Signature of Invigilators

1. ....

2. ....

COMPUTER SCIENCE AND APPLICATIONS

Paper II

D—1902

Name of the Areas/Section (if any) ....

Time Allowed : 75 Minutes]   [Maximum Marks : 100

SEAL

Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page.

2. This paper consists of *fifty* (50) multiple choice type questions. *All* questions are compulsory.

3. Each item has upto four alternative responses marked (A), (B), (C) and (D). The answer should be a capital letter for the selected option. The answer letter 'A' should entirely be contained within the corresponding square.

   Correct method [A] Wrong Method [A] or [A]

4. Your responses to the items for this paper are to be indicated on the ICR Answer Sheet under paper II only.

5. Read instructions given inside carefully.

6. One sheet is attached at the end of the booklet for rough work.

7. You should return the test booklet to the invigilator at the end of paper and should not carry any paper with you outside the examination hall.
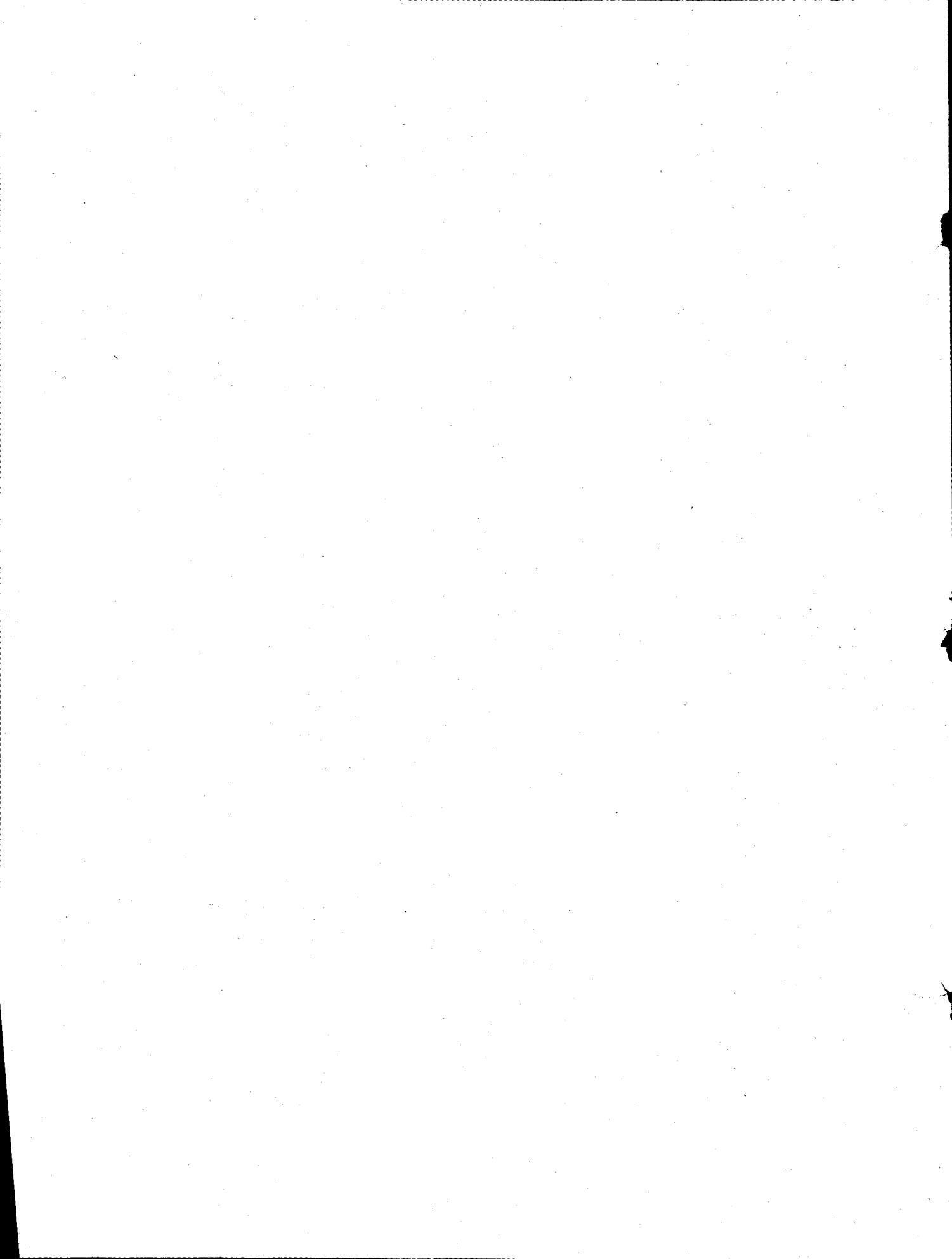
પરીક્ષાર્થીઓ માટે સૂચનાઓ :

૧. આ પૃષ્ઠના ઉપલા ભાગે આપેલી જગ્યામાં તમારી ક્રમાંક સંખ્યા (રોલ નંબર) લખો.

