Test Booklet Code & Serial No.
प्रश्नपत्रिका कोड व क्रमांक

B

Paper-II

COMPUTER SCIENCE AND APPLICATION

Signature and Name of Invigilator

1. (Signature) .....

(Name) .....

2. (Signature) .....

(Name) .....

Seat No. | | | | | | |

(In figures as in Admit Card)

Seat No. .....

(In words)

OMR Sheet No. | | | | | | |

(To be filled by the Candidate)

JAN - 37218

Time Allowed : 1¼ Hours] **[Maximum Marks : 100**

Number of Pages in this Booklet : **16** Number of Questions in this Booklet : **50**

Instructions for the Candidates

1. Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
2. This paper consists of **50** objective type questions. Each question will carry *two* marks. *All* questions of Paper-II will be compulsory, covering entire syllabus (including all electives, without options).
3. At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
   (*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 or 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 missing pages/ questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.**
   (*iii*) After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
4. Each question has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
   Example : where (C) is the correct response.

   (A) (B) ● (D)

5. Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only.** If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Read instructions given inside carefully.
7. Rough Work is to be done at the end of this booklet.
8. If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
9. You have to return original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry the Test Booklet and duplicate copy of OMR Sheet on conclusion of examination.
10. **Use only Blue/Black Ball point pen.**
11. **Use of any calculator or log table, etc., is prohibited.**
12. **There is no negative marking for incorrect answers.**

विद्यार्थ्यांसाठी महत्त्वाच्या सूचना

1. परिक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. सदर प्रश्नपत्रिकेत 50 बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास **दोन** गुण आहेत. या प्रश्नपत्रिकेतील **सर्व** प्रश्न सोडविणे अनिवार्य आहे. सदरचे प्रश्न हे या विषयाच्या संपूर्ण अभ्यासक्रमावर आधारित आहेत.
3. परीक्षा सुरू झाल्यावर विद्यार्थ्याला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून पहाव्यात.
   (*i*) प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
   (*ii*) **पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून पहावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चूकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.**
   (*iii*) वरीलप्रमाणे सर्व पडताळून पहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
4. प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा/निळा करावा.
   उदा. : जर (C) हे योग्य उत्तर असेल तर.

   (A) (B) ● (D)

5. या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे **ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत.** इतर ठिकाणी लिहीलेली उत्तरे तपासली जाणार नाहीत.
6. आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
7. प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
8. जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरीक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमार्गाचा अवलंब केल्यास विद्यार्थ्याला परीक्षेस अपात्र ठरविण्यात येईल.
9. परीक्षा संपल्यानंतर विद्यार्थ्याने मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापी, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
10. **फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
11. **कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
12. **चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

Computer Science and Application

Paper II

Time Allowed : 75 Minutes] **[Maximum Marks : 100**

Note : This paper contains **Fifty (50)** multiple choice questions. Each question carries **Two (2)** marks. Attempt *All* questions.

1. Representation of data structure in memory is known as :

   (A) Recursive

   (B) Abstract data type

   (C) Storage structure

   (D) File structure

2. The extra key inserted at the end of the array is called a/an :

   (A) End key

   (B) Stop key

   (C) Sentinel

   (D) Transposition

3. The number of different directed trees with 3 nodes is :

   (A) 2

   (B) 3

   (C) 4

   (D) 5

4. The pre-order and post-order traversal of a binary tree generates the same output. The tree can have maximum :

   (A) Three nodes

   (B) Two nodes

   (C) One node

   (D) Any number of nodes

5. The searching technique that takes O(1) to find a data is :

(A) Linear search

(B) Binary search

(C) Hashing

(D) Tree

6. The main limitations of Manchester encoding is :

(A) Higher the baud rate

(B) Lower attenuation

(C) Higher attenuation

(D) Lower clocking rate

7. The 1EEE802·4 token bus standard mainly designed by keeping motivations as :

(A) To support real time traffic

(B) It is less vulnerable compared to token ring

(C) To remove probabilistic nature of CSMA/CD

(D) All of the above

8. The fragment reassembly of IP datagrams is done at the destination not at the intermediate next hop router due to :

(A) Fragments may follow the same route

(B) Fragments may follow the different routes

(C) Different networks will have the same MTU size

(D) Intermediate routers do not know the reassembly algorithm

9. Match the following :

List-I		List-II
(1) Repeater	(i)	Transport layer
(2) Hub	(ii)	Data link layer
(3) Bridge	(iii)	Physical layer
(4) Switch	(iv)	Network layer
(5) Router	(v)	Application layer
(6) Transport Gateway		
(7) Application Gateway		

