

Total No. of Questions : 5]

SEAT No. :

PA-2551

[Total No. of Pages : 4

[5948]-101

**M.C.A. (Management)
JAVA PROGRAMMING**

**IT - 11 : Faculty of Commerce and Management
(2020 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figure to the right indicate full marks.

Q1) Each multiple choice question carries half marks. All questions are Compulsory.

[10]

- a) Platform independent code file created from source file is understandable by
 - i) JRE
 - ii) JVM
 - iii) Applet
 - iv) Compiler
- b) Which of the tool is used to compile Java Code.
 - i) Jar
 - ii) Javac
 - iii) Javadoc
 - iv) Java
- c) Byte variables are declared by used of the _____ keyword, (Using Prinitive Data type)
 - i) Bytes
 - ii) byte
 - iii) Byte
 - iv) bytes
- d) An _____ statement can be used to access the classes and interface of a different package from the current package.
 - i) instance of
 - ii) import
 - iii) extends
 - iv) implements
- e) Which of this access specifiers can be used for a class so that its members can be accessed by a different class in the same package?
 - i) Public
 - ii) Protected
 - iii) No modifier
 - iv) All of the mentioned
- f) Which of the following is false statement about package in Java?
 - i) Packages are used for preventing naning conflicts
 - ii) Providing controlled access protected and default have package level access control
 - iii) Packages cannot be considered as data encapsulation
 - iv) Both (ii) and (iii)

P.T.O.

- 2

- p) _____ method simply return a string that appropriately describes an object of your class
- get chars ()
 - toString ()
 - to Char Array ()
 - get string ()
- q) What is the listener used to handle the events or a text field?
- java. awt. ActionListener interface
 - java. awt. event. Action Listener
 - awt. event. Action Listener interface
 - java. awt. event. Action Listener Interface
- r) Getlabel () method used to retrieve the label of a button
- Yes
 - No
 - Can be yes or no
 - Can not say
- s) The Java. Sal and javax. sal are the primary packages for JDBC 4.0
- Yes
 - No
 - Can be yes or no
 - Can not say
- t) _____ are small programs that are downloaded into a Java Enabled Web Browser.
- Applets
 - Servlets
 - HTML
 - Java Script

Q2) a) Write a java program to design the following GUI.

[6]

Personal Information	
First Name :	<input type="text"/>
Last Name :	<input type="text"/>
Address :	<input type="text"/>
Mobile No :	<input type="text"/>
Gender :	<input type="radio"/> male <input type="radio"/> female
Your Interst	<input type="checkbox"/> computer <input type="checkbox"/> Sporte Music
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

b) Explain wrapper classes in java

[4]

OR

a) Different types of layout managers with examples.

[6]

b) Explain Action Listener class

[4]

Q3) a) Write a JDBC application to insert, update and delete record from company share holder's Table. Given the structure: SHAREHOLDER : Holderid, H name, Address, No.of shares, sharesr From (Share serial from Number), ShareSrTo (Share Serial upto Number), Facevalue, cost.[8]

b) What is Request Dispatcher? [4]

OR

a) Write servlet to accept student information from HTML page, and store the details in a database. [Note: Take suitable fields. [8]

b) Explain servlet life - cycle. [4]

Q4) a) What is the difference between the Enumeration and Iterator interface?[5]

b) Differentiate between method and constructor. [3]

OR

a) What is difference between Iterator and List Iterator? [5]

b) Explain 'this' keyword [3]

Q5) a) Explain the concept of overloading. [4]

b) Explain thread life cycle. [3]

c) List any four methods of file class. [3]

OR

a) Explain Abstract class and Interfaces. [4]

b) Explain Thread Synchronization. [3]

c) Explain InputStreamReader and OutputStream Writer [3]



Total No. of Questions : 5]

SEAT No. :

PA-2552

[Total No. of Pages : 4

[5948]-102

M.C.A. (Management)

IT - 12 : DATA STRUCTURE AND ALGORITHMS

(2020 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) From Q2 to Q5 having internal choices.
- 3) Figure to be right indicate full marks.

