Computer Science and Applications

Paper II

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

Note : This Paper contains **Fifty (50)** multiple-choice questions, each question carrying **Two (2)** marks. Attempt *All* of them.

1. In a transmission of binary digits 0 and 1, the probability of a bit being in error is 1/4. If three digits are transmitted, then the probability of error-free transmission is :

   (A) 27/64

   (B) 1/64

   (C) 3/4

   (D) 1/4

2. If A and B are subsets of universal set S, A is a subset of B and $A \neq B$, then :

   (A) $B^C \cap A = \Phi$

   (B) $A \cap B = B$

   (C) $B \cap A^C = \Phi$

   (D) $B \subset (A \cap B)$

3. A graph is strongly connected if for all v_i, $v_j \varepsilon G$, both the (i, j) and $(j, i)^{th}$ cell in the path matrix are :

   (A) (0, 0)

   (B) (1, 0)

   (C) (0, 1)

   (D) (1, 1)

4. The type-1 grammar corresponds to :

   (A) Regular grammar

   (B) Context free grammar

   (C) Context sensitive grammar

   (D) A general phase structure grammar

5. A non-empty subset S of G is a subgroup of <G, *> iff :

(A) For all a, b ε S, $a * b^{-1} \varepsilon S$

(B) For all a, b ε S, $a^{-1} * b \varepsilon S$

(C) For all a, b ε S, $a^{-1} * b^{-1} \varepsilon S$

(D) For all a, b ε S, $a * b \varepsilon S$

6. Which of the following logic has the maximum Fanout ?

(A) RTL

(B) ECL

(C) NMOS

(D) CMOS

7. Which of the following is a weighted code ?

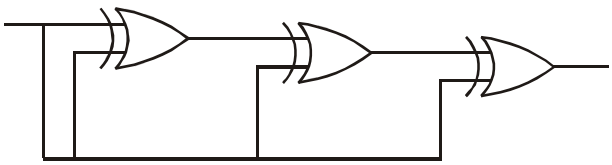
(A) 8421 code

(B) Excess-3 code

(C) 1248 code

(D) 5211 code

8. What is the output of the following circuit ?



(A) 0

(B) 1

(C) X

(D) $\bar{X}$

9. The range of 8 bit 2's complement number expressed in decimal is :

(A) –127 to +128

(B) –128 to +127

(C) –127 to +127

(D) –128 to +128

10. Which of the following is divisible by 4 ?

(A) 1001011

(B) 1110001

(C) 1111001

(D) 1010100

11. Choose the correct output in a typical DOS environment :

```
void main()
{
    int c = --2;
    printf("c=%d", c);
}
```

(A) 1

(B) –2

(C) 2

(D) Compilation Error

12. Choose the *correct* output :

```
#include<stdio.h>
#define a 10
main()
{
    #define a 50
    printf("%d", a);
}
```

(A) Execution error

(B) Compilation error

(C) 10

(D) 50

13. What will be the output for following code ?

```
main()
{
    static int var = 5;
    printf("%d", var--);
    if(var)
        main();
}
```

(A) Compilation Error

(B) Execution Error

(C) 5 4 3 2 1

(D) Stack Overflow

14. Which of the following operators cannot be overloaded in C++ ?

(A) /

(B) •

(C) >>

(D) &

15. What will be the output for following code ?

```
class base
    {
    public:
        virtual void baseFun()
        {cout<<"from base"<<endl;}
    };
class deri:public base
    {
    public:
        void baseFun()
        {cout<<"from derived"<<endl;}
    };
void SomeFunc(base *baseObj)
{
    baseObj->baseFun();
}
int main()
{
    base baseObject;
    SomeFunc(&baseObject);
    deri deriObject;
    SomeFunc(&deriObject);
}
```

(A) from base
from derived

(B) from derived
from base

(C) from base
from base

(D) from derived
from derived

16. In DBMS which normal form requires multi-valued dependency ?

(A) 3NF

(B) BCNF

(C) 4NF

(D) 5NF

17. Which data management language component enables the DBA to define the schema components ?

(A) Subschema DLL

(B) DML

(C) Schema DLL

(D) CREATE

18. Non-catastrophic failure is :

(A) System crash

(B) Disk failure

(C) Physical problem

(D) Logical error

19. The physical location of a record is determined by a mathematical formula that transforms a record-key into a record location is :

