ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.

M.Tech. (COMPUTER SCIENCE AND ENGINEERING)

COURSE CODE : 376

Register Number : [ ]

Signature of the Invigilator
(with date)

COURSE CODE : 376

Time : 2 Hours Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each of the question carefully and shade the relevant answer (A) or (B) or (C) or (D) or (E) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you –1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Files in an EFS partition are

(A) Compressed
(B) Archived
(C) Encapsulated
(D) Encrypted
(E) None of the above

2. Who brought the concept of punch cards to control patterns of a weaving machine?

(A) Pascal
(B) Hollerith
(C) Babbage
(D) Jacquard
(E) None of the above

3. CSMA/CD stands for

(A) Complete System for Media Attenuation and Collision Detection
(B) Collision Signaling - Message Access / Collision Detection
(C) Carrier Sense Multiple Access / Collision Detection
(D) Carry Signal Method Access / Complete Detection
(E) None of the above

4. The accuracy of the floating-point numbers representable in two 16-bit words of a computer is approximately

(A) 16 digits
(B) 6 digits
(C) 9 digits
(D) All of the above
(E) None of the above

5. A dumb terminal has

(A) An embedded microprocessor
(B) Extensive memory
(C) Independent processing
(D) A keyboard and screen
(E) None of the above

6. ———————— defines the records contained within a block of data on magnetic tape.

(A) Block definition
(B) Record contain clause
(C) Blocking factor
(D) Record per block factor
(E) None of the above

7. The case which is not exist in complexity theory is

(A) Best case
(B) Worst case
(C) Average case
(D) Null case
(E) None of the above

8. The complexity of linear search algorithm is

(A) O(n)
(B) O(log n)
(C) O(n2)
(D) O(n log n)
(E) None of the above

9. Which of the following statement is false?

(A) Arrays are dense lists and static data structure
(B) Data elements in linked list need not be stored in adjecent space in memory
(C) Pointers store the next data element of a list
(D) Linked lists are collection of the nodes that contain information part and next pointer
(E) None of the above

10. How many numbers of separate protocol layers are specified in X.25 standard for serial interface gateway?

(A) 4
(B) 2
(C) 6
(D) 3
(E) None of the above

11. Which line in suited for interactive transmission of data within a time sharing system?

(A) Simplex lines
(B) Half-duplex lines
(C) Full duplex lines
(D) Biflex-lines
(E) None of the above

12. Select the correct statement?

(A) The difference between synchronous and asynchronous transmission is the clocking derived from the data in synchronous transmission.
(B) Half duplex line is a communication line in which data can move in two directions, but not at the same time.
(C) Teleprocessing combines telecommunications and DP techniques in online activities
(D) Batch processing is the preferred processing mode for telecommunication operation
(E) None of the above

13. The communication line which does not permit multi user or resources is

(A) doubleplexer
(B) multiplexer
(C) concentrator
(D) controller
(E) none of the above

14. An example of digital, rather than analog, communication is

(A) DDD
(B) DDS
(C) WATS
(D) DDT
(E) None of the above

15. When the RET instruction at the end of subroutine is executed,

(A) the information where the stack is initialized is transferred to the stack pointer
(B) the memory address of the RET instruction is transferred to the program counter
(C) two data bytes stored in the top two locations of the stack are transferred to the program counter
(D) two data bytes stored in the top two locations of the stack are transferred to the stack pointer
(E) none of the above

16. What is a FDDI network?

(A) Bus network
(B) EMI susceptible network
(C) Star network
(D) Ring network
(E) None of the above

17. The function of a database is

(A) to check all input data
(B) to check all spelling
(C) to collect and organize input data
(D) to output data
(E) None of the above

18. The model for a record management system might be

(A) handwritten list
(B) a rolodex card file
(C) a business form
(D) all of the above
(E) none of the above

19. Primitive operations common to all record management system include

(A) Print
(B) Sort
(C) Look-up
(D) All of the above
(E) None of the above

20. Which file organization is allowed by a direct access storage device?

(A) Direct only
(B) Sequential and direct only
(C) Indexed and direct only
(D) Sequential, indexed and direct
(E) None of the above

21. Sequential file organization is most appropriate for which of following applications?

(A) Grocery store checkout
(B) Bank checking account
(C) Payroll
(D) Airline reservations
(E) None of the above

