.h"
   (B) #include<stdio.h>
   (C) for(; ;);
   (D) None of the above

6. If x is a one dimensional array, then :
   (A) &x[i] is same as x+i-1
   (B) *(x+1) is same as *(x]i])
   (C) *(x+i) is same as x[i]
   (D) None of the above

7. Choose the correct statement among the following:
   (A) An automatic variable is created when the function in which it is defined is called
   (B) An external variable is initialised to 0 (zero), if not initialised explicitly by the program
   (C) Automatic variables are visible only in the function in which they are defined
   (D) All the above

8. A tree is said to be ____ if all its levels except possibly the last, have the maximum number of possible nodes and if all the nodes at the last level appear as far left as possible.
   (A) Balanced
   (B) Complete
   (C) Threaded
   (D) Expression

9. "There is a chance that element will be present in the close proximity to the reference point and next time if again searched then more close proximity to the point of reference." This refers to :
   (A) Spatial Locality of reference
   (B) Temporal Locality of reference
   (C) Associative Locality of reference
   (D) None of the above

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10. Find the correct statement in case of a magnetic hard drive :
    (A) Data movement time = Disk access time + seek time
    (B) Data movement time = Disk access time + seek time + rotational delay
    (C) Disk access time = Data movement time + seek time
    (D) Disk access time = Data movement time + seek time + rotational delay
11. The loss of signal strength due to the resistance of the transmission medium is known as :
    (A) Attenuation
    (B) Distortion
    (C) Noise
    (D) Decibel
12. Choose the incorrect statement out of the following :
    (A) The attenuation is less in coaxial cable than in twisted-pair cable
    (B) The attenuation increases sharply with increase in frequency in case of twisted pair cable
    (C) Microwaves are used in unicasting
    (D) Electromagnetic noise cannot affect fiber-optic cables
13. Choose the correct statement out of the following :
    (A) A Tuple Relational Calculus query is defined to be expression of the form {T|p(T)}, where T is the only free variable in the formula p
    (B) A Tuple variable is a variable that ranges over the values in the domain of some attribute
    (C) Natural join guarantees that the result does not have two fields with the same name
    (D) All the above
14. Which of the following scenarios may lead to an irrecoverable error in a database system?
    (A) A transaction writes a data item after it is read by an uncommitted transaction
    (B) A transaction reads a data item after it is read by an uncommitted transaction
    (C) A transaction reads a data item after it is written by a committed transaction
    (D) A transaction reads a data item after it is written by an uncommitted transaction
15. Choose the correct statement among the following :
    (A) Every relation in 3NF is also in BCNF
    (B) A relation R is in 3NF if every non-prime attribute of R is fully functionally dependent on every key of R
    (C) Every relation in BCNF is also in 3NF
    (D) No relation can be in both BCNF and 3NF
16. The failure of a system development project does not depend on :
    (A) Size of the company
    (B) Inadequate user involvement
    (C) Failure of systems integration
    (D) None of the above
17. Visual C++ is :
    (A) Procedure Oriented
    (B) Event-Driven Programming
    (C) Both (A) and (B)
    (D) None of these

18. Choose the correct statement among the following :
    (A) We can use a raster scan method to render a vector graphics and vice versa
    (B) We can use a vector scan method to render a raster graphics but cannot use a raster scan method to render a vector graphics
    (C) We can use only raster scan method to render a raster graphics and only vector screen method to render vector graphics
    (D) None of the above
19. Which of the following is not a colour model ?
    (A) RGB
    (B) XYZ
    (C) CMY
    (D) ABC
20. Interlacing is primarily used with :
    (A) Slower refreshing rates
    (B) Faster refreshing rates
    (C) Lower resolution
    (D) Higher resolution

In Q21 below, contain an idiom. Four possible meanings of the idiom are provided. Select the one which best expresses the meaning of the idiom.

21. It was surprising that she looked quite pretty at close quarters :
    (A) Very near
    (B) Government quarters
    (C) Close confinement
    (D) Close examination
22. A person who collects or has a great love of books :
    (A) Philophile
    (B) Bibliophile
    (C) Bibliologist
    (D) Misologist
23. Cobbler : Shoes :: Farrier : ?
    (A) Fur
    (B) Leather
    (C) Hoof
    (D) Feather
24. Root word ____ means doctrine, system, manner, condition, act and characteristic. It has the quality of enlargement, and it carries you from the particular to the general, from the individual to the mass.
    (A) ity
    (B) ism
    (C) sion
    (D) None of the above
25. Choose the word which is most nearly the same in meaning as word CONNOTES :
    (A) Helps
    (B) Confirms
    (C) Implies
    (D) Follows

In Q 26 below, from the given words select the one which is most appropriate so that the sentence not only makes sense, but is grammatically correct.