(A) A B-tree file

(B) A hash file

(C) An index file

(D) A sequential file

20. In DBMS "SQL%FOUND, SQL% NOTFOUND, SQL%ROWCOUNT, SQL%ISOPEN" are called as :

(A) Implicit cursor attributes

(B) Explicit cursor attributes

(C) Cursor attributes

(D) Cursor value

21. The value of the expression ABC*+DE*F+G/-, when all variables assume the value 1 (one), is :

(A) 0

(B) 1

(C) –1

(D) 3

22. Consider the algorithm :

```
Guess(A[0....n–1], k){
    A(n–1)=k
    i=0
    while(A[i]!=k)
    {
        i=i+1
    }
    If(i<n–1)
        return i
    else
        return –1
}
```

The algorithm returns –1, if

(A) k is the first element of the array

(B) k is the last element of the array

(C) k is the middle element of the array

(D) k is not in the array

23. If a heap with 11 elements is implemented as an array having subscripts ranging from 1 to 11, the position of right child of the node at position three is :

(A) 1

(B) 2

(C) 6

(D) 7

24. The in-degrees of the vertices can be computed from the adjacency matrix of a directed graph as :

(A) Sum of the diagonal elements

(B) Sum of the columns

(C) Sum of the rows

(D) Sum of all the elements

25. Merge sort is an example of :

(A) Divide and conquer algorithm

(B) Dynamic programming algorithm

(C) Greedy algorithm

(D) Branch and bound algorithm

26. The ..... field in the SNMP PUD, reports an error in a response message.

(A) Error index

(B) Error status

(C) Set request

(D) Agent index

27. Device on one network can communicate with a device on another network via a :

(A) Switch

(B) Utility server

(C) File server

(D) Gateway

28. The data rate of a ISDN-Basic-Access-B-Channel is :

(A) 32 kbps

(B) 64 kbps

(C) 144 kbps

(D) 192 kbps

29. The mapping of IP address by Ethernet address is done by ..... protocol.

(A) RIP

(B) ARP

(C) USPF

(D) UDP

30. What is the maximum operating rate of a wireless LAN using infrared communication ?

(A) 1 mbps

(B) 2 mbps

(C) 5 mbps

(D) 11 mbps

31. Assembler is a/an .....

(A) Interpreter

(B) Compiler

(C) Preprocessor

(D) Linker

32. Which languages are recognized by the finite state automaton ?

(A) Regular

(B) Context sensitive

(C) Context free

(D) Syntax free

33. ..... is created in pass 2 of the assembler.

(A) Literal table

(B) Symbol table

(C) Base table

(D) Top table

34. Which of the following tables is not created during Lexical Analysis ?

(A) Literal table

(B) Identifier table

(C) Symbol table

(D) Value table

35. LR parser will generate :

(A) Left most derivation

(B) Right most derivation

(C) Left most derivation in reverse

(D) Right most derivation in reverse

36. The main function of dispatcher in the portion of the process scheduler is :

(A) Swapping a process to disk

(B) Assigning ready process to CPU

(C) Suspending some of the processes

(D) Bring process from the disk to the main memory

37. The memory allocation schema subjected to "external" fragmentation is :

(A) Segmentation

(B) Swapping

(C) Demand paging

(D) Paged segmentation

38. "Locality of reference" in memory management is :

(A) Page used in the previous page reference

(B) Page used in last few page references

(C) One of the page existing in memory

(D) A page fault

39. Distributed system should :

(A) Meet prescribed time constraints

(B) Aim better resource sharing

(C) Aim better system utilization

(D) Aim low system overhead

40. The scheduling policy which is well suited for a time-shared operating system is :

(A) Shortest job first

(B) FIFO

(C) Round robin

(D) Last in first out

41. Reliability of a software is dependent upon :

(A) Number of errors present in the software

(B) Documentation

(C) Testing suites

(D) Development processes

42. In software metrics, McCABE'S cyclomatic number is given by following formula :

Note :—

C = McCABE'S cyclomatic number

e = Number of edges

n = Number of nodes

p = Number of strongly connected components

(A) $C = e - n + 2p$

(B) $C = e - n - p$

(C) $C = e + n + 2p$

(D) $C = e - n * 2p$

43. Sliding windows concept of software project management is :

(A) Preparation of comprehensible plan

(B) Preparation of the various stages of development

(C) Ad-hoc planning

(D) Requirement analysis

44. Software ..... is work done to enhance software functionality, correct errors and improve the performance of software.

