Test Paper : **III**

Test Subject : **COMPUTER SCIENCE AND APPLICATION**

Test Subject Code : **K-2413**

Test Booklet Serial No. : _____

OMR Sheet No. : _____

Roll No. | | | | | | | | |

(Figures as per admission card)

Name & Signature of Invigilator/s

Signature : _____

Name : _____

Signature : _____

Name : _____

Paper : III

Subject : COMPUTER SCIENCE AND APPLICATION

Time : 2 Hours 30 Minutes

Maximum Marks : 150

Number of Pages in this Booklet : **16**

Number of Questions in this Booklet : **75**

Instructions for the Candidates

1. Write your roll number in the space provided on the top of this page.

2. This paper consists of seventy five multiple-choice type of questions.

3. At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :

  (i) To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.

  (ii) **Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.**

4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the oval as indicated below on the correct response against each item.

  Example : (A) (B) ● (D)

  where (C) is the correct response.

5. Your responses to the question of Paper III are to be indicated in the **OMR Sheet kept inside the Booklet**. If you mark at any place other than in the ovals in OMR Answer Sheet, it will not be evaluated.

6. Read the instructions given in OMR carefully.

7. Rough Work is to be done in the end of this booklet.

8. If you write your name or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.

9. You have to return the test OMR Answer Sheet to the invigilators at the end of the examination compulsorily and must NOT carry it with you outside the Examination Hall.

10. You can take away question booklet and carbon copy of OMR Answer Sheet soon after the examination.

11. **Use only Blue/Black Ball point pen.**

12. **Use of any calculator or log table etc., is prohibited.**

13. **There is no negative marks for incorrect answers.**

K-2413

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COMPUTER SCIENCE AND APPLICATION
Paper – III

Note : This paper contains **seventy-five (75)** objective type questions. **Each** question carries **two (2)** marks. **All** questions are **compulsory**.

1. The Pentium microprocessor has _____ execution unit.

   (A) 1
   (B) 2
   (C) 3
   (D) 4

2. Ready pin of a microprocessor is used

   (A) To indicate that the microprocessor is ready to receive inputs
   (B) To indicate that the microprocessor is ready to receive outputs
   (C) To introduce wait states
   (D) To provide direct memory access

3. The following statements are with respect to the 8259 A (PIC)

   (i) It can only be used for eight interrupt inputs
   (ii) It has two central words, OCW and ICW
   (iii) First ICW is initialized and then OCW
   (iv) It has three status registers

   (A) All above statements are true
   (B) First three statements are true
   (C) Only last three are true
   (D) Only (ii) and (iii) are true

4. The 8255 interfacing chip has following features

   (i) It has three ports which can be used I/o mode
   (ii) It has one internal command register
   (iii) It can be used in three different modes
   (iv) Port C has some different features

   (A) All are true
   (B) (i), (iii) and (iv) are true
   (C) (ii), (iii) and (iv) are true
   (D) (i) and (iv) are true

5. A number of 256×8 bit memory chips are available. To design a memory organisation of $2K \times 8$ memory, number of chips needed and type of multiplexor required are

   (A) 16 and 2 : 4
   (B) 32 and 3 : 8
   (C) 8 and 3 : 8
   (D) 256 and 3 : 8

6. Create, Alter and Drop are the examples of

(A) DDL

(B) DML

(C) VDL

(D) SDL

7. What is the cardinality of a table with 50 rows and 5 coloums ?

(A) 5

(B) 50

(C) 250

(D) 550

8. A buffer use to store results of the recent query

(A) Triggers

(B) Packages

(C) Cursor

(D) Exceptions

9. If a relation has 7 attributes then there will be how many subsets of these attributes

(A) 16

(B) 4

(C) 256

(D) 128

10. When a transaction never progresses then we say that it is

(A) Aborted

(B) Starved

(C) Shared

(D) Locked

11. The phenomenon of having a continuous glow of a beam on the screen even after it is removed is called as ?

(A) Flourence

(B) Persistence

(C) Phosphorence

(D) Incadescence

12. Which of the following statement is true ?

(A) Request, sample and event are the three basic modes of input

(B) Keyboard is a device ideally suited for use in sample mode

(C) A mouse is typically a device for inputting an absolute position on the screen

(D) Special graphics hardware support is essential to an application

13. The format for storing digital audio in multimedia application

(A) JPEG

(B) TIFF

(C) WAV

(D) BMP

14. The following statements are made with respect to the Bezier functions

(i) The basis functions of the Bezier curves are convex

(ii) The basis functions are non-negative

(iii) The Bezier curves are Affine variant

(iv) When control points lie on a straight line, then the corresponding B'ezier curve will also be a straight line