22. Overloaded functions are

(A) Very long functions that can hardly run
(B) One function containing another one or more functions inside it.
(C) Two or more functions with the same name but different number of parameters or type
(D) All of the above
(E) None of the above

23. What is the Output of the program?

```
void main()
{
      static int i=i++, j=j++, k=k++;
printf("i = %d j = %d k = %d", i, j, k);
}
```

(A) i = 1 j = 1 k = 1
(B) i = 2 j = 2 k = 2
(C) i = 0 j = 0 k = 0
(D) Error
(E) None of the above

24. Which of the following is not a characteristic of a relational database model?

(A) Tables
(B) Treelike structure
(C) Complex logical relationships
(D) Records
(E) None of the above

25. Data security threats include

(A) Hardware failure
(B) Fraudulent manipulation of data
(C) Privacy invasion
(D) All the above
(E) None of the above

26. Which of the following is not a relational database?

(A) dBASE IV
(B) 4th Dimension
(C) FoxPro
(D) Reflex
(E) None of the above

27. The regular expression with all strings of 0's and 1's with at least two consecutive 0's is

(A) (1+10)*
(B) (0+1)*00(0+1)*
(C) (0+1)*011
(D) 0*1*2*
(E) None of the above

28. The regular expressions denote zero or more instances of an x or y is

(A) (x/y)
(B) (x/y)*
(C) x*/y
(D) (xy)*
(E) None of the above

29. The regular expression have all strings of 0's and 1's with no two consecutive 0's is

(A) (0/1)
(B) (0/1)*
(C) (0+E)(1+10)*
(D) (0+1)*011
(E) None of the above

30. In regard to the exclusive OR gate with many inputs, consider the following statements:

(i) If the inputs are two, the output is high only when the inputs are different..
(ii) Even parity input words produce a low output.
(iii) Odd parity input words produce a low output.
(iv) The gate recognizes only words of even parity.

Of these, the only true statements are:

(A) (i), (ii)
(B) (iii), (iv)
(C) (i), (iii)
(D) (ii), (iv)
(E) None of the above

31. Exclusive OR followed by an inverter has the property
(A) Output high for input word of even parity
(B) Output high for input word of odd parity
(C) Output is 1's complement of input word
(D) Output is 2's complement of input word
(E) None of the above

32. If binary multiplication is to be implemented by using a two input gate then if should be
(A) an Exclusive OR gate
(B) a NOR gate
(C) an AND gate
(D) an OR gate
(E) none of the above

33. Throughput using a half-duplex protocol
(A) exceeds that of a full-duplex protocol
(B) is less than that of a full-duplex protocol
(C) equals throughput on a full-duplex protocol
(D) is faster than all other types of protocols
(E) None of the above

34. The varying characteristics of transmission lines
(A) enable a fixed block size to be optimum for use on all circuits
(B) enable a long block size to be optimum on noisy circuits
(C) enable a variable block size to be optimum for use on all circuits
(D) enable a short block size to be optimum on non-noisy circuits
(E) none of the above

35. What PPP protocol provides dynamic addressing, authentication, and multilink?
(A) HDLC
(B) LCP
(C) NCP
(D) X.25
(E) None of the above

36. What does DSSSL stand for?
(A) Document style semantics and specification language
(B) Design style semantics and specification language
(C) Development style semantics and specification language
(D) All the above
(E) None of the above

37. The following is/are true about HTTP.

(A) It is a generic stateless object oriented protocol

(B) An application level protocol for the www

(C) HTTP supports dynamic data representation through Client-Server negotiation

(D) All the above

(E) None of the above

38. What is the Output of the program?

```
#include<stdio.h>
int r();
int main(){
   for(r();r();r()) {
      printf("%d ",r());
   }
  return 0;
}
   int r(){
   int static num=7;
   return num--;
}
```

(A) 5 2

(B) 3 3

(C) 4 2

(D) Compilation Error

(E) None of the above

39. What is the Output of the program?

```
#include<stdio.h>
#define p(a,b) a##b
#define call(x) #x
int main(){
   do{
      int i=15,j=3;
      printf("%d",p(i-+,+j));
   }
   while(*(call(625)+3));
   return 0;
}
```

(A) 13

(B) 11

(C) 12

(D) 15

(E) None of the above

40. What is the Output of the program?

```
main(){
 int a= 0;int b = 20;char x =1;char y =10;
 if(a,b,x,y)
     printf("hello");
}
```

(A) Blank
(B) hello
(C) "hello"
(D) Error
(E) None of the above

41. What is the Output of the program?

```
main()
{
char *p;
p="%d\n";
          p++;
          p++;
          printf(p-2,300);
}
```

(A) 2,300
(B) 8,300
(C) 300
(D) Error
(E) None of the above

42. Consider a set of n tasks with known runtimes r_1, r_2, r_3, ... r_n to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput?