26. The good is often _____ with the bones.
    (A) Fleshed
    (B) Exhumed
    (C) Interred
    (D) Covered

27. Choose the word which is most opposite in meaning as the word DEPLORABLE :

(A) Laudable

(B) Outstanding

(C) Memorable

(D) Unforgettable

In Q 28 below, which of the phrases given below the sentence should replace the phrases printed in bold type to make the sentence grammatically correct ?

28. The speaker highlighted the contribution of women **for bringing about** social changes :

(A) For bringing in

(B) In bringing about

(C) In bringing of

(D) No correction required

29. A, B, C, D, E, F, G and H are standing in a row facing North. B is not neighbour of G. F is to the immediate right of G. C is not at the extreme end. A is sixth to the left of E. H is sixth to the right of C. Who among the following are neighbours ?

(A) AB

(B) CA

(C) FH

(D) CG

30. In a class Sam is ranked 7th from the top. Victor is ranked 15th from the top and 21st from the bottom in the same class. What is Sam's rank from the bottom ?

(A) 25th

(B) 28th

(C) 29th

(D) None of these

31. Find the missing term in the following :

1	2	1
2	13	3
5	89	?

(A) 6

(B) 7

(C) 8

(D) 9

32. The graph below gives the percent of population below poverty line in six states and the proportion of males and females.

State	Percentage below Poverty line	Proportion of Males and Females			
		Below Poverty Line		Above Poverty Line	
		M	F	M	F
A	12	3	2	4	3
B	15	5	7	3	4
C	25	4	5	2	3
D	26	1	2	5	6
E	10	6	5	3	2
F	32	2	3	4	5

If the number of males below poverty line for the state B is 500, what is the total population of that state ?

(A) 6000

(B) 7000

(C) 8000

(D) 14400

In Q 33 below, there are three statements followed by four conclusions numbered I, II, III and IV. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements.

33. Statements :

All books are notes.

Some notes are pencils

No pencil is paper

Conclusions :

I. Some notes are books

II. Some pencils are books

III. Some books are papers

IV. No book is paper

(A) Only I follows

(B) Only I and either III or IV follow

(C) Either III or IV follows

(D) Only I and III follow

34. If P$Q means 'P is brother of Q', P#Q means 'P is mother of Q', and P*Q means 'P is daughter of Q', then who is the father in 'A#B$C*D' ?

(A) A

(B) B

(C) C

(D) D

*In the following question (Q35) the symbols +, *, =, / and – are used with the following meaning :*

P + Q means P is greater than Q

*P * Q means P is either greater than or equal to Q*

P = Q means P is equal to Q

P / Q means P is smaller than Q

P - Q means P is either smaller than or equal to Q

Now in the following question, assuming the given statement to be true, find which of the two conclusions I and II given below them is/are definitely true.

35. Statement :

M / N, P * Q, P + N

Conclusions :

I. N + Q

II. N - Q

(A) Only I is true

(B) Only II is true

(C) Neither I nor II is true

(D) Both I and II are true

36. In a certain language, the word APPLE is written as BQROJ. How will the word PLATED be written in that code language ?

(A) QMCXKM

(B) QMDWKM

(C) QMCWJL

(D) None of the above

37. Sam has 2 parents, 4 grandparents, 8 great grandparents and so on. Assuming that there are 20 years to a generation, how many ancestors did Sam have 400 years ago ?

(A) 2097148

(B) 2097150

(C) 1097148

(D) 1097150

38. If the numerator of a fraction is increased by 2 and the denominator is increased by 1, the fraction becomes 5/8 and if the numerator of the same fraction increased by 3 and the denominator is increased by 1, the fraction becomes 3/4. Find the fraction .

(A) 2/7

(B) 3/7

(C) 4/7

(D) 5/7

39. The average age of P, Q and R at present is 26 years. If R is 6 years older than P, how old is Q now ?

(A) 28 years

(B) 32 years

(C) 18 years

(D) None of the above

40. Find the sum of first 30 terms of the series: 27, 24, 21, 18, 15...

(A) -195

(B) -295

(C) 395

(D) -495

41. If $x^2+3x+3=0$, then the value of $\frac{3x}{(x^2-5x+3)}$ will be :

(A) 1/8

(B) -1/8

(C) -3/8

(D) None of the above

42. Choose the incorrect statement among the following :

A quadratic equation $ax^2+bx+c=0$ has :