Q1) MCQ

[20×½=10]

- a) In a linked list insertion can be done as _____
- | | |
|--------------|---------|
| i) beginning | ii) end |
| iii) middle | iv) all |
- b) The minimum number of fields with each node of DLL is
- | | |
|--------|-------|
| i) 1 | ii) 2 |
| iii) 3 | iv) 4 |
- c) In a stack if a user tries to remove an element from empty stack, it is called
- | | |
|---------------------|------------------------|
| i) empty collection | ii) underflow |
| iii) overflow | iv) garbage collection |
- d) Which method is used for retrieving the top element of the stack without deleting it
- | | |
|---------------|-----------------|
| i) pop () | ii) dequeue () |
| iii) push () | iv) peek () |
- e) Binary tree is a special type of freedata structure in which every node can have a maximum _____ children
- | | |
|--------|-------|
| i) 4 | ii) 2 |
| iii) 1 | iv) 0 |
- f) A Binary search tree whose left subtree and right subtree differ in height by at most 1 unit is called
- | | |
|-----------------|--------------------|
| i) AVL tree | ii) Red Black tree |
| iii) Lemma tree | iv) Unique tree |

P.T.O.

- g) The Breadth first search traversal of a graph will result into?
- i) Linked List
 - ii) Tree
 - iii) Graph with back edges
 - iv) None
- h) Time complexity of DFS is (V-number of vertex, E-number of edges)
- i) $O(V+E)$
 - ii) $O(V)$
 - iii) $O(E)$
 - iv) None
- i) Heap can be used as _____
- i) Priority queue
 - ii) stack
 - iii) A decreasing order array
 - iv) Normal array
- j) What is the Best case for linearsearch
- i) $O(n \log n)$
 - ii) $O(\log n)$
 - iii) $O(n)$
 - iv) $O(1)$
- k) In linear search with array, how many comparisons are needed in best case?
- i) 0
 - ii) 1
 - iii) n
 - iv) $n/2$
- l) Backtracking algorithm is implemented by constructing a tree of choice called as _____
- i) state - space tree
 - ii) Back tracking tree
 - iii) state - chart tree
 - iv) Node tree
- m) What is meant by the power set of a set?
- i) subset of all sets
 - ii) set of all subsets
 - iii) set of particular subset
 - iv) emptyset
- n) What is the other name of Dijkstra Algorithm?
- i) Single source shortest path
 - ii) multiple source shortest path
 - iii) multiple destination
 - iv) single destination shortest path problem
- o) Which of the following standard algorithms is not a Greedy algorithm.
- i) Dijkstra algorithm
 - ii) Prim's
 - iii) Kruskal
 - iv) Bellment Ford stortest path

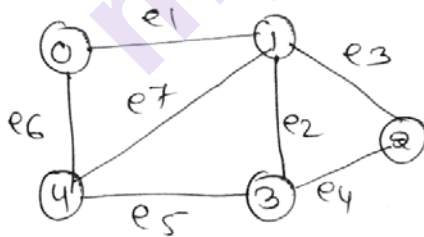
- p) What is the worst case complexity of quick sort?
- $O(n \log n)$
 - $O(\log n)$
 - $O(n)$
 - $O(n^2)$
- q) Which of the following method is used for sorting in merge sort.
- merging
 - partitioning
 - selection
 - exchanging
- r) In dynamic programming the output to stage n become the input to
- stage $n - 1$
 - stage n itself
 - stage $n + 1$
 - stage $n - 2$
- s) Choose the recursive formula for Fibonacci series ($n \geq 1$)
- $F(n) = F(n + 1) + F(n + 2)$
 - $F(n) = F(n) + F(n - 1)$
 - $F(n) = F(n - 1) + F(n - 2)$
 - $F(n) = F(n - 1) - F(n - 2)$
- t) The algorithm like quick sort does not require extra memory for carrying out
- in-place
 - stable
 - unstable
 - in-partition

Q2) a) Draw Binary tree from given traversal [5]

inorder : 4, 2, 5, 1, 6, 7, 3, 8

Postorder : 4, 5, 2, 6, 7, 8, 3, 1

- b) Give the Adjacency Matrix and linked list representation of undirected graph. [3]



- c) Define collisions. [2]

OR

- a) Apply the algorithm to draw Binary search tree for following data. [5]
 10, 08, 15, 12, 13, 07, 09, 17, 20, 18, 04, 05
- b) Compare BFS and DFS. [3]
- c) Explain Min Heap. [2]

- Q3)** a) Apply Rain Terrace algorithm to following problem
 Input : [4, 2, 0, 3, 2, 5] Draw the figure and find solution. [4]
 b) Write on algorithm for knight's Tour. [3]
 c) Discuss use of Priority queue. [3]

