

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2011.

M.Sc. (COMPUTER SCIENCE)

COURSE CODE : 370

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 370

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 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. The greedy method suggests that one can devise an algorithm that works in stages considering _____ input(s) at a time
 (A) 1 (B) N (C) All (D) 0
 (E) None of the above
2. The number of edges in an n-vertex complete graph is
 (A) $n/2$ (B) $n(n/2)$ (C) $n(n-1)/2$ (D) $(n-1)/2$
 (E) None of the above
3. In a syntax directed translation scheme, if the value of an attribute of a node is a function of the values of the attributes of its children, then it is called a...
 (A) Synthesized attribute (B) Inherited attribute
 (C) Canonical attribute (D) All of the above
 (E) None of the above
4. The records in a file has
 (A) Different Data Structure
 (B) Unique Data Structure
 (C) The structure depends on the type of the file
 (D) All the above
 (E) None of the above
5. What is the time complexity for merge sort?
 (A) $O(n \log n)$ (B) $\log n$ (C) $n \log n$ (D) $N(\log n)$
 (E) None of the above
6. Sorting is not possible by using which of the following methods?
 (A) Insertion (B) Selection (C) Exchange (D) Deletion
 (E) None of the above
7. The number of equivalence relations of the set $\{1, 2, 3, 4\}$ is
 (A) 4 (B) 15 (C) 16 (D) 24
 (E) None of the above
8. The class of context – free language is not closed under
 (A) Concatenation (B) Intersection
 (C) Union (D) Repeated concatenation
 (E) None of the above

9. Bucket Sort is also referred to as
 (A) Radix sort (B) Quick sort (C) Merge sort (D) Bubble sort
 (E) None of the above
10. Multiple repeaters in communication satellite are known as
 (A) Stations (B) Modulator
 (C) Detector (D) All of the above
 (E) None of the above
11. Maximum frequency of Fiber-optic cable is
 (A) 600 THz (B) 2 GHz (C) 700 THz (D) 2.3 GHz
 (E) None of the above
12. The table in external storage is divided into a number of blocks called
 (A) Buckets (B) Files (C) Data items (D) Tree
 (E) None of the above
13. The Degenerate case occurs in Distributed Environment
 (A) When all of the components are on different system
 (B) When all of the components should be different system
 (C) When all of the components are on same system
 (D) All of the above
 (E) None of the above
14. The classes that allow primitive types to be accessed as objects are called
 (A) Base classes (B) Wrapper classes
 (C) Package classes (D) All of the above
 (E) None of the above
15. Applets do not have the concept of
 (A) Constructor (B) Class definition
 (C) Overloading (D) All of the above
 (E) None of the above
16. "JADE" stands for
 (A) Java Applet Development Environment (B) Java Advanced Design Editor
 (C) Java Agent Development Environment (D) All of the above
 (E) None of the above

17. Which of the following is related to garbage collection, with respect to Java?
(A) Array (B) Finalize
(C) Final (D) All of the above
(E) None of the above
18. _____ refers to the ability to have more than one method with the same signature in an inheritance hierarchy.
(A) Inheritance (B) Polymorphism
(C) Multiple Inheritance (D) All of the above
(E) None of the above
19. Which of the following operators cannot be overloaded?
(A) * (B) ::
(C) ?: (D) All of the above
(E) None of the above
20. What happens if you assign a value to an array element whose subscript exceeds the size of the array?
(A) Element is set to 0 (B) Action is ignored
(C) Other data may be overwritten (D) Error
(E) None of the above
21. Which one can be preferably used when a choice among several alternatives must be made?
(A) Case statements (B) if statements
(C) While condition (D) All the above
(E) None of the above
22. Which of the following is/ are true for a file manager?
(A) It maps a logical view onto blocks in a storage device
(B) It allocates/deallocates blocks for a file
(C) It provides directories as collections of files
(D) All of the above
(E) None of the above

