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F.Y. M.C.A. (Engg.) (Part – II) Examination, 2017
OPERATING SYSTEM (CBCS Pattern)

Day and Date : Wednesday, 29-11-2017
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate marks.
2) **All questions are compulsory.**

1. Choose the correct answer : **20**

- 1) Access to the shared resource _____ computation speed.
a) increases b) decreases c) optimize d) none of the above
- 2) One of the most important aspects of operating system is the ability to _____
a) single program b) multi-program c) both a) and b) d) none of the above
- 3) An operating system provide an environment for the _____ of programs.
a) compilation b) execution c) both a) and b) d) none of the above
- 4) Multiprocessor systems are known as _____ systems.
a) parallel b) tightly coupled c) both a) and b) d) all of the above
- 5) Each process is represented by _____
a) process control block b) task control block
c) both a) and b) d) none of the above
- 6) The main advantage of the layered approach for operating system structure is _____ of construction and debugging.
a) simplicity b) reusability
c) computability d) none of the above
- 7) A procedure defined within monitor can access those variables declared _____ within the monitor and its formal parameters.
a) publically b) locally
c) both a) and b) d) none of the above



- 8) The important feature of the system is that, when one process is executing in a critical section _____ is to be allowed to execute in its critical section.
- a) one other process b) two other processes
c) no other processes d) none of the above
- 9) Dispatcher is a module that gives control of the CPU to the process selected by the _____ scheduler.
- a) short-term b) priority
c) round robin d) none of the above
- 10) A semaphore S is _____ variable that is accessed only through two atomic operators wait() and signal().
- a) an integer b) character c) real d) none of the above
- 11) _____ built into the processor itself are the only storage that the CPU can access directly.
- a) main memory b) registers
c) both a) and b) d) none of the above
- 12) Registers that are built into the CPU are generally accessible within _____ of CPU clock.
- a) half cycle b) one cycle c) two cycles d) none of the above
- 13) _____ is a memory management scheme that supports user view of memory.
- a) paging b) fragmentation c) segmentation d) all of these
- 14) Swapping requires a backing store. The backing store is commonly _____
- a) main memory b) cache memory
c) fast disk memory d) none of the above
- 15) The simplest page replacement algorithm is _____
- a) FIFO b) LIFO c) LRU d) None of these
- 16) A demand paging system is similar to a paging system with swapping where processes reside in _____
- a) secondary memory b) main memory
c) primary memory d) all of these



17) The user may want to erase the content of the file but keep its attributes is _____

- a) writing a file b) deleting a file c) truncating file d) none of these

18) File system provide efficient and convenient access to the disk by allowing data to be _____

- a) stored b) located c) retrieved d) all of these

19) Partitions are known as _____

- a) slices b) minidisks c) both a) and b) d) none of these

20) _____ memory uses disk space as a extension of the main memory.

- a) virtual b) primary c) cache d) none of these

2. Write short note on (**any four**) :

(4×5=20)

- a) Critical region
- b) Threads
- c) Magnetic tape structure
- d) Segmentation
- e) Paging.

3. Explain with an example SJF scheduling algorithm. **10**

4. Explain in brief logical and physical address space. **10**

5. Define the term deadlock. Explain the method of deadlock prevention and recovery. **10**

6. Advantages and disadvantages of contiguous disk space allocation. **10**

7. Explain in detail swap space management. **10**

8. Explain the terms security program threats and system threats. **10**



Seat No.	
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Set

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S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2017
RELATIONAL DATABASE MANAGEMENT SYSTEM

Day and Date : Wednesday, 29-11-2017

Max. Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

Instructions : 1) Figures to the **right** indicate **full** marks.
2) **Q. 3 A) and Q. 5 A) are compulsory.**

1. Choose the correct alternative :

20

- 1) Non key field is a field that is
 - a) Not a candidate key for the primary key
 - b) A candidate key for the primary key
 - c) A primary key
 - d) None of the above is correct
- 2) Which of these is an example of an entity ?
 - a) Student
 - b) A patient's name
 - c) An employee's ID
 - d) All of the above
- 3) Typically, a database management system is managed by a person called a
 - a) System manager
 - b) Technology manager
 - c) Database manager
 - d) Database administrator
- 4) DVD stands for
 - a) Digital Video Disk
 - b) Digital Vision Disk
 - c) Digital Varying Disk
 - d) All of these
- 5) A(n) _____ record is one that contains a repeating group.
 - a) Unnormalized
 - b) 1NF
 - c) 2NF
 - d) 3NF
- 6) A _____ contains records that contain day-to-day business and operational data.
 - a) Transaction file
 - b) Work file
 - c) Table file
 - d) Master file
- 7) A _____ refers to a single characteristic or fact about an entity.
 - a) Record
 - b) Table
 - c) Field
 - d) Primary key
- 8) You can place subquery in
 - a) Where clause
 - b) Having clause
 - c) From clause
 - d) All of the above

P.T.O.



- 9) Data that the db needs to manage itself is called
- a) User data
 - b) System data
 - c) Information data
 - d) All of the above
- 10) A _____ relationship has an associative entity with its own characteristics.
- a) 1 : 1
 - b) M : N
 - c) 1 : M
 - d) All of the above
- 11) The first entity in the relationship is the _____ entity.
- a) Parent
 - b) Child
 - c) Mother
 - d) Brother
- 12) A table design that contains a repeating group is called
- a) A repetitive group
 - b) Unfixed
 - c) =
 - d) 1NF
- 13) In the 2NF
- a) Attributes may be functionally dependent on nonkey attributes
 - b) No attribute dependent on a nonkey attribute
 - c) No attributes dependent on a primary key
 - d) None of the above is correct
- 14) Which language is used to permit or prohibit access to a table ?
- a) DCL
 - b) DDL
 - c) DML
 - d) All of these
- 15) The relationship between data is defined in the
- a) Physical level
 - b) View level
 - c) Logical level
 - d) None of the above
- 16) The security features of the database are set up by the
- a) On-line Users
 - b) Database Administrator
 - c) Naive Users
 - d) Application Programmer
- 17) SQL stands for
- a) Structured Question Language
 - b) Structural Query Language
 - c) Structured Query Language
 - d) Systematic Query Language
- 18) A _____ refers to the complete definition of a database, including descriptions of all fields, tables and relationships.
- a) Schema
 - b) Data repository
 - c) Data manipulation language
 - d) None of the above
- 19) The rule that requires that a foreign key value cannot be entered in one table unless it matches an existing primary key in another table.
- a) Referential integrity
 - b) Domain integrity
 - c) Entity integrity constraint
 - d) A data validation constraint
- 20) A(n) _____ is a person, place, thing or event for which data is collected and maintained.
- a) Primary key
 - b) Table
 - c) Record
 - d) Entity



SECTION – I

2. Write short note on **any four** : **(4×5=20)**
- a) Tuple Relational Calculus
 - b) Mapping Cardinality
 - c) Stored Procedures
 - d) Null Value
 - e) Aggregate functions.
3. A) What is trigger ? Explain trigger with example. **10**
- B) Explain authorization in SQL with an example. **10**
- OR
- B) Explain DDL, DML and DQL with example. **10**