(A) 1 – (ii), 2 – (iii), 3 – (ii), 4 – (ii), 5 – (ii), 6 – (i), 7 – (v)

(B) 1 – (iii), 2 – (ii), 3 – (ii), 4 – (ii), 5 – (iv), 6 – (i), 7 – (v)

(C) 1 – (iii), 2 – (ii), 3 – (ii), 4 – (ii), 5 – (v), 6 – (iv), 7 – (v)

(D) 1 – (iii), 2 – (iii), 3 – (ii), 4 – (iii), 5 – (iv), 6 – (i), 7 – (i)

10. Match the following :

List – I (Protocols)		List – II (Protocol port nos)
(P) DNS	(1)	23
(Q) DHCP	(2)	53
(R) IMAP	(3)	67
(S) POP3	(4)	68
	(5)	110
	(6)	143

(A) P – 3, Q – 4, R – 5, S – 6

(B) P – 2, Q – 3, R – 5, S – 6

(C) P – 2, Q – 4, R – 6, S – 5

(D) P – 1, Q – 3, R – 6, S – 5

11. The use of Macroprocessor is as an aid to :

(A) Linker

(B) Loader

(C) Assembler

(D) Interpreter

12. The grouping of characters into tokens are carried through :

(A) Code optimization

(B) Code generator

(C) Scanner

(D) Parser

13. Which of the following is a Parser generating tool ?

(A) vi

(B) ls

(C) lex

(D) yacc

14. foreach instruction is used in :

(A) Pascal

(B) Perl

(C) FORTRAN

(D) COBOL

15. Which is the post fix notation of

(9 – 5) + 2

(A) 59 – 2 +

(B) 95 – 2 +

(C) 2 + 95 –

(D) 92 + 5 –

16. Three processes P, Q and R enter the ready queue simultaneously with the length of the cpu burst given in milliseconds as 20, 10 and 15 respectively. The wailing time for process R in case of shortest job first scheduling is :

(A) 20

(B) 25

(C) 10

(D) 15

17. Thrashing means :

(A) Increase in multiprogramming

(B) Increase in paging activity

(C) Increase in throughput

(D) Increase in cpu utilization

18. The size of the swap space is decided :

(A) At the time of operating system installation

(B) At the time of system start up

(C) At the time of loading the swapper process

(D) By the hardware

19. When actually data is to be read, the first action taken by device driver is :

(A) To send the read( ) message to device controller

(B) To check the device status

(C) To send a get ready signal to the device

(D) To request a buffer space to receive data

20. Which option is used for ignoring case during pattern search in grep command ?

(A) – *i*

(B) – *l*

(C) – *c*

(D) – *p*

21. Continuous integration is one of the approach in building complex software system. This involves one of the important aspect of :

(A) Requirement – design – integrate cycle

(B) Requirement – code – design – integrate cycle

(C) Requirement – design – code – integrate cycle

(D) Requirement – code – integrate cycle

22. Software is an intelligent property and the violation of this intellectual property right does not involve :

(A) Software sharing

(B) Software stealing

(C) Illegal copying of software

(D) Software installation

23. One of the major factor incorporated in the process framework of RUP (Rational Unified Process) model is :

(A) Iterative and incremental

(B) Iterative and continuous

(C) Incremental and validations

(D) Continuous and validations

24. Among the attributes of good object oriented design, two desirable and most important attributes are :

(A) No. of children, nature of the object

(B) No. of children, response for a class

(C) Response for a class, nature of object

(D) Response for a class, attributes of objects

25. In case of performance optimization of almost any program, which of the following is *correct* ?

(A) Performance is most important than correctness

(B) Optimization is most important than performance

(C) Correctness is most important than performance

(D) Correctness is most important than optimization

26. The electronic transmission of business transaction documents between the computers of trading partners in a standard message format is called :

(A) ERP

(B) EDI

(C) B2B

(D) None of the above

27. The commonly used mode for 3G Networks is :

(A) TDMA

(B) CSMA

(C) TDD

(D) FDD

28. For constructing Data warehouse from operational databases, which of the following operations are necessary ?

(A) Extract and Load

(B) Create and Edit

(C) Query and Update

(D) Slice and Dice

29. In win 32-Windows programming, the first message received by a windows procedure is :

(A) WM_INIT

(B) WM_CREATE

(C) WM_PAINT

(D) WM_ACTIVATE

30. Which of the following is *not* part of minimal set of MPI (Message Passing Interface) routines ?

(A) MPI_Init

(B) MPI_Comm_Size

(C) MPI_Sendrecv

(D) MPI_Finalize

31. G is a planar graph with V-vertices, E-edges and F-faces. If V = 5, E = 8, then F =

(A) 5

(B) 6

(C) 3

(D) 7

32. G is a complete graph with V-vertices and E-edges. Then which of the following is *false* ?

(A) G is V-colourable

(B) $E = \frac{V(V-1)}{2}$

(C) G cannot be planar for any value of V and E

(D) G is always connected

33. A committee of 3 teachers is to be formed out of 6 teachers, 2 each from Science, Maths and English. The committee must include a Science Teacher. In how many ways it can be done ?

