Code No.	N – 3572
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Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2022										
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COMPUTER SCIENCE/COMPUTER SCIENCE (ARTIFICIAL INTELLIGENCE)										
				<u>Gener</u>	al Instru	<u>ctions</u>	L			
1.	The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).						Part 'B'			
2.	Objective type questions which carry 1 mark each are to be (\checkmark) 'tick marked' in the response sheets against the appropriate answers provided.									
3.	8 que	estions are to b	e answe	red out o	of 12 que	estions ca	arrying 5	o marks e	each in F	art 'B'.
4.	 <u>Negative marking</u>: 0.25 marks will be deducted for each wrong answer in Part 'A'. 							answer		
Time : 2 Hours Max. Marks : 100							ks : 100			
To be filled in by the Candidate										
Reg Num	ister nber	in Figures								
				F	PART –	A				

(Objective Type)

Choose appropriate answer from the options in the questions. **One** mark **each**.

(60 × 1 = 60 marks)

- 1. Which of the following statements is true?
 - a) Stack works on the principle of LIFO
 - b) PC points to the last instruction that was executed
 - c) ROM is a Read/Write memory
 - d) All instruction affect the flags

DONOTWRITEHERE

2. In the absolute addressing mode

- a) the operand is inside the instruction
- b) the location of the operand is implicit
- c) the register containing the address of the operand is specified inside the instruction
- d) the address of the operand in inside the instruction
- 3. A micro program control unit is required to generate a total of 25 control signals. Assume that during any microinstruction, at most two control signals are active. Minimum number of bits required in the control word to generate the required control signals will be

a)	2	b)	2.5
C)	10	d	Í)	12

- 4. SELECT operation in SQL is equivalent to
 - a) The selection operation in relational algebra
 - b) The projection operation in relational algebra, except that SELECT in SQL retains duplicates
 - c) The projection operation in relational algebra
 - d) The selection operation in relational algebra, except that SELECT in SQL retains duplicates
- 5. Given the relations

employee (name, salary, deptno) and

department (deptno, deptname, address)

Which of the following queries cannot be expressed using the basic relational algebra operations

 $(U, -, x, \pi, \sigma, p)?$

- a) Department address of every employee
- b) Employees whose name is the same as their department name
- c) The sum of all employees salaries
- d) All employees of a given department
- 6. Which normal form is considered adequate for normal relational database design?
 - a) 2 NF b) 5 NF
 - c) 4 NF d) 3 NF
- 7. A file is organized so that the ordering of the data records is the same as or close to the ordering of data entries in some index. Then that index is called
 - a) Dense b) Sparse
 - c) Clustered d) Unclustered
- 8. A full adder can be made out of
 - a) two half adders
 - b) two half adders and a OR gate
 - c) two half adders and a NOT gate
 - d) three half adders

- 9. Which device has one input and many outputs?
 - a) Multiplexer b) Flip flop
 - c) Demultiplexer d) Counter

10. For the min-term $Y = \sum m(1, 3, 5, 7)$ the complete expression is

- a) Y = A B C + A B
- b) Y = A B C + A B C + A B C A B C
- c) Y = A B C + A B C + A B C + A B C
- d) Y = A B C + A B C + A B C + A B C
- - a) both level and edge b) edge
 - c) level d) leading edge
- 12. If you want to implement a mechanism that automates the IP configuration including IP address, Subnet mask, default gateway and DNS information which protocol will you use to accomplish this
 - a) SMTP b) SNMP
 - c) DHCP d) ARP

13. Which of the following is private IP address

- a) 192.168.24.43 b) 168.172.19.39
- c) 172.15.14.36 d) 12.0.01
- 14. Which statements are true regarding ICMP Packets?
 - I. They acknowledge receipt of a TCP segment
 - II. They guarantee datagram delivery
 - III. They provide host with information about networks problems
 - IV. They are encapsulated within IP data grams
 - a) I only b) III and IV
 - c) II and III d) II, III and IV

- 15. A receiving host has failed to receive all of the segments that it should acknowledge. What can be the host do, to improve the reliability of this communication session?
 - a) Send a different source port number
 - b) Restart the virtual circuit
 - c) Decrease the sequence number
 - d) Decrease the window size
- 16. Which of the following are types of flow control
 - I. Buffering
 - II. Cut-through
 - III. Windowing
 - IV. Congestion avoidance
 - a) I and II b) I, II and IV
 - c) II only d) III only
- 17. Phishing isa form of
 - a) Spamming b) Impersonation
 - c) Identification Theft d) Scanning
- 18. The ability to inject packets into the Internet with a false source address is known as
 - a) Man in the middle attack b) IP Phishing
 - c) IP Sniffing d) IP Spoofing
- 19. The equivalent postfix expression for the infix expression $(A + B^{D})/(E F) + G$ is:
 - a) $(ABD^{+} + EF /G +)$ b) $(ABD^{+} EF /G +)$
 - c) $(ABD^{+} + EF/ G +)$ d) (ABDEF + -G +)