SECTION – II

4. Write short note on **any four** : **(4×5=20)**
- a) Functional Dependencies
 - b) Data Dictionary
 - c) Distributed system
 - d) Magnetic Disk
 - e) Serializability.
5. A) What is ACID ? Explain ACID properties in detail. **10**
- B) Explain centralized system with example. **10**
- OR
- B) Explain B+ tree index file in detail. **10**
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Seat No.	
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**S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2017
OPERATIONS RESEARCH**

Day and Date : Saturday, 2-12-2017
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) **All questions are compulsory.**
2) **Use of scientific calculator is allowed.**

1. Choose the correct alternative : **20**
- 1) Operations Research (OR), which is a very powerful tool for _____
 - a) Research
 - b) Decision-making
 - c) Operations
 - d) None of the above
 - 2) Who coined the term Operations Research ?
 - a) J. F. McCloskey
 - b) F. N. Trefethen
 - c) P. F. Adams
 - d) Both a) and b)
 - 3) The term Operations Research was coined in the year _____
 - a) 1950
 - b) 1940
 - c) 1978
 - d) 1960
 - 4) This innovative science of Operations Research was discovered during _____
 - a) Civil War
 - b) World War I
 - c) World War II
 - d) Industrial Revolution
 - 5) Operations Research was known as an ability to win a war without really going into a _____
 - a) Battle field
 - b) Fighting
 - c) War
 - d) Both a) and b)
 - 6) Who defined Operations Research as scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control ?
 - a) Morse and Kimball (1946)
 - b) P.M.S. Blackett (1948)
 - c) E. L. Arnoff and M. J. Netzorg
 - d) None of the above



- 15) Operations Research uses models to help the management to determine its _____ scientifically.
 - a) Policies
 - b) Actions
 - c) Both a) and b)
 - d) None of the above
- 16) Operations Research is a _____
 - a) Science
 - b) Art
 - c) Mathematics
 - d) Both a) and b)
- 17) What have been constructed for Operations Research problems and methods for solving the models that are available in many cases ?
 - a) Scientific models
 - b) Algorithms
 - c) Mathematical models
 - d) None of the above
- 18) What aims at optimizing inventory levels ?
 - a) Inventory control
 - b) Inventory capacity
 - c) Inventory planning
 - d) None of the above
- 19) Which theory concerns making sound decisions under conditions of certainty, risk and uncertainty ?
 - a) Game theory
 - b) Network analysis
 - c) Decision theory
 - d) None of the above
- 20) To find the optimal solution, we apply _____
 - a) LPP
 - b) VAM
 - c) MODI method
 - d) Rim

SECTION – I

2. Attempt **any four** :

(4×5=20)

1) Solve the following games using dominance principle.

		Player B ↓			
		I	II	III	IV
Player A	I	8	15	-4	-2
	II	19	15	17	16
	III	0	20	15	5



2) Solve using simplex method :

$$\text{Max. } z = 4x_1 + 5x_2$$

subject to

$$2x_1 + x_2 \leq 6$$

$$x_1 - 2x_2 \leq 2$$

$$x_1 \geq 0, x_2 \geq 0$$

3) Solve the assignment problem to maximize production :

$$\text{Operator } \begin{matrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \end{matrix} \begin{bmatrix} 10 & 5 & 7 & 8 \\ 11 & 4 & 9 & 10 \\ 8 & 4 & 9 & 7 \\ 7 & 5 & 6 & 4 \\ 8 & 9 & 7 & 5 \end{bmatrix}$$

4) Solve using simplex method

$$\text{Max. } z = x_1 + 3x_2$$

subject to

$$x_1 + 2x_2 \leq 10, 0 \leq x_1 \leq 5, 0 \leq x_2.$$

5) A marketing manager has salesmen and towns considering the capabilities of the salesman and the nature of town, the marketing manager estimates sales per month (in thousand rupees) for each salesman in each town would be as follows.

$$\begin{matrix} & \mathbf{T_1} & \mathbf{T_2} & \mathbf{T_3} & \mathbf{T_4} & \mathbf{T_5} \\ \mathbf{S_1} & \begin{bmatrix} 37 & 43 & 45 & 33 & 45 \end{bmatrix} \\ \mathbf{S_2} & \begin{bmatrix} 45 & 29 & 33 & 26 & 41 \end{bmatrix} \\ \mathbf{S_3} & \begin{bmatrix} 46 & 32 & 38 & 35 & 42 \end{bmatrix} \\ \mathbf{S_4} & \begin{bmatrix} 27 & 43 & 46 & 41 & 41 \end{bmatrix} \\ \mathbf{S_5} & \begin{bmatrix} 34 & 38 & 45 & 40 & 44 \end{bmatrix} \end{matrix}$$

Find the assignment of salesman to towns that will result in a maximum sale.



3. Attempt **any one** :

10

1) Solve the integer programming problem using Gomory’s cutting plane method :

$$\text{Max. } z = 7x_1 + 9x_2$$

subject to

$$-x_1 + 3x_2 \leq 6$$

$$7x_1 + x_2 \leq 35$$

$$x_1 \geq 0, x_2 \geq 0 \text{ and integers.}$$

2) Use two phase simplex method to solve the LPP :

$$\text{Max. } z = 3x_1 - x_2$$

subject to

$$2x_1 + x_2 \geq 2$$

$$x_1 + 3x_2 \leq 2$$

$$x_2 \leq 4$$

$$x_1, x_2 \geq 0.$$

4. Solve the following game using dominance principle :

10

		Player B					
		I	II	III	IV	V	
Player A	I	[3	5	4	9	6
	II		5	6	3	7	8
	III		8	7	9	8	7
	IV		4	2	8	3	5
	V		8	8	9	8	7
]					

SECTION – II

5. Attempt **any four** :

(4×5=20)

a) Given the following data for an item of uniform demand, instantaneous delivery time and back order facility : Annual demand = 800 units, cost of an item = Rs. 40. Ordering cost = Rs. 800. Inventory carrying cost = 40%. Back order cost = Rs. 10.

Find out : i) Maximum cost order quantity

ii) Total annual cost.



- b) An aircraft uses rivets at an approx. constant rate of 5000 kg. per year. The rivets cost Rs. 20 per kg and the company personnel estimate that it costs Rs. 200 to place an order and the carrying cost of inventory is 10% per year. How frequently should orders for rivets be placed and what quantity should be ordered for ?
- c) A production of a particular item is instantaneous. The cost of one item is Re. 1 per month and set-up cost is Rs. 25. If the demand is 200 units per month, find the optimum quantity to be produced per set-up.
- d) Find the EOQ for the following data :
- Annual usage = 1000 pieces
 Cost per pieces = Rs. 200
 Ordering cost = Rs. 6/order
 Expediting cost = Rs. 4/order
 Inventory holding cost = 20% of avg. inventory
 Material holding cost = Re. 1 per piece
- e) The initial value of a machine is Rs. 7,100 and scrap value is Rs. 100. The maintenance costs found from the experience are as follows :
- | Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------|-----|-----|-----|-----|------|------|------|------|
| Maintenance | 200 | 350 | 500 | 700 | 1000 | 1300 | 1700 | 2100 |
- When should the machine replaced ?