23. _____ is the process of storing the state of an object for the purpose of loading it at another time.
- (A) Buffering (B) Persistence
(C) Serialization (D) All of the above
(E) None of the above
24. Non volatility is an important advantage of
- (A) CCD's (B) Magnetic tapes and drives
(C) BCD's (D) All of the above
(E) None of the above
25. The distance between the center of the phosphor dot patterns inside of the display screen is known as
- (A) Aspect ratio (B) Frame (C) Pitch (D) Bound
(E) None of the above
26. Which of the following enables peripherals to pass a signal down the bus to the next device on the bus during polling of the device?
- (A) DMA (B) Interrupt vectoring
(C) Daisy chain (D) Cycle stealing
(E) None of the above
27. Which one is used to store the external storage address of the appropriate bucket?
- (A) Hash table (B) Index table
(C) Overflow bucket (D) Tree structure
(E) None of the above
28. A technique used to present an image with different intensity values on a display with limited range of output values is called as
- (A) Halftoning technique (B) Sampling Technique
(C) Retracing Technique (D) Controlled Display Technique
(E) None of the above
29. Maximum number of devices connected to the single USB host
- (A) 2^3 (B) 2^7-1 (C) 2^8-1 (D) 64
(E) None of the above

30. No sequence is to be imposed on the storage of records in
(A) relative file organization (B) indexed file organization
(C) sequential file organization (D) indexed sequential file organization
(E) None of the above
31. In magnetic drums, the cylindrical surface divided into parallel bands called
(A) sectors (B) tracks (C) blocks (D) files
(E) None of the above
32. In a 8085 microprocessor, the value of the most significant bit of the result following the execution of any arithmetic or Boolean instruction is stored in the
(A) Carry status flag (B) Auxiliary carry status flag
(C) Sign status flag (D) Zero status flag
(E) None of the above
33. In the memory mapped I\O technique, the maximum numbers of I\O devices can be connected is
(A) 255 (B) 65535
(C) 32767 (D) All of the above
(E) None of the above
34. Vector address for the TRAP interrupt in 8085 Microprocessor is
(A) 0022 H (B) 003C H
(C) 0034 H (D) All of the above
(E) None of the above
35. The use of Schmitt trigger is to
(A) Change voltage to corresponding frequency
(B) Change frequency to voltage
(C) Both (A) and (B)
(D) All of the above
(E) None of the above
36. Which of the following is the first integrated logic family?
(A) ETL (B) DTL (C) TTL (D) MOS
(E) None of the above

37. In digital electronics, which of the following voltage levels denote logic '0'?
- (A) 0 volt (B) 0.4 volt
(C) <0.8 volt (D) All of the above
(E) None of the above
38. Which of the following does not pertain to an input or output that is in tri-state?
- (A) High impedance (B) Isolated
(C) neither logic '1' nor '0' (D) All of the above
(E) None of the above
39. Which of the following logic has the maximum fanout?
- (A) RTL (B) ECL (C) NMOS (D) All the above
(E) None of the above
40. What is the output of the following code?
- ```
main()
{
int i=10,j=20;
if(i==j);
printf("%d,%d",i,j);
}
```
- (A) 10, 20 (B) 20, 10 (C) No output (D) Error  
(E) None of the above
41. Predict the output of this C code
- ```
#include <stdio.h>
void main ( void )
{
int number = 112;
if (number >= (unsigned) -112 )
    printf("Where are you?");
else
    printf("How are you?");
if (number < 112)
    printf("I am here.");
else
    printf("I am fine.");
}
```
- (A) Where are you? I am here (B) How are you? I am here
(C) How are you? I am fine (D) Where are you? I am fine
(E) None of the above

42. What will be the output of this program?

```
main()
{
    int no_fish;
    no_fish=1;
    if (no_Fish==1)
        printf("The total no. of fish is one.\n");
    else ;
        printf("The total no. of fish is more than one.\n");
}
```

- (A) The total no. of fish is one.\n
- (B) The total no. of fish is more than one.
- (C) The total no. of fish is one.
- (D) All of the above
- (E) None of the above