OR

- a) Apply the maximum subarray algorithm to the
 Input : arr = [-2, -5, 6, -2, -3, 1, 5, -6] and find sum of maximum subarray. [4]
 b) Give the explicit and implicit constraints in 8 queen's problem. [3]
 c) Discuss Hamiltonian Cycle. [3]
- Q4)** a) Sort the following data using Mergesort [38, 27, 43, 3, 9, 82, 10]. [4]
 b) Consider the following array [1, 3, 5, 8, 9, 2, 6, 7, 6] what is minimum number of jump required to reach the end of the array? [4]
 c) Explain need of circular queue. [2]

OR

- a) Write an algorithm of Kruskal's algorithm. [4]
 b) Explain Rules for Tower of Hanoi with an suitable example. [4]
 c) What is the purpose of Linked List. [2]
- Q5)** a) Write an algorithm to implement queue using linked list. [3]
 b) Solve the following instance of 0/1 knapsack problem by applying Dynamic programming $n = 3$ $w = (3, 5, 7)$ $p(3, 7, 12)$, $M = 4$ [7]

OR

- a) Write a algorithm to delete element from linked list whose sum is equal to zero. [3]
 b) Find the largest common subsequence for the following string using Dynamic Programming [7]
 $X = [A, B, C, D, B, A, C, D, F]$
 $Y = [C, B, A, F]$



Total No. of Questions : 5]

SEAT No. :

PA-2553

[Total No. of Pages : 6

[5948]-103

M.C.A. - I (Management)

IT - 13 : OBJECT ORIENTED SOFTWARE ENGINEERING

(2020 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *For MCQ select appropriate choice from the given options.*
- 3) *Figures to right indicates full marks.*
- 4) *Draw neat diagrams and quote examples the wherever necessary.*
- 5) *Use of any type of calculator is not allowed.*

Q1) Attempt the following Multiple Choice Questions. Each question carries half mark. **[10]**

- a) If you were a lead developer of a software company and you are asked to submit a project within a stipulated time frame with no cost barriers, which model your select.
 - i) Waterfall
 - ii) Spiral
 - iii) RAD
 - iv) Incremental
- b) From the following, which software has been characterized by 'Number Crunching' Algorithms?
 - i) System Software
 - ii) Artificial Intelligence software
 - iii) Embedded Software
 - iv) Engineering and Scientific Software
- c) Project risk factor is considered in which model?
 - i) Water fall
 - ii) Spiral
 - iii) RAD
 - iv) RUP
- d) Which phase of the RUP is used to establish a business case for the system?
 - i) Transition
 - ii) Construction
 - iii) Elaboration
 - iv) Inception

P.T.O.

- e) The _____ model is preferred for development when the requirements are not clear
- i) RAD
 - ii) RUP
 - iii) Evolutionary
 - iv) Water fall
- f) Software Engineering primarily aim's on building
- i) reliable software
 - ii) cost-effective software
 - iii) reliable and cost-effective software
 - iv) Sustainable software
- g) The _____ approach involves building a small version of the intended system prior to building the proposed completed system
- i) Water fall
 - ii) Spiral
 - iii) RAD
 - iv) Prototyping
- h) What does the RAD process stand for?
- i) Rapid Application Development
 - ii) Recent Application Design
 - iii) Recent Application Development
 - iv) Rapid Application Design
- i) What is the major advantage of using Incremental model?
- i) Customer can respond to each increment
 - ii) Easier to test and debug
 - iii) Get a product to the market early
 - iv) Easier to test and debug and get a product to the market early
- j) Choose an internal software quality
- i) scalability
 - ii) usability
 - iii) resuabilitiy
 - iv) rehability
- k) The SRS is said to be _____ if and only if no subset of individual requirements described in it conflict with each other
- i) correct
 - ii) consistent
 - iii) unambiguous
 - iv) veritable

- l) Consider a system where, “a heat sensor detects an intrusion and alerts the security company”. What kind of a requirement the system is providing?
- i) Functional
 - ii) Non-functional
 - iii) User Interface
 - iv) Internal Software Quality
- m) _____ is the understanding of software product limitations, learning system related problems or changes to be done in the existing system before hand, identifying and addressing impact of project on organisation and personnel
- i) Software Design
 - ii) Software Analysis
 - iii) Feasibility study
 - iv) Requirement Gathering
- n) When a company plans to develop a generic product, who among the following is usually the source of the requirement?
- i) Development Team Members
 - ii) Project Manager
 - iii) Marketing Personnel
 - iv) Personnel from Finance Management
- o) In user Interface Design, tools are used to,
- i) make a prototype and implement the design model
 - ii) get qualitative results
 - iii) get quantitative results
 - iv) make a prototype and implement the design model and get qualitative results
- p) What does Designing consistent interfaces means?
- i) using the same design patterns
 - ii) using the same sequence of actions
 - iii) using the same design patterns and sequence of actions
 - iv) using existing designs of similar applications