6. Attempt the following :

- a) Describe steps to process n-jobs through two machines. **10**
- b) Consider the following data : **10**
- Unit cost = Rs. 100, order cost = Rs. 160, inventory cost (carry) = Rs. 20,
 Back order cost = Rs. 10 (stock out cost) annual demand, find
- minimum cost order quantity
 - time between orders
 - maximum inventory level.

OR



b) A project has following activities :

10

Activity	Event	1 – 2	1 – 3	1 – 4	2 – 5	2 – 6	3 – 6	4 – 7	5 – 7	6 – 7
Time Required in Day	Name	A	B	C	D	E	F	G	H	I
	t_o	5	18	26	16	15	6	7	7	3
	t_m	8	20	33	18	20	9	10	8	4
	t_p	10	22	40	20	25	12	12	9	5

Determine the following :

- i) Draw PERT network.
- ii) Find critical path and expected project length.
- iii) Find expected duration and variance for each activity.
- iv) Find total flat and calculate variance and SD of the project length.



Seat No.	
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S.Y.M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Tuesday, 5-12-2017
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions: 1) Figures to the **right** indicate **full** marks.
2) **Q.3A) and Q.5A) are compulsory.**

1. Choose the correct answer. **20**
- 1) Leaves of which of the following trees are at the same level ?
A) Binary tree B) B-tree C) AVL-tree D) Expression tree
 - 2) A graph in which all nodes are of equal degree is called
A) Multi graph B) Non regular graph
C) Regular graph D) Complete graph
 - 3) The time complexity to build a heap of n elements is
A) $O(1)$ B) $O(\log n)$ C) $O(n)$ D) $O(n \log n)$
 - 4) The best average behaviour is shown by
A) Quick Sort B) Merge Sort
C) Insertion Sort D) Heap Sort
 - 5) If every node u in G is adjacent to every other node v in G, A graph is said to be
A) Isolated B) Complete
C) Finite D) Strongly Connected
 - 6) In worst case Quick Sort has order
A) $O(n \log n)$ B) $O(n^2 / 2)$ C) $O(\log n)$ D) $O(n^2 / 4)$
 - 7) The Worst case occur in linear search algorithm when
A) Item is somewhere in the middle of the array
B) Item is not in the array at all
C) Item is the last element in the array
D) Item is the last element in the array or is not there at all



SECTION – II

4. Write short note on **any four**. **(4×5=20)**
- a) Breadth First
 - b) FFT Modular Arithmetic
 - c) Modular Arithmetic
 - d) Evaluation and Interpolation
 - e) Efficiency Consideration.
5. A) Explain 8 Queen’s Problem. **10**
- B) Explain Graph Coloring with example. **10**
- OR
- B) What do you mean by Bi-Connected Component ? **10**
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Seat No.	
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Set	P
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**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2017
PROGRAMMING IN JAVA**

Day and Date : Thursday, 7-12-2017

Total Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) *Figures to the right indicates marks.*
2) *Q. 3A and Q. 5A are compulsory.*
3) *Write a program if necessary.*

1. Multiple Choice Questions.

20

- 1) Java code is compiled by the compiler and converted into
 - a) Byte code
 - b) Binary code
 - c) Bit code
 - d) None of the above
- 2) Java is capable of dynamically linking new
 - a) Class libraries
 - b) Methods
 - c) Objects
 - d) All of the above
- 3) An entity that has state and behavior is known as
 - a) Class
 - b) Object
 - c) Interface
 - d) None of the above
- 4) If a class has multiple methods with same name but different parameters, is known as method
 - a) Overloading
 - b) Overriding
 - c) Friend
 - d) None of the above
- 5) An applet works at _____ side so less response time.
 - a) Client
 - b) Server
 - c) Both a) and b)
 - d) None of the above
- 6) Threads are _____ so it doesn't affect other threads if exception occurs.
 - a) Dependent
 - b) Independent
 - c) Common
 - d) None of the above
- 7) We can create _____ applications in java.
 - a) Distributed
 - b) Multithreaded
 - c) Both a) and b)
 - d) None of the above

P.T.O.



- 8) The thread is in _____ state if the thread scheduler has selected it.
- a) Runnable
 - b) Running
 - c) Blocked
 - d) None of the above
- 9) Abstract Windowing Toolkit is an _____ to develop window-based application in java.
- a) Package
 - b) API
 - c) Both a) and b)
 - d) None of the above
- 10) Define how UI elements should be organized on the screen and provide a final look and feel to the GUI is
- a) Window
 - b) Panel
 - c) Layout
 - d) None of the above
- 11) Java Swing is a part of JFC provides _____ components.
- a) Heavy weight
 - b) Light weight
 - c) Both a) and b)
 - d) None of the above
- 12) Panels are _____ by default works as content panes.
- a) Transparent
 - b) Opaque
 - c) Semi Opaque
 - d) None of the above
- 13) Java _____ programming provides facility to share data between different computing devices.
- a) RMI
 - b) JDBC
 - c) Socket
 - d) All of these
- 14) _____ is a connection that a JDBC client makes to a middleware process that acts as a bridge to the DBMS server.
- a) Direct
 - b) Indirect
 - c) Both b) and c)
 - d) None of these
- 15) TCP/IP sockets are used to implement _____ stream based connection between hosts on the internet.
- a) Reliable
 - b) Bidirectional
 - c) Persistent
 - d) All of these
- 16) We can gain access to the input streams associated with socket by use of _____ method.
- a) getInputStream()
 - b) read()
 - c) streamReader()
 - d) All of these
- 17) The ResultSet acts as an _____ and materialize one tuple on a user demand.
- a) Iterator
 - b) Stack
 - c) List
 - d) Queue



- 18) _____ is a higher level protocol that manages to robustly packets, sorting and retransmitting them as necessary to reliably transmit data.
a) IP b) UDP c) TCP d) All of these
- 19) _____ provides a reasonable intelligible form to uniquely identify information on the internet.
a) HTTP b) URL c) WWW d) None of these
- 20) _____ represents standard way to identify a resource.
a) URI b) URL
c) Both a) and b) d) None of these

SECTION – I

- 2. Write short note on **(any four)**. **(4×5=20)**
 - a) Difference between C++ and Java.
 - b) Exception handling.
 - c) Concept of Interface.
 - d) Item listener event.
 - e) Package and sub package.
- 3. A) Explain thread life cycle. Write a program example. **10**
B) Explain with an example KeyListener and MouseListener. **10**

OR

B) Explain different Layout Managers. **10**

SECTION – II

- 4. Write short note on **(any four)**. **(4×5=20)**
 - a) Swing JComboBox control.
 - b) Socket socket and ServerSocket.
 - c) InetAddress class.
 - d) RMI architecture.
 - e) Thin JDBC driver.
- 5. A) Describe steps of connecting database to java application. Write a program to explain these above steps. **10**
B) Write distributed an application to do an addition of two numbers using RMI. **10**

OR

B) What is Tabbed pane ? Explain the use of JTabbed Pane with program example. **10**