43. Partial dependency in a relation occurs due to the presence of

- (A) Augmentation
- (B) Foreign keys
- (C) Candidate keys
- (D) All of the above
- (E) None of the above

44. Which of the following is not a capability of DBMS?

- (A) It enables quick creation of models
- (B) It will keep track application usage
- (C) It is used to integrate model building blocks
- (D) Interrelates models with appropriate linkages through the database
- (E) None of the above

45. If a database is used by multiple users within an organization, it is a kind of

- (A) Network database
- (B) Shared database
- (C) Segment database
- (D) Multi database
- (E) None of the above

46. The E-R model is a tool can be used in which phase of database development?

- (A) Analysis
- (B) Design
- (C) Feasibility
- (D) Implementation
- (E) None of the above

47. Requirements clarifies mainly
(A) Project scope (B) Project size
(C) Project complexity (D) All the above
(E) None of the above
48. Input for estimating the effort, cost, and time required for developing the product is _____ of the project.
(A) Requirements (B) Size (C) Scope (D) All the above
(E) None of the above
49. Problems for which no algorithm exists are called
(A) Decidable (B) Undecidable (C) Non polynomial (D) NP-complete
(E) None of the above
50. The _____ was intended to compute mathematical tables for engineering and scientific projects.
(A) Computer (B) Analytical Engine
(C) Difference Engine (D) Computing engine
(E) None of the above
51. DNS stands for
(A) Data Native System (B) Domain Name System
(C) Distance Node System (D) All of the above
(E) None of the above
52. Which of the following field(s) is/are contribute to AI?
(A) Mathematics (B) Neuroscience
(C) Control Theory (D) All of the above
(E) None of the above
53. Which acts as a proxy for the remote objects?
(A) Stubs (B) Skeletons
(C) Registry (D) Directory services
(E) None of the above
54. What is the type of exception will occur when a remote object is not exported?
(A) Connect exception (B) Stub Not Found exception
(C) Activated Failed exception (D) No such object exception
(E) None of the above

55. Which Line Clipping algorithm performs fewer comparison and division operations to clip a line?
- (A) Nicholl-Lee-Nicholl line clipping algorithm
 - (B) Cohen-Sutherland line clipping algorithm
 - (C) Liang-Barsky line clipping algorithm
 - (D) Cyrus-Beck line clipping algorithm
 - (E) None of the above
56. A system that makes decisions by considering all possible actions and choosing the one that leads to the best expected outcome is called
- (A) Rational Agent
 - (B) Irrational Agent
 - (C) Expert System
 - (D) Decision making system
 - (E) None of the above
57. In which of the scheduling policies context switching never takes place?
- (A) SJF
 - (B) Round robin
 - (C) Pre-emptive
 - (D) All of the above
 - (E) None of the above
58. Resolution of externally defined symbols is performed by
- (A) Linker
 - (B) Loader
 - (C) Compiler
 - (D) Assembler
 - (E) None of the above
59. Special software to create a job queue is called a
- (A) Drive
 - (B) Spooler
 - (C) Interpreter
 - (D) Linkage editor
 - (E) None of the above
60. Fragmentation occurs in the case of
- (A) Uniform allocation
 - (B) Linked allocation
 - (C) Indexed allocation
 - (D) All of the above
 - (E) None of the above
61. YaCC builds up
- (A) SLR parsing table
 - (B) Canonical LR parsing table
 - (C) LALR parsing table
 - (D) All of the above
 - (E) None of the above