(A) All (i), (ii), (iii) and (iv) are true

(B) (i), (ii), (iii) are true, (iv) false

(C) (i), (iii), (iv) are true, (ii) false

(D) (i), (ii), (iv) are true, (iii) false

15. Match the following :

(i) Homogeneous Coordinate   (a) Shading

(ii) Phong model   (b) Clipping

(iii) BSP Tree   (c) Translation

(iv) Cyrus – Beck   (d) Back to front ordering

(A) (i – b)   (ii – a)   (iii– d)   (iv – c)

(B) (i – d)   (ii – c)   (iii– b)   (iv – a)

(C) (i – c)   (ii – b)   (iii– d)   (iv – a)

(D) (i – c)   (ii – a)   (iii– d)   (iv – b)

16. Which is not object-oriented concept ?

(A) Data Abstraction

(B) Inheritance

(C) Polymorphism

(D) Subroutine

17. Which is functional language ?

(A) PROLOG

(B) FOTRAN

(C) LISP

(D) PERL

18. Which is not scripting language ?

(A) Perl

(B) Java

(C) VB

(D) C++

19. Which falls under regular paradigm ?

   (A) Java   (B) Lisp

   (C) Prolog   (D) Perl

20. Which is not data type ?

   (A) Int

   (B) Complet

   (C) String

   (D) Numeric

21. For a given level of noise, the data rate could be increased by

   (A) Increasing signal strength and decreasing bandwidth

   (B) Decreasing signal strength and increasing band width

   (C) Increasing either signal strength or band width

   (D) Not possible to change it

22. For microwave transmission, loss will follow the following rule

   (A) Increase with distance and frequency

   (B) Increase with distance and wavelength

   (C) Increase with square of distance and square of frequency

   (D) Increase with square of distance and square of wavelength

23. Flow control takes place at what level in OSI model ?

   (A) Physical

   (B) Network

   (C) Transport

   (D) Data Link

24. Consider the following statements

   (i) Most logical addresses are present in network interface cards at the factory

   (ii) Session layer handles synchronization

   (iii) Error detection and recovery are done in Data link layer

   (A) All are true

   (B) (i) and (iii) are true and (ii) false

   (C) (ii) is true and (i) and (iii) false

   (D) All are false

25. VLAN create _____ domains.

   (A) Unicast

   (B) Multicast

   (C) Broadcast

   (D) Point-to-point

26. The order of time complexities from most efficient to least efficient is

(A) $O(2^n), O(n^2), O(n\log n), O(n), O(\log n)$

(B) $O(n), O(n^2), O(2^n), O(\log n), O(n\log n)$

(C) $O(\log n), O(n), O(n\log n), O(n^2), O(2^n)$

(D) $O(n\log n), O(\log n), O(n^2), O(n), O(2^n)$

27. Find the running time of the following piece of code

for i = 1 to n

insert (i^2, s)

for i = 1 to n

remove (s)

Assume both insert (i, s) and remove (s) take time $O(\log |s|)$, and choose the correct estimate

(A) $O(n\log n)$

(B) $O(n\log n^2)$

(C) $O(n^2)$

(D) $O(n^2\log n)$

28. What is the maximum height of any AVL-tree with 7 nodes ? Assume the length of the tree with a single node is 0(zero)

(A) 2

(B) 3

(C) 4

(D) 5

29. A hash table of length 10 uses open addressing with hash function h(K) = K mod 10, and linear probing. After inserting 6 values into an empty hash table, the table is as shown below

0	
1	
2	42
3	23
4	34
5	52
6	46
7	33
8	
9	

Which one of the following gives a possible order in which the key value could have been inserted in the table ?

(A) 46, 42, 34, 52, 23, 33

(B) 34, 42, 23, 52, 33, 46

(C) 46, 34, 42, 23, 52, 33

(D) 42, 46, 33, 23, 34, 52

30. Which of the following sorting algorithms has the lowest worst-case complexity ?

(A) Merge-sort

(B) Bubble-sort

(C) Quick-sort

(D) Selection-sort

31. What does the statement

import Java.util. ∗ ;

Import ?

(A) All the classes in the package Java.util

(B) All the methods in the class Java.util

(C) All the packages starting with Java.util

(D) None of these

32. The statements

int a = 5;