SLR-TM – 20

Seat No.	
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Set	P
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**S.Y.M.C.A. (Part – II) (Under Faculty of Engg.)
Examination, 2017**

SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Saturday, 9-12-2017
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

1. MCQ :

20

- 1) Integration, it will come under
 - a) CMM Level 1
 - b) CMM Level 2
 - c) CMM Level 3
 - d) None of these
- 2) ISO 9126 quality factors include
 - a) Functionality
 - b) Reliability
 - c) Usability
 - d) All of the above
- 3) MTTF stands for
 - a) Measure Time to Failure
 - b) Multiple Time to Failure
 - c) Mean Time to Failure
 - d) None of these
- 4) Automated Static Analysis Checks can check
 - a) Data faults
 - b) Control faults
 - c) Interface faults
 - d) All of the above
- 5) Management and Measurement, it will come under
 - a) CMM Level 1
 - b) CMM Level 2
 - c) CMM Level 3
 - d) CMM Level 4
- 6) Which of the following is not a black-box testing technique ?
 - a) Fault injection
 - b) Exploratory testing
 - c) Model based testing
 - d) None of the above
- 7) Which of the following is not a white box testing technique ?
 - a) Branch testing
 - b) Path testing
 - c) Requirements testing
 - d) None of these
- 8) Beta testing will be done at
 - a) User place
 - b) Developers place
 - c) Both a) and b)
 - d) None of the above
- 9) AdHoc testing is a part of
 - a) Unit Testing
 - b) Exploratory Testing
 - c) Performance Testing
 - d) None of the above

P.T.O.



- 10) _____ describes the quality procedures and standards that will be used in a project.
- a) Quality plan b) Advance plan c) Schedule d) None of these
- 11) Defects generally fall into the following categories
- a) WRONG b) MISSING c) EXTRA d) All of the above
- 12) Unit Testing will be done by
- a) Customer b) Developers c) End Users d) None of the above
- 13) The name of the testing which is done to make sure the existing features are not affected by new changes.
- a) Regression testing b) White box testing
c) Unit testing d) None of these
- 14) All of the following might be done during unit testing except
- a) Desk check b) Manual support testing
c) Walk through d) Compiler based testing
- 15) RAD stands for
- a) Rapid Application Data b) Rapid Action Development
c) Rapid Application Development d) None of the above
- 16) For black-box testing
- a) The tester is completely unconcerned about the internal behaviour of the program
b) The tester is concerned with finding circumstances in which the program does not behave according to specifications
c) Test data is derived solely from specifications
d) All of the above
- 17) Which type of test include how well the user will be able to understand and interact with the system ?
- a) Usability Testing b) User Acceptance Testing
c) Alpha Testing d) None of these
- 18) Alpha testing will be done at
- a) User's site b) Developers' site
c) Both a) and b) d) None of the above
- 19) Informing to the developer which bug to be fix first is called as
- a) Traceability b) Fix ability
c) Priority d) None of the above



- 20) Which is non-functional software testing ?
- a) Unit Testing
 - b) Block box testing
 - c) Performance Testing
 - d) None of the above

SECTION – I

2. Solve **any four** : **(5×4=20)**
- 1) Defect removal efficiency
 - 2) ISO 9000
 - 3) Quality factors
 - 4) Software availability
 - 5) SQA Planning and Standards.
3. A) How SQA group serve as customer’s in-house representative. **10**
- B) What is SEI CMM ? Explain SEI Process Capability Maturity Model levels in detail. **10**

OR

- B) Explain the automated static analyzer checks. **10**

SECTION – II

4. Solve **any four** : **(5×4=20)**
- 1) Equivalence Partitioning
 - 2) Security Testing
 - 3) Data Flow Analysis
 - 4) Acceptance Testing
 - 5) Test Case format.
5. A) What is White Box testing ? Explain Statements Coverage, Branch and decision coverage in detail. **10**
- B) Explain Review guidelines and Review checklist in detail. **10**

OR

- B) Explain Validation Testing Activities in details. **10**



- 8) The _____ system call is the first state a process must take to access data in a file.
- a) open b) read c) search d) none of these
- 9) Inode exists in _____ form on a disk
- a) static b) dynamic c) both a and b d) none of these
- 10) The _____ system call create a new file in the system.
- a) open b) read c) creat d) none of above
- 11) The process executed the exit system call and is in the _____ state.
- a) zombie b) static c) sleeping d) none of these
- 12) Every process has _____ U area.
- a) private b) public c) protected d) none of these
- 13) A process can access its U area when it executes in _____ mode.
- a) kernel b) user c) both a and b d) none of these
- 14) _____ system call changes the process sate form asleep to ready to run in memory.
- a) sleep b) wakeup
c) both a and b d) none of the above
- 15) _____ is the process that swaps process into memory from swap devices.
- a) process 0 b) swapper
c) both a and b d) none of the above
- 16) The _____ is a kernel process that swaps out memory pages that are no longer part of the working set of a process.
- a) swapper b) page stealer
c) both a and b d) none of the above
- 17) Unix system contains type of devices
- a) block b) character c) both a and b d) none of these



- 18) To allow only one user to work with a particular file at a particular time, one has to use.
- a) semaphore
 - b) critical region
 - c) locking
 - d) none of these
- 19) A stream is _____ connection between process and device driver.
- a) half duplex
 - b) full duplex
 - c) connectionless
 - d) none of these
- 20) The semaphore system calls allows process to _____ execution.
- a) serial
 - b) synchronise
 - c) asynchronise
 - d) none of these

SECTION – I

2. Write short notes on (any 4). (5×4=20)

- A) Operating system services
- B) File read and write system calls
- C) Buffer headers
- D) Structure of buffer pool
- E) Architecture of UNIX OS.

3. A) Explain advantages and disadvantages of buffer cache. 10
- B) Write and explain an algorithm getblk (buffer allocation). 10

OR

- B) Explain scenarios for retrieval of a buffer from buffer pool. 10

SECTION – II

4. Write short note on (any 4). 20

- A) The context of a process

Set P



- B) Swapping processes in
 - C) Streams
 - D) Sockets
 - E) Explain message as a system V IPC.
5. A) Explain demand paging with its data structures. **10**
- B) Explain in details the page stealer process. **10**
- OR
- B) Write an algorithm swapper. **10**
-



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Set **P**

**S.Y. M.C.A. (Part – II) (Under Faculty of Engg.) Examination, 2017
OBJECT ORIENTED ANALYSIS AND DESIGN (Elective – I (3))**

Day and Date : Saturday, 9-12-2017
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicate **full** marks.
2) **Q. 3 (A) and Q. 5 (A) are compulsory.**

1. Choose the correct alternative :

20

- 1) A constructor operation does which of the following ?
 - a) Creates a new instance of a class
 - b) Updates an existing of a class
 - c) Deletes and existing instance of a class
 - d) All of the above
- 2) An object can have which of the following multiplicities ?
 - a) Zero
 - b) One
 - c) More than one
 - d) All of the above
- 3) Multiplicity is the same as what concept for an ERD ?
 - a) Relationship
 - b) Attribute
 - c) Entity
 - d) Cardinality
- 4) The fact that the same operation may apply to two or more classes is called what ?
 - a) Inheritance
 - b) Polymorphism
 - c) Encapsulation
 - d) Multiple Classifier
- 5) Composition is a stronger form of which of the following ?
 - a) Aggregation
 - b) Encapsulation
 - c) Inheritance
 - d) All of the above
- 6) Which of the following applies to a class rather than an object ?
 - a) Query
 - b) Update
 - c) Scope
 - d) Constructor