૨. આ પ્રશ્નપત્રમાં ૫૦ (પચાસ) બહુવૈકલ્પિક ઉત્તરોવાળા પ્રશ્નો છે. બધા જ પ્રશ્નોના ઉત્તરો આપવા ફરજિયાત છે.

૩. પ્રત્યેક વિગતના (A), (B), (C) અને (D) એવા ચાર સંભવિત ઉત્તરો આપવામાં આવ્યા છે. તમે સ્વીકારેલા વિકલ્પનો ઉત્તર કેપિટલ (પહેલી એબીસીડી) અક્ષરમાં આપવાનો રહેશે.તમારા ઉત્તર આપેલા ચોરસમાં સરખી રીતે લખવા.

   સાચી પદ્ધતિ : [A] ખોટી પદ્ધતિ : [A] , [A]

૪. આ પ્રશ્નપત્રના ઉત્તરો આઈસીઆરના ઉત્તરપત્રકમાં Paper II ની નીચે લખવાના રહેશે.

૫. અંદર આપેલી સૂચનાઓ ધ્યાનથી વાંચો.

૬. આ ઉત્તરપોથીને અંતે આપેલું પૃષ્ઠ કાચા કામ માટે છે.

૭. પ્રશ્નપત્ર લખાઈ રહે એટલે આ ઉત્તરપોથી તમારા નિરીક્ષકને આપી દેવી. પરીક્ષાખંડની બહાર કોઈપણ પ્રશ્નપત્ર લઈ જવું નહીં.

COMPUTER SCIENCE AND APPLICATIONS

PAPER II

Note :—This paper contains *fifty* (**50**) multiple choice questions, each question carrying *two* (**2**) marks. Attempt *all* of them.

1. A simple graph with n vertices and k components can have at most.............. edges.

   (A) (n – k) (n – k + 1)/2   (B) (n – k) (n – k – 1)/2

   (C) (n – k) * k/2   (D) (n – k) * n/2

2. The length of a Hamiltonian path (if exists) in a connected graph of n vertices is :

   (A) n   (B) n – 1

   (C) n + 1   (D) n/2

3. Let A = {1, 2, 5, 8, 11}. Which of the following is *false* ?

   (A) {5, 1, 8} ⊆ A   (B) {1, 8} ∈ A

   (C) φ ⊆ A   (D) {11} ⊆ A

4. In how many ways can six men and six women be seated in a row if any person may sit next to any other person ?

   (A) 6 !   (B) 12 ! / 2

   (C) 12 !   (D) 12 ! * 2

5. A graph with n vertices and n – 1 edges that is not a tree, is :

   (A) Euler   (B) A circuit

   (C) Disconnected   (D) Connected

6. Binary-Coded-Decimal (BCD) numbers express each digit as a :

   (A) byte   (B) nibble

   (C) bit   (D) All of these

7. What does 4K present ?

(A) 4000

(B) 4096

(C) 4024

(D) 4048

8. Which one of the following is faster ?

(A) TTL

(B) ECL

(C) CMOS

(D) Bi-MOS

9. The gray code for decimal 7 is :

(A) 0111

(B) 1011

(C) 0100

(D) 0101

10. In which flip-flop race condition will not be created ?

(A) JK

(B) RS

(C) D

(D) None of these

11. int j = 7;

printf ("%d   %d   %d", j++, − −j, j − −);

will produce :

(A) 7 7 7

(B) 5 5 7

(C) 6 5 6

(D) 8 7 6

12. Which of the following is *correct* ?

(A) int a [ ];

    a = (int) malloc (size of (int) * 5);

(B) int * a;

    a = (int) malloc (size of (int) * 5);

(C) int a [5];

    free (a);

(D) None of the above

13. Which of the following is *correct* for virtual functions ?

(A) They can't be static

(B) They can't be a friend of another class

(C) They might not be defined in a base class

(D) Constructor and destructor both can be virtual

14. What is a correct declaration of an abstract method ?

(A) abstract void add ( ) { }

(B) abstract void add ( );

(C) abstract void add ( ) { ; }

(D) abstract add ( );

15. Which of the following has compilation error in C ?

(A) float f = (float) 1.3;

(B) int i = 13;

(C) char c = 92;

(D) None of these

16. A relation with only two attributes is always in :

(A) 2NF

(B) BCNF

(C) 3NF

(D) All of these

17. The views in a database are :

(A) Stored in tables

(B) Virtual tables

(C) Meta data

(D) Required for the data definition

18. Foreign keys may have values equal to :

(A) Null

(B) Cannot have null value

(C) Range values

(D) None of these

19. In an SQL query the GROUP BY attribute must appear :

(A) in SELECT statement

(B) as aggregating function

(C) All the above

(D) None of these

20. HAVING component of a SELECT query states a condition for :

(A) FROM component

(B) SELECT component

(C) GROUP BY component

(D) ORDER BY component

21. Which of the following operations is performed more efficiently by doubly linked list than by linear linked list ?

(A) Deleting a node whose location is given

(B) Searching an unsorted list for a given item

(C) Inserting a node after the node with a given location

(D) Traversing the list to process each node

22. Which of the following sorting procedures is the slowest ?

(A) Quick sort

(B) Heap sort

(C) Shell sort

(D) Bubble sort

23. In what order the elements of a stack are accessed ?

(A) FIRST IN FIRST OUT (FIFO)