System.out.printer (a − =a +=a−=a +=a);

prints

(A) 0

(B) 5

(C) −5

(D) None of these

33. C++ encourages structing of a software as a collection of components that are

(A) Highly cohesive and loosely coupled

(B) Not highly cohesive but loosely coupled

(C) Highly cohesive and tightly coupled

(D) Not highly cohesive but tightly coupled

34. Forcing variable type to become another type before accessing an appropriate function is known as

(A) Regression

(B) Recursion

(C) Conversion

(D) Coercion

35. The type to be used in an instantiation of a class template follows

(A) The generic class name

(B) The keyword template

(C) The keyword class

(D) The template definition

36. Which of the following is NOT desired in a good SRS document ?

(A) Functional requirements

(B) Non-functional requirements

(C) Goals of implementation

(D) Algorithms for software implementation

37. The concurrent development model is

(A) Another name for the rapid application development model

(B) Often used for the development of client/server applications

(C) Only used for development of parallel and distributed systems

(D) Used whenever a large number of change requests are anticipated

38. Project risk factor is considered in

(A) Spiral model

(B) Waterfall model

(C) Prototyping model

(D) Iterative enhance model

39. The testing technique that requires devising test cases to demonstrate that each program function is operational is called

(A) Glass-box testing

(B) Grey-box testing

(C) Black-box testing

(D) White-box testing

40. According to Bohem, the process of tacking "Are we building the product right" is known as

(A) Testing

(B) Verification

(C) Validation

(D) Debugging

41. Very high paging activity is known as

(A) Demand paging

(B) Demand segmentation

(C) Thrashing

(D) Starvation

42. Assume IBM machine consists of 24-bit logical address. The page size is 2 KB. How many bits are adequate to address the bytes in pages ?

(A) 11

(B) 13

(C) 15

(D) 17

43. CPU generates

(A) Logical address

(B) Physical address

(C) Relocatable address

(D) Good address

44. Semaphores were given by

(A) Albrecht

(B) Peterson

(C) Hamming

(D) Dijkstra

45. A situation where a process or a set of processes is blocked, waiting for some resource that is held by some other waiting processes

(A) Mutual Exclusion

(B) Semaphore

(C) Deadlock

(D) Polling state

46. When the prolog system is entered we are at top level. The system is waiting for us to initiate a

  (A) Conversation

  (B) Translation

  (C) Procedure

  (D) Conversion

47. The method known for variation on hill climbing and the idea to include a general survey of scene to avoid climbing false foot hills

  (A) Best first search

  (B) Simulated annealing

  (C) Worst case search

  (D) Blind search

48. Attributes of a state altered by an operator application is called as

  (A) Pre conditions

  (B) States

  (C) Post conditions

  (D) Terminal conditions

49. To invoke LISP system you must enter

  (A) A.I.

  (B) LISP

  (C) CL (Common LISP)

  (D) Both (B) and (C)

50. Match the following terms to their meaning

  (I) Turing test   (a) Software designed to replicate the knowledge of human expert

  (II) Expert system   (b) Spanish "hola" for English "hello"

  (III) Automatic translation   (c) First Area of A.I. Research

  (IV) Checkers and quest   (d) If it acts intelligent, It is intelligent

	(I)	(II)	(III)	(IV)
(A)	(d)	(a)	(b)	(c)
(B)	(d)	(a)	(c)	(b)
(C)	(d)	(b)	(c)	(a)
(D)	(a)	(b)	(c)	(d)

51. Match the following :

  (i) Regular grammar (a) Push down Automation

  (ii) Context free grammar (b) Linear bounded automation

  (iii) Unrestricted grammar (c) Deterministic finite automation

  (iv) Context sensitive grammar (d) Turing machine

  (A) (i) →c (ii) → a (iii) →b (iv) → d

  (B) (i) →c (ii) → a (iii) →d (iv) →b

  (C) (i) →c (ii) → b (iii) →a (iv) → d

  (D) (i) →c (ii) → b (iii) →d (iv) → a

52. A formal grammar is a _____ for rewriting string.

(A) Set rules

(B) Set of functions

(C) Both (A) and (B)

(D) Set of axious

53. Consider the following statements.

(i) Recursive languages are closed under complementation

(ii) Recursively enumerable languages is closed under union

(iii) Recursively enumerable languages are closed under complementation.

Which of the statement is true

(A) (i) only

(B) (i) and (ii)

(C) (i) and (iii)

(D) (ii) and (iii)

54. Which of the following strings is not generated by the following grammar ?

S→ SaSbS/E

(A) aabb

(B) abab

(C) aababb

(D) aaabb

55. Which of the following regular expression denotes a language comprising of all possible strings over $\sum = \{a, b\}$ of length n where n is multiple of 3.

(A) $(a + b + aa + bb + aba + bba) *$

(B) $(aaa + bbb) *$

(C) $((a + b) (a + b) (a + b)) *$

(D) $(aaa + ab + a) + (bbb + bb + a)$

56. In block coding, if n = 5, the maximum hamming distance between two code words is

(A) 5

(B) 3

(C) 2

(D) 7

57. The Shannon limit for a infinite band width is

(A) −2.6 dB

(B) −1.6 dB

(C) +1.6 dB

(D) 0 dB

58. Suppose that women who live beyond the age of 70 out number men in the same age bracket by three to one. How much information, in bits, is gained by learning that a certain person who lives beyond 70 happens to be male ?