- 7) Which of the following is a technique for hiding the internal implementation details of an object ?
- a) Encapsulation
 - b) Polymorphism
 - c) Inheritance
 - d) All of the above
- 8) The class diagram, component diagram, object diagram and deployment diagram are considered as types of
- a) Structural diagram
 - b) Behavioral diagrams
 - c) Non-behavioral diagrams
 - d) Non-structural diagrams
- 9) The weak entities are represented in UML diagrams by using aggregations called
- a) Qualified segregation
 - b) Non-qualified segregation
 - c) Non-qualified aggregation
 - d) Qualified aggregation
- 10) In UML diagrams, the relationship between the object and component parts is represented by
- a) Ordination
 - b) Aggregation
 - c) Segregation
 - d) Increment
- 11) What does a simple name in UML class and objects consists of ?
- a) Letters
 - b) Digits
 - c) Punctuation characters
 - d) All of the mentioned
- 12) What does a composite name consists of in a UML class and object diagram ?
- a) Delimiter
 - b) Simple names
 - c) Digits
 - d) All of the mentioned
- 13) A class consists of which of these abstractions ?
- a) Set of the objects
 - b) Operations
 - c) Attributes
 - d) All of the mentioned
- 14) A class is divided into which of these compartments ?
- a) Name compartment
 - b) Attribute compartment
 - c) Operation compartment
 - d) All of the mentioned
- 15) An attribute is a data item held by which of the following ?
- a) Class
 - b) Object
 - c) All of the mentioned
 - d) None of the mentioned
- 16) An operation can be described as
- a) Object behaviour
 - b) Class behaviour
 - c) Functions
 - d) a) and b)



- 17) Which of these are part of class operation specification format ?
- a) Name
 - b) Parameter list
 - c) Return type list
 - d) All of the mentioned
- 18) Which of these are the heuristics ?
- a) Name classes, attributes and roles with noun phrases
 - b) Name operations and associations with verb phrases
 - c) Stick to binary associations
 - d) All of the mentioned
- 19) Which of the following statement is true concerning objects and/or classes ?
- a) An object is an instance of a class
 - b) A class is an instance of an object
 - c) An object includes encapsulates only data
 - d) A class includes encapsulates only data
- 20) A UML diagram includes which of the following ?
- a) Class name
 - b) List of attributes
 - c) List of operations
 - d) All of the above

SECTION – I

2. Write short note on **any four**. **(4×5=20)**
- a) Things
 - b) Classes
 - c) Merge, Fork and Join
 - d) OMG
 - e) Extend, Include and Generalize.
3. A) Explain Activity Diagram with example. **10**
B) Explain Rational Unified Process in detail. **10**
- OR
- C) Explain object diagram in detail. **10**



SECTION – II

4. Write short note on **any four**. **(4×5=20)**
- a) Interaction Diagram
 - b) Branching
 - c) Object Creation and Destruction
 - d) Events and Types.
 - e) Processes and Threads.
5. A) Explain Deployment diagram with example. **10**
- B) What is component ? Explain Internal structure of component. **10**
- OR
- C) Explain State Machine with example. **10**
-



SLR-TM – 23

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Seat No.	
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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
MOBILE COMMUNICATION**

Day and Date : Tuesday, 28-11-2017

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

- Instructions :** 1) Figures to the **right** indicate marks.
2) Q.3 A and Q.5 A are **compulsory**.
3) Write an example **if necessary**.

1. Multiple choice questions :

20

- 1) The shape of the cell is
 - a) Circle
 - b) Triangle
 - c) Hexagonal
 - d) All of the above
- 2) CDMA stands for
 - a) Carrier Division Multiple Access
 - b) Constant Division Multiple Access
 - c) Condition Division Multiple Access
 - d) Code Division Multiple Access
- 3) The cellular concept came in
 - a) 1st generation
 - b) 2nd generation
 - c) 3rd generation
 - d) None of these
- 4) The physical layer of GSM handles _____ functions.
 - a) Radio-specific
 - b) Television-specific
 - c) Data-specific
 - d) Call-specific
- 5) _____ layer is responsible in simplified reference model for flow and congestion control.
 - a) Data link layer
 - b) Network layer
 - c) Transport layer
 - d) Physical layer

P.T.O.



- 6) Receivers are complex in case of
- a) CDMA
 - b) FDMA
 - c) TDMA
 - d) SDMA
- 7) Alexandar Graham Bell invented telephone in _____
- a) 1876
 - b) 1854
 - c) 1916
 - d) 1910
- 8) FDMA is used mainly for transmission _____
- a) Digital
 - b) Analog
 - c) Both a) and b)
 - d) Neither a), b) and c)
- 9) In _____ frequency spectrum is divided into smaller spectra and is allocated to each user.
- a) TDMA
 - b) CDMA
 - c) FDMA
 - d) FGMA
- 10) Group of cell is called
- a) BS
 - b) MS
 - c) Cluster
 - d) MSC
- 11) Which of these is not true for TDD ?
- a) TDD uses different time slots for transmission and reception paths
 - b) Single radio frequency can be used
 - c) Duplexer is required
 - d) It increases the battery life of mobile phones
- 12) Specifications for a wireless LAN are called
- a) Standard 802.3z
 - b) Standard 802.3u
 - c) Project 802.3
 - d) IEEE 802.11
- 13) What is the frequency range of the IEEE 802.11a standard ?
- a) 2.4Gbps
 - b) 5Gbps
 - c) 2.4GHz
 - d) 5GHz
- 14) WAP stands as
- a) Wireless Application Protocol
 - b) Wire-line Application Protocol
 - c) Wireless Access Protocol
 - d) None of these



- 15) Bluetooth is a wireless
- a) WAN technology
 - b) MAN technology
 - c) LAN technology
 - d) Nothing
- 16) In wireless ad-hoc network
- a) Access point is not required
 - b) Access point is must
 - c) Nodes are not required
 - d) None of the mentioned
- 17) Infrared signals can be used for
- a) Long-range communication
 - b) Short-range communication
 - c) Both
 - d) None
- 18) Which multiple access technique is used by IEEE 802.11 standard for wireless LAN ?
- a) CDMA
 - b) CSMA/CA
 - c) ALOHA
 - d) None of the mentioned
- 19) What is the maximum data rate for the 802.11b standard ?
- a) 6Mbps
 - b) 11Mbps
 - c) 22Mbps
 - d) 54Mbps
- 20) RSS of GSM system includes _____
- a) BSC, VLR, HLR
 - b) MS, MSC, BTS
 - c) NSS, OSS, BSC
 - d) MS, BTS, BSC

SECTION – I

2. Write short note on (any 4) :

20

- a) Some open research topics in wireless communication
- b) Cellular systems
- c) UMTS and IMT 2000
- d) Wireless data technologies
- e) A simplified reference model.