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- 20. The complexity of enqueue operation is
 - a) O (log n) b) O(n log n)
 - c) O(n) d) O(1)
- 21. Which one of the following algorithm is used to find all pairs of shortest distances in a graph?
 - a) Dynamic programming b) Backtracking
 - c) Greedy d) Divide and Conquer

22. Which type of traversal of binary search tree outputs the value in sorted order?

- a) Pre-order b) Post-order
- c) In-order d) None

23. Which of the following sorting algorithms has the lowest worse-case complexity?

- a) Merge sortb) Bubble sortc) Quick sortd) Selection sort

24. In a circular linked list organization, insertion of a record involves modification of

- a) One pointer b) No pointer
- c) Multiple pointers d) Two pointers
- 25. In programming language terminology, "CALL BY VALUE" refers to the fact that:
 - a) A function call can return a value.
 - b) When a function is called, arguments are copied into local storage.
 - c) Functions can indirectly modify the value of external variables.
 - d) Every argument passed to a function must have a value.
- 26. If for an algorithm time complexity is given by 0(1) then complexity of it is:
 - a) Exponential b) Polynomial
 - c) Constant d) Variable

27. Which of the following is not a topological sorting of the given graph?



28. What will the function rewind() do?

a)

c)

- a) Reposition the file pointer to beginning of file
- b) Reposition the file pointer stream to end of file
- c) Reposition the file pointer to beginning of that line
- d) Reposition the file pointer to a character reverse
- 29. What will happen, if in a C program you assign a value to an array element whose subscript exceeds the size of array?
 - a) The element will be set to 0
 - b) The compiler would report an error
 - c) The program may crash if some important data gets overwritten
 - d) The array size would appropriately increase
- 30. What is x in the following program?

```
#include<stdio.h>
int main()
{
  typedef char (* (*arrfptr [3]) [10]);
  arrfptr x;
  return 0;
  }
```

- a) x is a pointer
- b) x is array of three function pointer
- c) x is an array of three pointer.
- d) Error in x declaration

31. What will be Output of the program?

```
#include<stdio. h>
int main()
     {
int y = 128;
const int x = y;
printf("%d/n", x);
return 0;
     }
     128
                                               Garbage value
a)
                                          b)
     Error
                                         d)
                                               0
c)
```

- 32. What does the following declaration mean?
 - int (*ptr) [10];
 - a) Ptr is array of pointers to 10 integers.
 - b) Ptr is array of pointers to an array of 10 integers.
 - c) Ptr is array of 10 integers.
 - d) Ptr is a single pointer to 10 arrays.
- 33. Parsing is also known as
 - a) Syntax analysis b) Lexical analysis
 - c) Semantic analysis d) Debugging
- 34. Which AI technique enables the computers to understand the associations and relationships between objects and events?
 - a) Heuristic Processing b) Cognitive Science
 - c) Relative Symbolism d) Pattern Matching
- 35. Which one of the following cloud concepts is related to sharing and pooling the resources?
 - a) Service Replication b) Security
 - c) Virtualization d) Polimorphism

- 36. Dirty bit is used to show the
 - a) wrong page
 - b) page with corrupted data
 - c) page with low frequency occurrence
 - d) page that is modified after being loaded into cache memory
- 37. Which of the following data structure is used to represent hierarchical relationship among its elements?
 - Queue Hash table a) b)
 - c) Tree d) Graph
- 38. Which one is the accurate and efficient line-generating algorithm?
 - Midpoint algorithm b) DDA algorithm a)
 - Bresenham's Line algorithm d) Dijkstra Algorithm c)
- 39. DDA stands for.
 - Direct differential analyzer a)
 - Direct difference analyzer Digital differential analyzer c) d)
- 40. In computer graphics which algorithm is used to detect hidden surfaces?
 - Sorting algorithm Buffer algorithm a) b)
 - c) Object trace algorithm d) **Coloring Algorithm**
- 41. In graphics, the number of vanishing points depends on
 - the number of axes cut by the projection plane a)
 - b) the centre of projection
 - the number of axes which are parallel to the projection plane c)
 - d) the perspective projections of any set of parallel lines that are not parallel to the projection plane

- Data differential analyzer b)