(A) 1

(B) 2

(C) 3

(D) 70

59. The mutual information I(x; y) and joint entropy H(x; y) are related as

(A) $I(x; y) = H(x) - H(x/y)$

(B) $I(x; y) = H(x) - H(y/x)$

(C) $I(x; y) = H(y) - H(x/y)$

(D) $I(x; y) = H(y) - H(y/x)$

All Symbols have their usual meaning

60. Four classes of signals and their spectral characteristics are given below. Match them as per their characteristics

Signal Type | **Spectral characteristics**

(1) Continuous, aperiodic   (a) Continuous, aperiodic

(2) Continuous, periodic   (b) Continuous, periodic

(3) Discrete, aperiodic   (c) Discrete, aperiodic

(4) Discrete, periodic   (d) Discrete, periodic

(A) (1 – a)   (2 – b)   (3 – c)   (4 – d)

(B) (1 – a)   (2 – c)   (3 – b)   (4 – d)

(C) (1 – d)   (2 – a)   (3 – c)   (4 – b)

(D) (1 – b)   (2 – a)   (3 – d)   (4 – c)

61. Which of the following is valid objective function for a linear programming problem ?

(A) Max 5xy

(B) Max $5x^2 + y^2$

(C) Max $4x + 3y + (2/3)z$

(D) Min $(x_1 + x_2)/x_3$

62. A constraint that does not affect the feasible region is a

(A) Non-negativity constraint

(B) Redundant constraint

(C) Standard constraint

(D) Slack contraint

63. Slack is

(A) Difference between left and right sides of constraint

(B) The amount by which left side a< constraint is smaller than the right side

(C) The amount by which left side of a > constraint is larger than right side

(D) Exists for each variable in a linear programming problem

64. Find if possible,

Minimum value of objective function 3x – 4y

Subject to the following constraints

$-2x + y \le 12$

$x - y \le 2$

$x \ge 0, y \ge 0$

(A) – 8

(B) No solution

(C) – 36

(D) 0

65. The following inequalities define a feasible region, which one of these could be remoted from the list without changing region.

(A) $-x + y \le 10$

(B) $y \ge 0$

(C) $x \ge 0$

(D) $x + y \le 20$

66. A perception is

(A) A single layer feed-forward neural network with preprocessing

(B) An autoassociative neural network

(C) A double layer autoassociative neural network

(D) A and B

67. A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be

(A) 238

(B) 76

(C) 119

(D) 28

68. What is downside (demerits) of expert system ?

(A) Expert system are not good at strategizing

(B) It is very work-intensive to build the knowledge base

(C) Expert systems handles only a narrow domain of knowledge

(D) All the above (A), (B) and (C)

69. What are the following sequence of steps taken in designing fuzzy logic machine ?

(A) Fuzzification $\rightarrow$ Rule evaluation $\rightarrow$ defuzzification

(B) Rule evaluation $\rightarrow$ fuzzification $\rightarrow$ defuzzification

(C) Fuzzy sets $\rightarrow$ defuzzification $\rightarrow$ rule evaluation

(D) Defuzzification $\rightarrow$ Rule evaluation $\rightarrow$ fuzzification

70. Considering a graphical representation of the 'tallness' of a people using its appropriate member function, which of the following combinations are true

(i) TALL is usually the fuzzy set

(ii) HEIGHT is usually the fuzzy set

(iii) PEOPLE is usually the universe of discourse

(A) (i), (ii) and (iii)

(B) (i) and (ii) only

(C) (i) and (iii) only

(D) (ii) and (iii) only

71. In vi editor which of the following keystrokes can delete the current line ?

(A) d

(B) X

(C) dd

(D) delete

72. In unix, which following type of file used for network communication

(A) FIFO

(B) Socket

(C) Directory

(D) Block

73. In unix file system • and • • represents

(A) Parent, current

(B) Parent, parent

(C) Current, parent

(D) Current, current

74. In unix, the command $ chmod 664 file represent

(A) User and group read + write, others write only

(B) User and group read + write, others read only

(C) User and group read, others read only

(D) User and group write, others write only

75. Which of the following command displays your login shell in Bash shell ?

(A) $ SHELL

(B) echo $ Bash

(C) echo $ O

(D) $ O

ಚಿತ್ತು ಬರಹಕ್ಕಾಗಿ ಸ್ಥಳ
Space for Rough Work

ಚಿತ್ತು ಬರಹಕ್ಕಾಗಿ ಸ್ಥಳ
Space for Rough Work

ಚಿತ್ತು ಬರಹಕ್ಕಾಗಿ ಸ್ಥಳ
Space for Rough Work