Set P



3. A) What is Wireless Communication ? Explain Applications of Wireless Communication. **10**
- B) Explain the need and types of multiplexing techniques. **10**
- OR
- B) Explain GPRS system in detail. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**
- a) IEEE 802.11 physical layer
 - b) Dynamic host configuration protocol
 - c) WLAN advantages
 - d) WAP architecture
 - e) Bluetooth.
5. A) Explain in detail HIPERLAN. **10**
- B) Discuss benefits of mobile Ad-hoc network. **10**
- OR
- B) How a mobile node is registered via the FA or directly with the HA ? **10**
-



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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
DATA WAREHOUSING AND DATA MINING**

Day and Date : Thursday, 30-11-2017
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions : 1) Figures to the **right** indicates marks.
2) Q. 3A and Q. 5A are **compulsory**.
3) Write a example if **necessary**.

1. Multiple choice questions : 20

- 1) Which of the following is not a kind of data warehouse application ?
 - a) Information processing
 - b) Analytical processing
 - c) Data mining
 - d) Transaction processing
- 2) _____ technologies are the right solutions for knowledge discovery on the web.
 - a) Data mining
 - b) Knowledge mining
 - c) Text mining
 - d) Web mining
- 3) Cluttering is also known as
 - a) Supervised learning
 - b) Unsupervised learning
 - c) Semi-supervised learning
 - d) None of these
- 4) Which of the following is not a component of a data warehouse ?
 - a) Metadata
 - b) Current detail data
 - c) Lightly summarized data
 - d) Component key
- 5) Web structure mining is the process of discovering _____ information from the web ?
 - a) Semi-structured
 - b) Structured
 - c) Unstructured
 - d) None of these
- 6) The output of KDD is
 - a) Data
 - b) Information
 - c) Query
 - d) Useful information



- 7) Data selection is
- a) The actual discovery phase of a knowledge discovery process
 - b) The stage of selecting the right data for a KDD process
 - c) A subject-oriented integrated time variant non-volatile collection of data in support of management
 - d) None of these
- 8) The partition of overall data warehouse is
- a) Database
 - b) Data cube
 - c) Data mart
 - d) Operational data
- 9) OLAP stands for
- a) Online Analytical Processing
 - b) Online Linear Analytical Processing
 - c) Online Animated Process
 - d) Online Analytical Problem
- 10) OLAP is used to explore the _____ knowledge.
- a) Shallow
 - b) Deep
 - c) Multidimensional
 - d) Hidden
- 11) The complexity of data mining algorithm is represented by
- a) $\log n$
 - b) $2 n \log n$
 - c) $n \log n$
 - d) $2 \log n$
- 12) Metadata is used by the end users for
- a) Managing database
 - b) Structuring database
 - c) Querying purposes
 - d) Making decisions
- 13) The _____ algorithm can be applied in cleaning data.
- a) Search
 - b) Pattern recognition
 - c) Learning
 - d) Clustering
- 14) Heterogeneous databases referred to
- a) A set of databases from different vendors, possibly using different database paradigms
 - b) An approach to a problem that is not guaranteed to work but performs well in most cases
 - c) Information that is hidden in a database and that cannot be recovered by a simple SQL query
 - d) None of these



- 15) An important element in machine learning is
a) Flow b) Knowledge c) Observation d) Language
- 16) Which of the following is the data mining tool ?
a) C b) Weka c) C++ d) VB
- 17) The control metadata is used to
a) design a metadata
b) administrate the metadata
c) track the sequence and timing of warehouse events
d) control the data
- 18) The _____ techniques are used to load information from operational database to data warehouse.
a) reengineering b) reverse c) transfer d) replication
- 19) In data mining software that works on local workstation is used to
a) Write coding
b) Generate screen and reports for the end user
c) Make decisions
d) Find patterns
- 20) A _____ acts a bridge between data warehouse and database application.
a) Data mart b) Operational data
c) Meta data d) Data cube

SECTION – I

2. Write short note on (**any 4**) :

20

- a) Metadata
- b) Data visualization
- c) Picklist prompts
- d) Query tools
- e) Need of data warehouse.

Set P



3. A) What is data warehouse ? Explain architecture of data warehouse. **10**
B) What is OLAP ? Explain the categories of OLAP. **10**
OR
B) Difference between OLAP and OLTP. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**
a) Web content mining
b) Clustering
c) Trends affecting data mining
d) DBMS vs DM
e) K-Means clustering.
5. A) What is Data Mining ? Explain the issues and application of data mining. **10**
B) What is Web Mining ? Explain web usage mining and web structured mining. **10**
OR
B) Explain Nearest Neighbor method algorithm with example. **10**
-



- 6) All information that has been approved by management for public release classified as
- a) Confidential
 - b) Internal
 - c) External
 - d) All of the above
- 7) Any _____ information or material the unauthorized disclosure of which reasonably could be expected to cause serious damage to the national security.
- a) Secret data
 - b) Confidential data
 - c) Sensitive data
 - d) None of the above
- 8) Management must define _____ types of security policy, according to the National Institute of Standards.
- a) EISP
 - b) ISSP
 - c) SysSP
 - d) All of the above
- 9) NIST stands for
- a) National Institute for Standards and Technology
 - b) National Institute of Standards for Technology
 - c) National Information for Standards and Technology
 - d) None of the above
- 10) _____ information of the utmost secrecy to the organization, disclosure of which could severely impact the well-being of the organization.
- a) Public
 - b) Classified
 - c) Sensitive
 - d) None of the above
- 11) IT Act penalizes various cyber crimes and provides strict punishments as imprisonment upto
- a) 10 years
 - b) 20 years
 - c) 25 years
 - d) 5 years
- 12) IT Act, 2000 is India's legislation regulating the use of computers, computer systems and computer networks, data and information in the _____ format.
- a) Electronic
 - b) Digital
 - c) Both a) and b)
 - d) None of the above
- 13) IT Amendment Bill, 2008 which was passed in _____ in December, 2008.
- a) Lok Sabha
 - b) Rajya Sabha
 - c) Both a) and b)
 - d) None of the above
- 14) A digital signature can be used with kind of message, whether it is
- a) Encrypted
 - b) Decrypted
 - c) Both a) and b)
 - d) None of the above



SECTION – II

4. Write a short note on (**any 4**) : **20**
- a) Legal recognition of electronic records.
 - b) Use of digital signature in Govt. and its agencies.
 - c) Appointment of controller and other officers.
 - d) Trademark dispute.
 - e) Powers of adjudication officers.
5. A) Explain in brief Indian Cyber law framework, Scope and Policy. **10**
- B) Describe in detail digital signature certification, suspension and revocation procedures. **10**
- OR
- B) Explain in brief cyber squatting and reverse hacking jurisprudence. **10**
-



SLR-TM – 26

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**T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
ADVANCED INTERNET TECHNOLOGY**

Day and Date : Wednesday, 6-12-2017
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

1. Choose the correct answer : **(20×1=20)**

1) Which of the following PHP statements will output Hello World on the screen ?