62. Aspects of formulation of transformations are
 i. denotation ii. concatenation iii. Translation
 (A) i and ii (B) i and iii (C) ii and iii (D) i, ii and iii
 (E) None of the above
63. $A - (B \cup C)$ is equal to
 (A) $(A - B) \cup (A - C)$ (B) $A - B - C$
 (C) $(A - B) \cap (A - C)$ (D) $A - B \cup C$
 (E) None of the above
64. OLAP stands for
 (A) Online Analytical Project (B) Online Application Processing
 (C) Online Analytical Processing (D) Online Access Permission
 (E) None of the above
65. An orthographic projection is a
 (A) Perspective projection (B) Parallel projection
 (C) Oblique projection (D) Projection on a curved surface
 (E) None of the above
66. Which was the first supercomputer purchased by India for medium range weather forecasting?
 (A) PARAM (B) Cray XMP-14 (C) Medha-930 (D) WeaFor I
 (E) None of the above
67. Which one of the following is not an approach to add surface texture in computer graphics?
 (A) Projected texture (B) Texture mapping
 (C) Texture synthesis (D) Solid texture
 (E) None of the above
68. Which of the following statement is not true with windows NT security architecture?
 (A) Windows NT NTLM authentication protocol
 (B) Kerberos version 5 authentication protocol
 (C) Delimited password authentication
 (D) Secure channel security services
 (E) None of the above

69. 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
70. The environment in which search takes place is called
 (A) Problem space (B) Problem area
 (C) Problem web (D) All of the above
 (E) None of the above
71. An elementary data item characterized by its size, length and type is called as
 (A) Field (B) Record (C) File (D) Index
 (E) None of the above
72. The adjacency matrix uses a _____ to store the edges.
 (A) Singly linked list (B) One-dimensional array
 (C) Queue (D) Matrix
 (E) None of the above
73. Data integrity implies that each and every data packet contains
 (A) Un authentication information (B) Authentication information
 (C) Junk information (D) All the above
 (E) None of the above
74. Which of the following can be used to declare reference types?
 (A) Class (B) Interface
 (C) Delegate (D) All of the above
 (E) None of the above
75. The address space of each running process consisted of a
 (A) Set of instruction (B) Set of objectives
 (C) Set of segments (D) All of the above
 (E) None of the above
76. A node is solvable if
 (A) It is a terminal node (B) It is a complex node
 (C) It is a real node (D) All of the above
 (E) None of the above

77. Which of the following is most general phase – structured grammar?
- (A) Regular (B) Context - Sensitive
(C) Context - free (D) Any one of the above
(E) None of the above
78. Find out the odd item
- (A) FireFox (B) Opera
(C) Internet Explorer (D) Apache
(E) None of the above
79. Fish bone diagram is used for detecting
- (A) risks analysis (B) cost analysis
(C) Failure analysis (D) All of the above
(E) None of the above
80. Which is a major problem with SQL?
- (A) SQL cannot support object-orientation
(B) The same query can be written in many ways, each with vastly different execution plans.
(C) SQL syntax is too difficult for non-computer professionals to use
(D) All of the above
(E) None of the above
81. A 20 litre mixture of milk and water contains milk and water in the ratio 3 : 2. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture?
- (A) 17 : 3 (B) 9 : 1 (C) 3 : 17 (D) 5 : 3
(E) None of the above
82. In what ratio must a person mix three kinds of tea costing Rs. 60/kg, Rs. 75/kg and Rs. 100 /kg so that the resultant mixture when sold at Rs. 96/kg yields a profit of 20%?
- (A) 1 : 2 : 4 (B) 3 : 7 : 6 (C) 1 : 4 : 2 (D) 2 : 3 : 4
(E) None of the above
83. A merchant mixes three varieties of rice costing Rs. 20/kg, Rs. 24/kg and Rs. 30/kg and sells the mixture at a profit of 20% at Rs. 30 / kg. How many kgs of the second variety will be in the mixture if 2 kgs of the third variety is there in the mixture?
- (A) 1 kg (B) 5 kgs (C) 3 kgs (D) 6 kgs
(E) None of the above