- 42. Anti-aliasing by computing overlap areas is referred as:
 - a) Area-sampling Super-sampling b)
 - c) Pixel Phasing d) Normalizing
- 43. What is compaction?
 - a technique for overcoming internal fragmentation a)
 - b) a paging technique
 - a technique for overcoming external fragmentation c)
 - d) a technique for overcoming fatal error
- 44. Which scheduler performs swopping of processes
 - Just in time Scheduler a) b)
 - Long term Scheduler d) c)
- 45. Command interpreter is also known as
 - kernel a) prompt b)
 - shell d) c) command
- 46. Several processes access and manipulate the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, is called a(n) -
 - **Shared Memory Segments** Entry Section a) b)
 - **Process Synchronization** c) Race condition d)
- 47. Bankers algorithm is used?
 - To prevent deadlock To deadlock recovery a) b)
 - To solve the deadlock To do de-fragmentation c) d)
- 48. Which system call returns the process identifier of a tenninated child?
 - a) wait b) exit
 - c) fork d) get

- Short term Scheduler
- Medium term Scheduler

49. The size of the address bus of 8086 microprocessor is

- a) 8 bit
 b) 20 bit
 c) 24 bit
 d) 28 bit
- 50. The advantage of memory mapped I/O over I/O mapped I/O is,
 - a) Faster
 - b) Many instructions supporting memory mapped I/O
 - c) Require a bigger address decoder
 - d) All the above

51. What does microprocessor speed depends on?

- a) Addressing modes b) Data bus width
- c) Address bus width d) Hard Disk capacity

52. Which interrupt has the highest priority?

a)	RST6.5	b)	TRAP
c)	INTR	d)	DMA

53. BHE of 8086 microprocessor signal is used to interface the

- a) Even bank memory b) Odd bank memory
 - c) I/O d) DMA

54. What does RAD stand for?

- a) Rapid Application Document b) Rapid Application Development
- c) Relative Application Development d) Read Analysis Develop
- 55. Which of the following prototypes does not associated with Prototyping Model?
 - a) Domain Prototype b) Vertical Prototype
 - c) Horizontal Prototype d) Diagonal Prototype

- 56. The spiral model has two dimensions namely and and
 - a) diagonal, angular b) radial, perpendicular
 - c) radial, angular d) diagonal, perpendicular
- 57. How is Incremental Model different from Spiral Model?
 - a) Progress can be measured for Incremental Model
 - b) Changing requirements can be accommodated in Incremental Model
 - c) Users can see the system early in Incremental Model
 - d) Coding can be done at first phase
- 58. Which of these is not an element of an object-oriented analysis model?
 - a) Behavioral elements b) Class-based elements
 - c) Data elements d) Scenario-based elements
- 59. The entity relationship diagram
 - a) depicts relationships between data objects
 - b) depicts functions that transform the data flow
 - c) indicates how data are transformed by the system
 - d) indicates system reactions to external events
- 60. Which one of the following is NOT desired in a good Software Requirement Specifications (SRS) document?
 - a) Functional Requirements
 - b) Non-Functional Requirements
 - c) Goals of Implementation
 - d) Algorithm for Software Implementation

ANSWER SHEET — PART – A



21	А	В	С	D	Е
22	А	В	С	D	Е
23	А	В	С	D	Е
24	А	В	С	D	Е
25	А	В	С	D	Е
26	А	В	С	D	Е
27	А	В	С	D	Е
28	А	В	С	D	Е
29	А	В	С	D	Е
30	А	В	С	D	Е
31	А	В	С	D	Е
32	А	В	С	D	Е
33	Α	В	С	D	Е
34	А	В	С	D	Е
35	А	В	С	D	Е
36	А	В	С	D	Е
37	А	В	С	D	Е
38	Α	В	С	D	Е
39	Α	В	С	D	Е
40	А	В	С	D	Е



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PART – B

(Descriptive Type)

Answer **any eight** questions. Each questions carries 5 marks. (8 × 5 = 40 Marks)

- 1. Explain CPU scheduling algorithm in detail.
- 2. Explain Stop and Wait ARQ and Selective Repeat ARQ.
- 3. How does DMA work explain with block diagram in detail?
- 4. What is an encoder? How is a computer keyboard encoder works?
- 5. How does Bresenham's line algorithm work?
- 6. Explain the application of 5G technologies in detail.
- 7. Explain instruction format and addressing modes of 8086.
- 8. Give an example of dynamic programming and explain it in detail.
- 9. Explain division operation on relation with table of records.
- 10. Write a C program to sort linked list elements.
- 11. Write function to traverse a graph using
 - a) depth first and
 - b) breadth first
- 12. Explain software reverse engineering in detail.