(B) LAST IN LAST OUT (LILO)

(C) LAST IN FIRST OUT (LIFO)

(D) None of the above

24. A fully binary tree with n leaves contains :

(A) n nodes

(B) $\log_2 n$ nodes

(C) 2n − 1 nodes

(D) 2^n nodes

25. When key values are reals, a similar data representation might be produced by using a hashing function, with :

(A) mod

(B) div

(C) trunc

(D) log N

26. Which protocol stands for IEEE 802.3 ?

    (A) Token bus   (B) Token ring

    (C) CSMA/CD   (D) None of these

27. The internet is an interconnection of : '

    (A) Computers   (B) Networks

    (C) Bridges   (D) None of these

28. Public key is :

    (A) Symmetric   (B) Asymmetric

    (C) Private   (D) None of these

29. Which protocol is used for monitoring a network ?

    (A) SMTP   (B) WAP

    (C) SNMP   (D) NNTP

30. TCP is :

    (A) Connection-oriented   (B) Connection less

    (C) Circuit-switched   (D) Datagram baser

31. Resolution of externally defined symbols is performed by :

    (A) Compiler   (B) Assembler

    (C) Linker   (D) Loader

32. Relocatable programs :

    (A) can be loaded at a specific location in memory

    (B) can be loaded almost anywhere in memory

    (C) cannot be used with virtual memory management scheme

    (D) All of the above

33. A program that sets up an executable program in main memory for execution is :

(A) Compiler

(B) Assembler

(C) Linker

(D) Loader

34. The rules which govern the formation of valid lexical units in the source program are :

(A) Syntax rules

(B) Semantic rules

(C) Lexical rules

(D) Synthesis phase

35. LEX accepts an input specification which consists of :

(A) One component only

(B) Two components only

(C) Three components only

(D) Any number of components

36. Fragmentation :

(A) can always be prevented by operating system

(B) can be removed by compaction

(C) occurs due to corruption in the file system

(D) occurs due to heavily I/O operations

37. System call fork ( ) is used to :

(A) create a new job

(B) remove a process

(C) create a new process

(D) increase the priority of a job

38. The SJF algorithm executes a process :

(A) That has been waiting from long time for processor

(B) That needs least I/O resources

(C) That needs more I/O resources

(D) That needs least processor

39. The default user profile for bourne shell is :

    (A) /etc/ profile

    (B) /etc/.profile

    (C) .profile

    (D) .bash-profile

40. Thrashing :

    (A) can always be avoided by swapping

    (B) can be caused by poor paging algorithms

    (C) is used to analyzing paging problems

    (D) improve system performance

41. Software cost increases because of :

    (A) each application will need the generation of new program

    (B) purchasing of new equipment means that existing software will either have to be modified or rewritten

    (C) programming is labour intensive and therefore strongly affected by inflation despite new techniques

    (D) All of the above

42. The Software Engineering was coined at the conferences sponsored by :

    (A) NATO—USA, 1975

    (B) NATO Science Committee Europe—1960s

    (C) CODASYL—USA

    (D) ASME—Europe—1970s

43. The two basic driving factors of software are :

    (A) Flowcharting and coding

    (B) Algorithms and programs

    (C) Quality and cost

    (D) Quantity and quality

44. A RAM disk :

(A) is a program that makes part of memory appear to other programs as if it were a high-speed disk-drive

(B) can make program run much faster

(C) adds memory to a personal computer

(D) Both (A) and (B)

45. Which is the costliest phase of software development ?

(A) Analysis

(B) Coding

(C) Maintenance

(D) Testing

46. Data mining is used :

(A) to collect and store business knowledge in the database

(B) to interrupt the existing business knowledge effectively

(C) to discover business knowledge

(D) to customize the existing business knowledge

47. The world's standards for mobile device certification is provided by :

(A) Wi-fi group

(B) nokia and IEEE

(C) DOCOMO Japan

(D) WAP forum

48. Programs running in windows can share routines that are located in other files called :

(A) object-link libraries

(B) dynamic-link libraries

(C) heap libraries

(D) windows libraries

49. The Message Box function is designed to display :

(A) short message

(B) long message

(C) compact message

(D) scrolling (page) message(s)

50. Vector processor is :

(A) SISD

(B) SIMD

(C) MISD

(D) MIMD

ROUGH WORK

ROUGH WORK