(A) Round – Robin
(B) Shortest – job – First
(C) Highest – Response – Ratio –Next
(D) First – Come – First – Served
(E) None of the above

43. Where does the swap space reside?

(A) RAM
(B) ROM
(C) DISK
(D) On-Chip Cache
(E) None of the above

44. Consider a virtual memory system with FIFO page replacement policy. For an arbitrary page access pattern, increasing the number of page frames in main memory will

(A) Always decrease the number of page faults

(B) Always increase the number of page faults

(C) Sometimes increase the number of page faults

(D) Never affect the number of page faults.

(E) None of the above

45. What is the Output of the program?

```
void main()
{
    char a[ ]="12345\0";
    int i=strlen(a);
    printf("here in 3 %d\n",++i);
}
```

(A) here in 3 6

(B) here in 3 5

(C) here in 3 7

(D) Error

(E) none of the above

46. What is the maximum number that can be printed using printf("%d", x), assuming that x is initialized as shown below?

short int x; assume x is 16 bits in size

(A) 127

(B) 255

(C) 32,767

(D) 65,536

(E) None of the above

47. Global variables that are declared static are ————————, which one of the following correctly completes the sentence above.

(A) Allocated on the heap

(B) Read only subsequent to initialization

(C) Internal to the current translation unit

(D) Visible to all translation unit

(E) None of the above

48. What is output of following program when we compile and run it?

```
void main()
{
 int  const * p=5;
 printf("%d",++(*p));
}
```

(A) 6 (B) 5

(C) 9 (D) 7

(E) None of the above

49. The state of the system that can allocate resources to each process in some order and still avoid the deadlock is called

(A) Unsafe state (B) Safe state

(C) Starvation (D) Greedy allocation

(E) None of the above

50. The kernel of the operating system remains in the primary memory because

(A) it is mostly called (used) (B) it manages all interrupt calls

(C) it controls all operations in process (D) it is low level

(E) none of the above

51. A process that is based on IPC mechanism which executes on different systems and can communicate with other processes using message based communication is called

(A) Local Procedure Call

(B) Inter Process Communication

(C) Remote Procedure Call

(D) Remote Machine Invocation

(E) None of the above

52. Global variables that are declared static are

(A) Deprecated by Standard C

(B) Allocated on the heap

(C) Visible to all translation units

(D) Read-only subsequent to initialization

(E) None of the above

53. int x=3;
```
if(x==2)
    X=0;
if(x==3)
    X++;
else x+=2;
```
What value will x contain when the sample code above is executed?

(A) 3 (B) 2

(C) 1 (D) 4

(E) None of the above

54. What is the Output of the program?
```
main()
{
    int a[10];
    printf("%d",*a+1-*a+3);
}
```
(A) Value of a[0] (B) 4

(C) Base value of a[10] (D) Error

(E) None of the above

55. Which of the following sorting algorithm is of divide-and-conquer type?

(A) Bubble sort (B) Insertion sort

(C) Quick sort (D) All of the above

(E) None of the above

56. Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); ---; signal(S);signal(Q) and wait(Q); wait(S); ---;signal(Q);signal(S); respectively. The above situation depicts a

(A) Semaphore (B) Deadlock

(C) Signal (D) Interrupt

(E) None of the above

57. If the Disk head is located initially at 32, find the number of disk moves required with FCFS if the disk queue of I/O blocks requests are 98, 37, 14, 124, 65, and 67.