84. How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of 7 : 3 such that the resultant mixture has 40% water in it?
- (A) 7 litres (B) 10 litres (C) 5 litres (D) 8 litres
- (E) None of the above
85. A sample of x litres from a container having a 60 litre mixture of milk and water containing milk and water in the ratio of 2 : 3 is replaced with pure milk so that the container will have milk and water in equal proportions. What is the value of x ?
- (A) 6 litres (B) 10 litres (C) 30 litres (D) 15 litres
- (E) None of the above
86. A zookeeper counted the heads of the animals in a zoo and found it to be 80. When he counted the legs of the animals he found it to be 260. If the zoo had either pigeons or horses, how many horses were there in the zoo?
- (A) 40 (B) 30 (C) 50 (D) 60
- (E) None of the above
87. From a cask of milk containing 30 litres, 6 litres are drawn out and the cask is filled up with water. If the same process is repeated a second, then a third time, what will be the number of litres of milk left in the cask?
- (A) 0.512 liters (B) 12 liters (C) 14.38 liters (D) 15.36 liters
- (E) None of the above
88. What is the value of M and N respectively? If $M39048458N$ is divisible by 8 & 11; Where M & N are single digit integers?
- (A) 7, 8 (B) 8, 6 (C) 6, 4 (D) 5, 4
- (E) None of the above
89. Rajiv sold an article for Rs. 56 which cost him Rs. x . If he had gained $x\%$ on his outlay, what was his cost?
- (A) Rs. 40 (B) Rs. 45 (C) Rs. 36 (D) Rs. 28
- (E) None of the above

90. If apples are bought at the rate of 30 for a rupee. How many apples must be sold for a rupee so as to gain 20%?
- (A) 28 (B) 25 (C) 20 (D) 22
- (E) None of the above
91. A merchant marks his goods in such a way that the profit on sale of 50 articles is equal to the selling price of 25 articles. What is his profit margin?
- (A) 25% (B) 50% (C) 100% (D) 66.67%
- (E) None of the above
92. Two boys begin together to write out a booklet containing 535 lines. The first boy starts with the first line, writing at the rate of 100 lines an hour; and the second starts with the last line then writes line 534 and so on, backward proceeding at the rate of 50 lines an hour. At what line will they meet?
- (A) 356 (B) 277 (C) 357 (D) 267
- (E) None of the above
93. Ram covers a part of the journey at 20 kmph and the balance at 70 kmph taking total of 8 hours to cover the distance of 400 km. How many hours has been driving at 20 kmph?
- (A) 2 hours (B) 3 hours 20 minutes
- (C) 4 hours 40 minutes (D) 3 hours 12 minutes
- (E) None of the above
94. A train travels at an average speed of 90 km/hr without any stoppages. However, its average speed decrease to 60km/hr on account of stoppages. On an average, how many minutes per hour does the train stop?
- (A) 12 minutes (B) 18 minutes (C) 24 minutes (D) 20 minutes
- (E) None of the above
95. A man moves from A to B at the rate of 4 km/hr. Had he moved at the rate of 3.67 km/hr, he would have taken 3 hours more to reach the destination. What is the distance between A and B?
- (A) 33 kms (B) 132 kms (C) 36 kms (D) 144 kms
- (E) None of the above

96. A and B working together can finish a job in T days. If A works alone and completes the job, he will take $T + 5$ days. If B works alone and completes the same job, he will take $T + 45$ days. What is T ?
- (A) 25 (B) 60 (C) 15 (D) 35
(E) None of the above
97. A man can do a piece of work in 60 hours. If he takes his son with him and both work together then the work is finished in 40 hours. How long will the son take to do the same job, if he worked alone on the job?
- (A) 20 hours (B) 120 hours (C) 24 hours (D) 90 hours
(E) None of the above
98. A red light flashes 3 times per minute and a green light flashes 5 times in two minutes at regular intervals. If both lights start flashing at the same time, how many times do they flash together in each hour?
- (A) 30 (B) 24 (C) 20 (D) 60
(E) None of the above
99. Ram, who is half as efficient as Krish, will take 24 days to complete a work if he worked alone. If Ram and Krish worked together, how long will they take to complete the work?
- (A) 16 days (B) 12 days (C) 8 days (D) 18 days
(E) None of the above
100. The mean temperature of Monday to Wednesday was 37°C and of Tuesday to Thursday was 34°C . If the temperature on Thursday was $\frac{4}{5}$ th that of Monday, the temperature on Thursday was
- (A) 36.2 (B) 36.5 (C) 36 (D) 36.7
(E) None of the above
-