- a) echo (“Hello World”);
- b) print (“Hello World”);
- c) both a) and b)
- d) none of the above

2) Who is the father of PHP ?

- a) Rasmus Lerdorf
- b) William Makepiece
- c) Drek Kolkevi
- d) None of the above

3) If \$a = 12 what will be returned when (\$a ==12) ? 8 : 1 is executed

- a) 12
- b) Error
- c) 8
- d) None of these

4) Which one of the following is the right way of defining a function in PHP ?

- a) function {function body}
- b) function functionName(parameters) {function body}
- c) functionName(parameters) {function body}
- d) none of these

5) Which of the following PHP statement/statements will store 111 in variable num ?

- a) \$num = 111;
- b) int \$num = 111;
- c) int mum = 111;
- d) none of these

6) In PHP we can use _____ to comment a single line.

- a) //
- b) #
- c) /**/
- d) All of the above

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- 7) _____ executed once when the servlet is first loaded.
- a) Init
 - b) Service
 - c) Destroy
 - d) None of these
- 8) PHP's numerically indexed array begin with position
- a) - 1
 - b) 0
 - c) 1
 - d) None of the above
- 9) Which function will return true if a variable is an array or false if it is not ?
- a) this_array()
 - b) is_array()
 - c) do_array()
 - d) none of these
- 10) Uses of Cookies
- a) Identifying a user during an e-commerce session
 - b) IE ignores small error page by default
 - c) Call removeAttribute discards a specific value
 - d) None of the above
- 11) The life cycle of a servlet is managed by
- a) servlet context
 - b) servlet container
 - c) the supporting protocol (such as http or https)
 - d) all of the above
- 12) IPv6 addressed have a size of
- a) 128 bits
 - b) 32 bits
 - c) 64 bits
 - d) None of these
- 13) Which protocol assigns IP address to the client connected in the internet ?
- a) DHCP
 - b) IP
 - c) RPC
 - d) None of these
- 14) Which of the following is not a implicit object ?
- a) Request
 - b) Response
 - c) Cookie
 - d) None of these



- 15) Which of the following PHP functions can be used for generating unique id's
 - a) uniqueid()
 - b) id()
 - c) mdid()
 - d) none of these
- 16) Which of the following describes e-commerce ?
 - a) Doing business electronically
 - b) Sale of goods
 - c) Doing business
 - d) None of these
- 17) Which of the following is part of the four main types for e-commerce ?
 - a) B2B
 - b) B2C
 - c) C2B
 - d) All of these
- 18) Which segment do eBay, Amazon.com belong ?
 - a) B2B
 - b) B2C
 - c) C2B
 - d) None of these
- 19) Which of the following is not related to security mechanism ?
 - a) Encryption
 - b) Decryption
 - c) e-cash
 - d) None of these
- 20) Which of the following are/is action elements is JSP ?
 - a) <jsp.include>
 - b) <jsp:forward>
 - c) <jsp:plugin>
 - d) All of these

SECTION – I

- 2. Write short note on **(any 4)** : **(4×5=20)**
 - 1) Web system architecture
 - 2) E-commerce Architecture
 - 3) E-commerce security
 - 4) Overview of Internet
 - 5) Servlet API Overview.
 - 3. Answer the following :
 - 1) What is encryption ? Explain public, private and hybrid encryption techniques. **10**
 - 2) What is servlet ? Explain servlet life cycle with an example. **10**
- OR
- 2) Explain HTTPServlet and ServletConfig in detail. **10**



SECTION – II

4. Write short note on **(any 4)** : **(4×5=20)**
- 1) Flow control in PHP
 - 2) Sending mail in PHP
 - 3) Arrays in PHP
 - 4) Page directive in JSP
 - 5) PHP HTML embedding tags and syntax.
5. Answer the following :
- 1) What is PHP ? Explain Get and Post methods of PHP. **10**
 - 2) Explain PHP Cookie and Session with an example. **10**
- OR
- 2) What is JSP ? Explain scripting elements with an example. **10**
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T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
Elective – II : 3. FUZZY LOGIC AND ARTIFICIAL NEURAL NETWORK

Day and Date : Friday, 8-12-2017
Time : 10.30 a.m. to 1.30 p.m.

Total Marks : 100

Instructions: 1) Figures to the **right** indicate **full** marks.
2) Q. 3 A) and Q. 5 A) are **compulsory**.

MCQ/Objective Type Questions

1. Choose the correct alternative : **20**

- 1) A fuzzy set A contains an object x to degree $d(x)$, that is, $a(x) = \text{Degree}(x \in A)$, and the map $a: X \rightarrow \{\text{Membership Degree}\}$ is called
 - a) A set function
 - b) A membership function
 - c) Both a and b
 - d) None of the above
- 2) Crisp set is defined as a _____ of objects.
 - a) Union
 - b) Collection
 - c) Organization
 - d) None of the above
- 3) The intersection between two crisp sets represents all those elements in the universe that
 - a) Belongs to both sets
 - b) Belongs to any on set
 - c) Both a) and b)
 - d) None of the above
- 4) Binary relations are represented by _____ dimensional matrices.
 - a) One
 - b) Two
 - c) Three
 - d) None of the above
- 5) The properties _____ hold good for fuzzy relations.
 - a) commutative
 - b) associativity
 - c) idempotency
 - d) none of the above
- 6) A relation is said to be if for every edge pointing from vertex i to vertex j, there is an edge pointing in the _____ direction.
 - a) Same
 - b) Apposite
 - c) Both
 - d) None of the above



- 16) A network is said to be _____ network if no neuron in the output layer is an input to a node in the same layer or in the preceding layer.
- a) feed forward
 - b) feedback
 - c) lateral feedback
 - d) none of the above
- 17) Unsupervised learning is performed _____ of teacher.
- a) with the help
 - b) without the help
 - c) in absence
 - d) none of the above
- 18) An Associative Memory belongs to the class of _____ feedforward neural network architecture.
- a) Single layer
 - b) Multi layer
 - c) Both a) and b)
 - d) None of the above
- 19) The delta rule updates the weights between the connections so as to _____ the difference between the net input to the output unit and the target value.
- a) zero
 - b) minimize
 - c) maximize
 - d) none of the above
- 20) A Madaline model consists of many Adalines in parallel with a single _____ unit whose value is based on certain selection rules.
- a) input
 - b) output
 - c) hidden
 - d) none of the above

SECTION – I

2. Write short note on **any four**. **(4×5=20)**
- a) Fuzzy set operations.
 - b) Classical Relation.
 - c) Methods of membership value assignment.
 - d) Multiobjective decision making.
 - e) ELC system models.
3. A) Explain in brief Diffuzzification methods. **10**
- B) Compare and contrast multiobjective and multiattribute decision making. **10**
- OR
- B) Explain in brief architecture and operation of FCL System with block diagram. **10**



SECTION – II

4. Write short note on **any four**. **(4×5=20)**
- a) Characteristics of ANN.
 - b) Rosenblatt's Perceptron, model.
 - c) Reinforcement learning.
 - d) Linear separability.
 - e) Energy function of BAM.
5. A) Explain in brief Signal Layer Artificial Neural Network. **10**
- B) Write and explain perception training also for single output class. **10**
- OR
- B) Explain in brief Bidirectional Associative Memory. **10**
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T.Y. M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
Elective – II : CLOUD COMPUTING

Day and Date : Friday, 8-12-2017

Total Marks : 100

Time : 10.30 a.m. to 1.30 p.m.