(A) 310 (B) 324

(C) 315 (D) 321

(E) None of the above

58. Which of the following stack operations could result in stack underflow?

(A) Peek (B) Pop

(C) Push (D) All of the above

(E) None of the above

59. Prefix equivalent of the expression ((A + B) * C - (D - E) ^ (F + G)) is

(A) ABC - DE ^ - * FG + + (B) ABC ^ - * + DE - + FG

(C) ^ - * +ABC - DE + FG (D) All of the above

(E) None of the above

60. What is the data structure used to perform recursion?

(A) Stack (B) Queue

(C) Array (D) All of the above

(E) None of the above

61. To measure the complexity of the algorithm we require

(A) Time taken in best case (B) Time taken in worst case

(C) Time taken in average case (D) All of the above

(E) None of the above

62. A parity check usually can detect

(A) One bit error (B) Double bit error

(C) Three bit error (D) All of the above

(E) None of the above

63. An activity that verifies compliance with policies and procedures and ensures that resources are conserved is called

(A) Audit (B) Review

(C) Assessment (D) All of the above

(E) None of the above

64. In linked lists, memory space will be allocated during

(A) Compile time (B) Run time

(C) Preprocessing time (D) All of the above

(E) None of the above

65. The effort required for locating and fixing an error in an operational program

(A) Testability
(B) Maintainability
(C) Portability
(D) All of the above
(E) None of the above

66. In a circularly linked list organization, insertion of a record involves the modification of

(A) No pointer
(B) 1 pointer
(C) 2 pointers
(D) All of the above
(E) None of the above

67. The postfix equivalent of the expression ((A + B) * C – (D – E) / (F – G)) is

(A) AB C +* – DE – FG – /
(B) AB C+ * DE – – FG – /
(C) AB + C * DE – FG – / –
(D) All of the above
(E) None of the above

68. Bluetooth uses ———————— in the physical layer.

(A) DSSS
(B) DHSS
(C) FHSS
(D) OFDM
(E) None of the above

69. When a view is created, the database system stores

(A) The definition of the view
(B) The result of evaluation of the relational algebra expression that defines the view
(C) The relations which are part of the view
(D) All of the above
(E) None of the above

70. In the given elements 15, 35, 46, 29, 24, 78, 82, what is the average number of comparison required to determine that an element is not present in the above list?

(A) 2
(B) 3
(C) 4
(D) All of the above
(E) None of the above

71. The efficiency of algorithm can be determined in terms of space factor is measured by

(A) Counting the maximum memory needed by the algorithm

(B) Counting the minimum memory needed by the algorithm

(C) Counting the average memory needed by the algorithm

(D) Counting the maximum disk space needed by the algorithm

(E) None of the above

72. Ethernet networks are broadcast domains and collision domains. How the hosts on an Ethernet network will know when to resume transmissions after a collision has occurred?

(A) The router on the segment will signal that the collision has cleared

(B) The jam signal indicates that the collision has been cleared

(C) The hosts will attempt to resume transmission after a time delay has expired

(D) All of the above

(E) None of the above

73. At what layer data is split into segments

(A) Transport (B) LAN

(C) Session (D) Data Link

(E) None of the above

74. What OSI layer is FRAME-RELAY mapped to?

(A) Network (B) Transport

(C) Data Link (D) Physical

(E) None of the above

75. Which routing protocol would allow VLSM support and minimize overhead if the network administrator wants to merge different networks all using routers from multiple vendors?

(A) OSPF (B) IGRP

(C) EIGRP (D) RIP

(E) None of the above

76. What is the disadvantage to using bridges in the network?

(A) Filters by MAC address
(B) Stops broadcast storms
(C) Doesn't stop broadcast storms
(D) All of the above
(E) None of the above

77. Which of the following operating systems is designed for servers used in a large enterprise network?

(A) Windows 2000 Client
(B) Windows 2000 Advanced Server
(C) Windows 2000 Server
(D) All of the above
(E) None of the above

78. Disk Striping with Parity corresponds to which RAID level?

(A) RAID 0
(B) RAID 1
(C) RAID 3
(D) RAID 5
(E) None of the above

79. What is a MAC address in an Ethernet network?

(A) The address assigned by DHCP
(B) A TCP/IP address
(C) The physical address assigned by the NIC manufacturer
(D) A logical address created by the network administrator
(E) None of the above

80. Communication ports use

(A) 9 / 25 pins male connectors
(B) 14 / 18 pin female connectors
(C) 14 / 25 pin male connectors
(D) edge / parallel connectors
(E) none of the above

81. ———— is the term used to refer to the process of two modems establishing communications with each other.