(A) No real roots, if $b^2-4ac<0$

(B) Two distinct real roots, if $b^2-4ac<0$

(C) Two equal real roots, if $b^2-4ac=0$

(D) None of the above

43. The coefficient of the middle term in the Binomial expansion of $(5+6x)^4$ is :

(A) 2160

(B) 3240

(C) 5400

(D) 6400

44. Find the value of x if $\log_4(x^2-1)-\log_4(x-1)=2$:

(A) 3

(B) 9

(C) 15

(D) 16

45. Find the Cartesian equations of the lines that pass through the origin and (2, -6, 8) :

(A) $\frac{x}{1}=\frac{y}{-3}=\frac{z}{4}$

(B) $\frac{x}{2}=\frac{y}{-6}=\frac{z}{8}$

(C) $x=-3y=4z$

(D) $2x=-6y=8z$

46. Equation of the circle with centre (4, -2) and passing through (6, 12) is :

(A) $x^2 + y^2 + 4x - 2y - 60 = 0$

(B) $x^2 + y^2 - 4x + 2y - 60 = 0$

(C) $x^2 + y^2 + 8x - 4y - 180 = 0$

(D) $x^2 + y^2 - 8x + 4y - 180 = 0$

47. The formula for calculating the transformed coordinates in case of rotation is given by :

(A) $x' = r\cos(\phi + \theta); y' = r\sin(\phi + \theta)$

(B) $x' = r\sin(\phi + \theta); y' = r\cos(\phi + \theta)$

(C) $x' = r\cos(\phi - \theta); y' = r\sin(\phi - \theta)$

(D) $x' = r\sin(\phi - \theta); y' = r\cos(\phi - \theta)$

48. Find the transformed point after applying rotation at 45° on a point (4, 3) :

(A) $P' = \left(\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$

(B) $P' = \left(\frac{7}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$

(C) $P' = \left(-\frac{1}{\sqrt{2}}, \frac{7}{\sqrt{2}}\right)$

(D) $P' = \left(\frac{1}{\sqrt{2}}, -\frac{7}{\sqrt{2}}\right)$

49. If $x\cos 45° = y\tan 60°$, find the value of $\frac{x^5}{y^5}$.

(A) 216

(B) 36

(C) 2

(D) $\sqrt{6}$

50. If $\cos A = 6/7$, then what is the value of $\tan A$?

(A) 0

(B) $13/\sqrt{6}$

(C) $\sqrt{13}/6$

(D) $\sqrt{5}/2$

51. Choose the correct statement(s) among the following :

(A) Inverse of a function exists only if that function is not a bijection

(B) Inverse of a function exists only if that function is a bijection

(C) Inverse of a bijection function cannot be a bijection

(D) None of the above

52. $\frac{\partial y}{\partial t} + u\frac{\partial u}{\partial x} = \frac{\partial^2 u}{\partial x^2}$ is an example of :

(A) Linear equation of order 1

(B) Non-Linear equation of order 2

(C) Linear equation of order 2

(D) Non-Linear equation of order 1

53. Which of the following is not a measure of dispersion ?

(A) Range

(B) Mean Deviation

(C) Mean

(D) Quartile Deviation

54. It is known that 100 litres of water have been polluted with 10^6 bacteria. If 1 cc of water is drawn off, what is the probability that the sample is not polluted ?

(A) 0.000706

(B) 0.000156

(C) 0.000065

(D) 0.000045

55. Two events A and B are said to be mutually exclusive when :
(A) Happening of B does not influence in any way the probability of happening of A
(B) Through the occurrence of one of them the other event cannot take place
(C) The happening of B influences in any way the probability of happening of A
(D) None of the above

56. A bag contains 5 red balls and 4 black balls and another bag contains 2 red balls and 7 black balls. Two balls are drawn from each bag. What is the probability that both balls are red ?
(A) 10/81
(B) 7/18
(C) 7/69
(D) 7/9

57. For a square matrix $A = [a_{ij}]$ if $a_{ij} = a_{ji}$ for all values of i and j, then A is known as :
(A) Singular Matrix
(B) Scalar Matrix
(C) Symmetric Matrix
(D) Square Matrix

58. A matrix A is said to have a rank r if :
(A) At least one minor of A of order r is non-zero
(B) All minors of A of order (r +1) are zero
(C) Both (A) and (B)
(D) None of the above

59. A function f(x, y) is said to be a homogeneous function of degree n if :
(A) $f(kx, ky) = kf(x, y)$
(B) $f(kx, ky) = k^2 f(x, y)$
(C) $f(kx, ky) = k^n f(x, y)$
(D) $f(kx, ky) = nkf(x, y)$

60. What is the domain of function cosec x ?
(A) Set of all real numbers
(B) Set of all real numbers except $n\pi$ where n is zero or any positive integer
(C) Set of all real numbers except $n\pi$ where n is zero or any integer, positive or negative
(D) Cannot be ascertained.