(A) re-design

(B) maintenance

(C) corrections

(D) re-engineering

45. In the software testing process, when is validation testing performed ?

(A) during coding

(B) during unit testing

(C) during module testing

(D) during integration testing

46. MPI library cannot be used from one of the following C programming environments :

(A) Visual C++ 6.0

(B) Turbo C++ 3.0

(C) GCC 4.0 for Windows

(D) GCC 4.0 for Linux

47. What is the minimum number of fixed-location transceivers required to be in a cell in a cellular network ?

(A) 1

(B) 4

(C) 6

(D) 8

48. Internet classifieds follow which e-commerce business model ?

(A) B2B

(B) B2C

(C) C2C

(D) G2B

49. Which of the following technology solution a bank may use to transfer an e-cheque ?

(A) XML

(B) EDI

(C) Encrypted e-Mail

(D) WML

50. In MFC programming, an application's EXE in 'Debug' directory will be ..... than its counterpart in 'Release' directory.

(A) Smaller

(B) Bigger

(C) Same size

(D) Depends upon the nature of application

ROUGH WORK

ROUGH WORK

Test Booklet No.
प्रश्नपत्रिका क्र. **F**

Signature of Invigilators
1. .....
2. .....

Seat No. | | | | | | |

COMPUTER SCIENCE AND APPLICATIONS (In figures as in Admit Card)

Paper II

Seat No. (In words) .....
.....

NOV - 37211

Answer Sheet No. | | | | | |

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

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

Instructions for the Candidates

1. Write your Seat Number in the space provided on the top of this page. Write your Answer Sheet No. in the space provided for Answer Sheet No. on the top of this page.
2. Write and darken Test Booklet No. on OMR Answer Sheet.
3. This paper consists of **Fifty (50)** multiple choice type of questions.
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the responses 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 items for this paper are to be indicated on the Answer Sheet only. Responses like (×) (▯) (/) and **light shaded responses will not be considered/evaluated.**
6. Read instructions given inside carefully.
7. One Sheet is attached at the end of the booklet for rough work.
8. You should return the test booklet and answer sheet **both** to the invigilator at the end of the paper and should not carry any paper with you outside the examination hall.
9. Answers marked on the body of the question paper will not be evaluated.

परीक्षार्थींसाठी सूचना

1. या पानावरील वरच्या कोपऱ्यात आपला आसन क्रमांक तसेच आपणास दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. प्रश्नपत्रिका क्रमांक OMR उत्तरपत्रिकेवर दिलेल्या रकान्यात लिहून त्याप्रमाणे काळा करावा.
3. या प्रश्नपत्रिकेत **पन्नास** बहुनिवड प्रश्न आहेत.
4. प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा करावा.
   उदा. (A) (B) ● (D)
   जर (C) हे योग्य उत्तर असेल तर.
5. या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे उत्तरपत्रिकेमध्येच द्यावीत. उत्तराच्या रकान्यामध्ये (×) (▯) (/) व **अस्पष्टपणे काळे केलेले उत्तर ग्राह्य धरले जाणार नाही.**
6. आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
7. कच्च्या कामासाठी प्रश्नपत्रिकेच्या शेवटी कोरे पान जोडले आहे.
8. या पेपरची परीक्षा संपल्यानंतर प्रश्नपत्रिका व उत्तरपत्रिका **दोन्ही** पर्यवेक्षकांना परत करावी. यातील कोणताही कागद तुमच्या बरोबर परीक्षा केंद्राबाहेर नेण्यास सक्त मनाई आहे.
9. प्रश्नपत्रिकेवर दर्शविलेली उत्तरे तपासली जाणार नाहीत.