(A) Soft / Hard Handoff
(B) Handshaking
(C) Pinging
(D) Remote connecting
(E) None of the above

82. UART is a type of serial chip. Its letters stand for

(A) unidirectional access regarding transmission

(B) universal asynchronous receiver/transmitter

(C) upper advanced real transfer

(D) unable all restore t-bits

(E) none of the above

83. RS-232 is a standard that applies to:

(A) serial ports (B) parallel ports

(C) game ports (D) networks

(E) None of the above

84. UART and RS-232 related to ———— and ———— communications respectively.

(A) Serial, Serial (B) Serial, Parallel

(C) Parallel, Parallel (D) Parallel, Serial

(E) None of the above

85. ISDN stands for ———— and it uses ———— technology.

(A) internal select data nulls, only digital

(B) integrated services digital network, only digital

(C) integrated services digital network, digital and analog

(D) interior sector direct none, digital and analog

(E) None of the above

86. What DOS program can we run to see which serial ports are detected?

(A) comdiag (B) MSD

(C) SDET (D) serial.chk

(E) None of the above

87. TSR refers to ———— and most of TSRs can be loaded in ————.

(A) terminate and stay resident program, autoexec.bat

(B) terminate and stay resident program, tsr.sys

(C) test status request program, tsr.sys

(D) test status request program, autoexec.bat

(E) none of the above

88. What DOS command shows which TSRs are loaded?

(A) TSR-SHOW
(B) DOSVIEW
(C) LOADVIEW
(D) MEM /c
(E) None of the above

89. By default, where DOS will load?

(A) Extended memory
(B) Conventional memory
(C) HMA
(D) Expanded memory
(E) None of the above

90. In CMOS setup, if we enable Rom Bios Shadowing, what will happen?

(A) rom memory is minimized
(B) rom is used instead of ram
(C) rom memory is maximized
(D) a copy of the bios is placed in ram
(E) none of the above

91. What is the use of 'using' declaration?

(A) A using declaration makes it possible to use a name from a namespace with the scope operator
(B) A using declaration makes it possible to use a name from a namespace without the scope operator
(C) A using declaration makes it possible to use a name from a namespace with the access specifier
(D) All of the above
(E) None of the above

92. What is an Iterator class?

(A) A class that is used to access the objects of all classes
(B) A class that is used to traverse through the objects maintained by a template class
(C) A class that is used to traverse through the objects maintained by a container class
(D) All of the above
(E) None of the above

93. When does a dangling pointer occurs?

(A) A dangling pointer arises when you use the address of án object after its lifetime is over

(B) A dangling pointer arises when you use the address of an object before its lifetime begins

(C) A dangling pointer arises when you use the addresses of different objects at the same time

(D) All of the above

(E) None of the above

94. An organization with extremely high security requirements is evaluating the effectiveness of biometric systems. Which of the following performance indicators is MOST important?

(A) False-acceptance rate (FAR)

(B) Equal-error rate (EER)

(C) False-rejection rate (FRR)

(D) False-identification rate (FIR)

(E) None of the above

95. Void pointer is

(A) capable of storing pointer to any type as it is a generic pointer type

(B) not capable of storing pointer to any type

(C) not able to store anything

(D) all of the above

(E) none of the above

96. Minimum number of queues needed to implement the priority queue is

(A) One

(B) Two

(C) Three

(D) Four

(E) None of the above

97. What is the data structures used to perform recursion?

(A) Queue
(B) Stack
(C) Tree
(D) All of the above
(E) None of the above

98. What is the Output of the program?

```
main()
{
 int i;
 i = abc();
 printf("%d",i);
}
abc()
{
 _AX = 1000;
}
```

(A) 1000
(B) 100
(C) 10
(D) Error
(E) None of the above

99. Time-stamping refers to the

(A) technique used to order events in a distributed system without the use of clocks
(B) technique used to order events in a distributed system with the use of clocks
(C) technique used to order events in a distributed system without the use of temporal order
(D) all of the above
(E) none of the above

100. What is the maximum segment length on 10Base2 media?

(A) 100 meters
(B) 185 meters
(C) 500 meters
(D) 1024 meters
(E) None of the above