(A) 50

(B) 40

(C) 32

(D) 36

34. 2 fair coins are tossed. What is the probability of getting exactly 2 heads or 2 tails ?

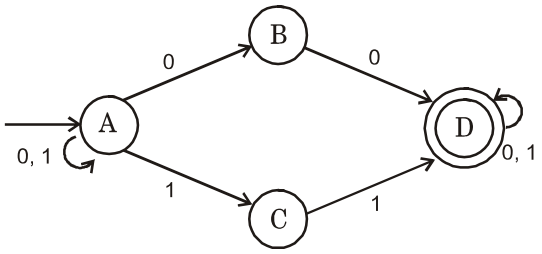
(A) $\frac{1}{4}$

(B) $\frac{3}{8}$

(C) $\frac{1}{2}$

(D) $\frac{1}{3}$

35. What does this NFA accept ?



(A) 101010

(B) 0110

(C) only 'A'

(D) both 'A' and 'B'

36. Designing of an asynchronous sequential circuits are difficult because of :

(A) Memory required is enormous

(B) External clock is to be provided

(C) They involve stability problem

(D) It is more complex

37. While designing a sequential circuit, the clock signals are used because of :

(A) To display the time of the day

(B) To carry serial data signals

(C) To synchronize events in various parts of a system

(D) To display the how much time is elapsed after the system is turned on

38. The "carry look ripple delay" is eliminated in :

(A) Parallel adder circuits

(B) Carry-look-ahead adder circuit

(C) Full adder circuit

(D) Haff-adder circuit

39. For a '*n*' bit number, the maximum positive number which can be represented in 1's complement representation is :

(A) 2^n

(B) $2^{n+1} - 1$

(C) $2^{n-1} - 1$

(D) 2^{n-1}

40. Floating-point numbers are used to represent :

(A) Only for small numbers or very large numbers

(B) Only large negative number

(C) Only for positive numbers

(D) Only for negative numbers within computers

41. Match of the following is :

(1) C (M) Imperative

(2) Java (N) Functional

(3) Lisp (O) Object oriented

(4) Prolog (P) Constraint based

(A) 1 – M, 2 – O, 3 – N, 4 – P

(B) 1 – M, 2 – P, 3 – O, 4 – N

(C) 1 – P, 2 – O, 3 – M, 4 – N

(D) 1 – M, 2 – N, 3 – O, 4 – P

42. In case of recursion which of the following statements is *false* ?

(A) Every recursive program can have an alternative iterative program

(B) Simplifies the logic

(C) Generally recursive version of programs take less space over iterative counter part

(D) Options (A) & (C) only

43. The structure of C++ programming brings together a group of :

(A) Related data items, variables

(B) Items of the same data type

(C) Integers with user-defined names

(D) All of the above

44. If an arithmetic assignment operator is overloaded in C++ programming the result :

(A) Goes in the object to the right of the operator

(B) Goes in the object to the left of the operator

(C) Must be returned

(D) Goes in the object to the left of the operator is a member

45. The purpose of interfaces is to minimize dependencies between different parts of program for the following reason :

(A) Lead to systems that are easier to understand

(B) Lead to better data hiding properties

(C) Lead to easier to modify

(D) All of the above

46. A DBMS is transparent if :

(A) It keeps hidden, a physical structure from user

(B) A sensitive information from user cannot be hide

(C) It keeps hidden, a logical structure from user

(D) A sensitive information from user can be hide

47. Consider the case that a record is read by another, which is moved or deleted and it contains a pointer, then that pointer is called as :

(A) Unlinked pointer

(B) Dynamic pointer

(C) Dangling pointer

(D) Pointer to pointer

48. Out of the following functions, one of the responsibility is not of the utilities component of DBMS software :

(A) Removing flagged records from deletion

(B) Creating and maintaining the data dictionary

(C) Creating the physical and logical designs

(D) Performance monitoring

49. The approach represented by ER modeling is :

(A) Bottom approach

(B) Top down approach

(C) Left right approach

(D) Bottom left approach

50. If the field size is small, and data to be entered is longer, then :

(A) Part of the data will be cut-off

(B) Database program will freeze

(C) Field will automatically adjust

(D) Field will be flexible

ROUGH WORK

ROUGH WORK