- Instructions :** 1) Figures to the **right** indicates marks.
2) Q. 3A and Q. 5A are **compulsory**.
3) Write a program if **necessary**.

1. Multiple choice questions :

20

- 1) Which cloud are mixture of private as well as public cloud computing deployment model ?
a) Private b) Public c) Hybrid d) Community
- 2) _____ cloud allow system and service to access group of information.
a) Public b) Private c) Hybrid d) Community
- 3) Which service model allows and provide application to end user ?
a) PaaS b) SaaS c) IaaS d) All of the above
- 4) Which of the service model access the fundamental resource as well as physical resource and virtual machine ?
a) PaaS b) SaaS c) IaaS d) None of the above
- 5) _____ cloud computing allow multiple tenant share a pool of resources.
a) Rapid elasticity b) Broadband network
c) Resource pool d) None of the above
- 6) Which of the disk are used to store active area of memory ?
a) Hard disk b) Secondary storage
c) Cache d) Virtual
- 7) _____ cloud is more suitable for processing and storing non-sensitive data.
a) Private b) Public c) Hybrid d) All of the above
- 8) _____ web service is not platform in traditional sense.
a) Google b) Microsoft AZURE
c) RACKSPACE d) AMAZON

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SECTION – I

2. Write short note on (**any 4**) : **20**
- a) Cloud service models.
 - b) Benefits and disadvantage of Private Cloud Model.
 - c) Applications of virtualisation.
 - d) Open stack and Apache CloudStack public cloud Clouds.
 - e) Platform as service offerings.
3. A) Explain Private Cloud, its benefits and risks. **10**
- B) Explain in brief any five Public Cloud Palyers. **10**
- OR
- B) Describe in brief public cloud PaaS Vendors. **10**

SECTION – II

4. Write a short note on (**any 4**) : **20**
- a) Server security in cloud computing.
 - b) Traditional IT Security.
 - c) Challenges of network security.
 - d) Abuse use of cloud computing.
 - e) Multicloud management system.
5. A) Explain in detail cloud security issues. **10**
- B) Describe in brief security reference models. **10**
- OR
- B) What are the benefits and disadvantages of the multicloud management system ? **10**
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T.Y.M.C.A. (Part – I) (Under Faculty of Engg.) Examination, 2017
Elective – (1) : ARTIFICIAL TECHNOLOGY

Day and Date : Tuesday, 28-11-2017
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 100

- Instructions:** 1) Figures to the *right* indicate marks.
2) Q. 3 A and Q. 5 A are **compulsory**.
3) Write a program **if necessary**.

1. Multiple choice questions :

20

- 1) What is state space ?
 - a) The whole problem
 - b) Your definition to a problem
 - c) Representing your problem with variable and parameter
 - d) None of the above
- 2) A search algorithm takes _____ as an input and returns _____ as an output.
 - a) Input, output
 - b) Problem, solution
 - c) Solution, problem
 - d) Parameters, sequence of actions
- 3) The process of removing detail from a given state representation is called _____
 - a) Extraction
 - b) Abstraction
 - c) Information retrieval
 - d) Mining of data
- 4) A production rule consists of
 - a) A set of rule
 - b) A sequence of steps
 - c) Both a) and b)
 - d) Arbitrary representation to problem
- 5) Which of the following is/are Uninformed Search technique/techniques ?
 - a) Breath First Search (BFS)
 - b) Depth First Search (DFS)
 - c) Best First Search
 - d) All of the above



- 6) Which data structure conveniently used to implement BFS ?
- a) Stacks
 - b) Queues
 - c) Priority Queues
 - d) All of the above
- 7) Which search uses the problem specific knowledge beyond the definition of the problem ?
- a) Informed search
 - b) Depth-first search
 - c) Breadth-first search
 - d) Uninformed search
- 8) Which is used to improve the performance of heuristic search ?
- a) Quality of nodes
 - b) Quality of heuristic function
 - c) Simple form of nodes
 - d) None of the mentioned
- 9) Which search method will expand the node that is closest to the goal ?
- a) Best-first search
 - b) Greedy best-first search
 - c) A* search
 - d) None of the above
- 10) Hill-Climbing approach stuck for the following reasons
- a) Local maxima
 - b) Ridges
 - c) Plate aux
 - d) All of the above
- 11) Knowledge and reasoning also play a crucial role in dealing with _____ environment.
- a) Completely observable
 - b) Partially observable
 - c) Neither a) nor b)
 - d) Both a) and b)
- 12) Which is used to construct the complex sentences ?
- a) Symbols
 - b) Connectives
 - c) Logical connectives
 - d) All of the above
- 13) Which is used to compute the truth of any sentence ?
- a) Semantics of propositional logic
 - b) Alpha-beta pruning
 - c) First-order logic
 - d) Both a) and b)
- 14) Which are needed to compute the logical inference algorithm ?
- a) Logical equivalence
 - b) Validity
 - c) Satisfiability
 - d) All of the above
- 15) Which is not a property of representation of knowledge ?
- a) Representational verification
 - b) Representational adequacy
 - c) Inferential adequacy
 - d) Inferential efficiency



- 16) Fuzzy logic is a form of
- a) Two-valued logic
 - b) Crisp set logic
 - c) Many-valued logic
 - d) Binary set logic
- 17) The values of the set membership is represented by
- a) Discrete set
 - b) Degree of truth
 - c) Probabilities
 - d) Both b) and c)
- 18) MCC is investigating the improvement of the relationship between people and computers through a technology called
- a) Computer aided design
 - b) Human factors
 - c) Parallel processing
 - d) All of the above
- 19) Natural Language Processing (NLP) is field of
- a) Computer Science
 - b) Artificial intelligence
 - c) Linguistics
 - d) All of the mentioned
- 20) The “Turing Machine” showed that you could use _____ system to program any algorithmic task.
- a) Binary
 - b) Electro-chemical
 - c) Recursive
 - d) Semantic

SECTION – I

2. Write short note on (**any 4**) : **20**
- a) What is an AI technique ?
 - b) Control strategies
 - c) Production system characteristic
 - d) Breadth first search
 - e) The A* algorithm.
3. A) Explain in detail issues in knowledge representation. **10**
- B) Explain in brief IA Problem characteristics. **10**

OR

- B) What is an Agenda-driven search system ? Explain with detail procedure. **10**

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SECTION – II

4. Write a short note on (**any 4**) : **20**
- a) Representation of facts in logic
 - b) Fuzzy logic
 - c) Syntactic processing
 - d) Hierarchical planning
 - e) Alpha-beta cutoffs.
5. A) Explain in detail non-linear planning using constraint posting. **10**
- B) Explain resolution procedure used to convert statements in a convenient standard form to prove a statement. **10**
- OR
- B) Describe in detail the MINMAX search procedure in game playing. **10**
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