- q) Who is responsible for ensuring that the scrum values and pillars are adhered to all times?
- i) Product Owner
 - ii) Scrum Master
 - iii) Development Team
 - iv) Each Member
- r) DSDM originally sought to provide some discipline to the _____ method
- i) Scrum
 - ii) Spiral
 - iii) RAD
 - iv) RUP
- s) Which method is used for prioritizing product features in DSDM methodology?
- i) MoSCoW
 - ii) PaRiS
 - iii) LoNDoN
 - iv) BeRLiN
- t) During which scrum ceremony does the team inspect its processes to adapt during subsequent sprints?
- i) Sprint Retrospective
 - ii) Daily standup
 - iii) Story Grooming
 - iv) Sprint closure

Q2) Write a Software Requirement Specification as per SRS IEEE template for the scenario. **[8]**

A system is to be developed for scheduling the courses in MCA programme, based on the input about classrooms, lecture times, and time preferences of the different instructors.

OR

A web based application is to be developed for e-administration of computer labs of an institution which eases the tasks of the administrator, instructors, HoDs of various departments, technical staff and students. The computing facilities include computers, Printers, LCDs, Digital Boards etc. on a 24×7 basis to carry out academic experiments with all the necessary software installed and configured. The software should also help the administrator and instructors to maintain proper documentation of the computing systems.

Q3) Institute of Management studies (IMS) has organised an International conference with various subject tracks. The conference details are uploaded on the web site developed by the institute. A participant has to register online under category student, Faculty member, Research scholar and corporate. He/She has to upload an abstract of his/her paper. If It gets selected he/she has to upload final paper along with the registration fee. The registration fee varies according to the category of the participants. The payment should be done online. The paper presentation schedule will be displayed on the website under the defined tracks. After the conference, the presented papers get published in online journal and participants can give his/her feedback on line.

Draw the following diagrams for the above case:

- a) Use Case Diagram [10]
- b) Class Diagram [10]

OR

- a) Draw Activity diagram for registering a billing complaint to MSEB. [10]
- b) Draw State Transition Diagram for a toy Robot, with following functionalities. [10]
 - i) When the Robot is SWITCHED ON, it should greet as per the time (Morning, Afternoon etc)
 - ii) It should behave as per your order - “Walk Straight” ‘Run”, and “Stop”.
 - iii) Set time for the robot
 - iv) After 6pm, it SWITCHES ON it own lights.
 - v) When the battery is down it gives an indication for charging it by saying “Battery Down?” Similarly, after the charging is complete it says “Battery Full”.

- Q4)** a) Elaborate on the artefacts in Scrum. [4]
b) Enumerate the attributes of web-based systems and Applications. [4]

OR

- a) Explain the four values of Agile Manifesto with its meaning. [4]
b) Elaborate on any four Extreme Programming Practices. [4]

- Q5)** Draw the User Interface Screen to lodge a grievance against noise pollution in your neighbourhood on the government noise pollution grievance redressal and monitoring system. [4]

OR

- Draw the user Interface Screen to generate visitors Gate pass. [4]



Total No. of Questions : 5]

SEAT No. :

PA-2554

[Total No. of Pages : 4

[5948]-104

M.C.A. - I (Management)

IT - 14 : OPERATING SYSTEM CONCEPTS

(2020 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat diagrams wherever necessary.*

Q1) Attempt the following multiple choice questions. Select one best option from the choices given. **[20×½=10]**

- a) Multiprogramming of the computer system
 - i) Increase computing speed
 - ii) Reduces memory utilization
 - iii) Increase CPU utilization
 - iv) None of the above
- b) Which are of the following is a synchronization tool
 - i) Thread
 - ii) Pipe
 - iii) Semaphore
 - iv) Socket
- c) Scheduling of threads are done by _____
 - i) Operating system
 - ii) Input
 - iii) Output
 - iv) None of the above
- d) For real time operating systems, interrupt latency should be _____
 - i) minimal
 - ii) maximum
 - iii) zero
 - iv) dependent on the schedule
- e) Virtual memory in memory hierarchy consists of
 - i) RAM and Hard disk
 - ii) Cache and Hard disk
 - iii) Cache and RAM
 - iv) All of the above
- f) When external fragmentation will not occur?
 - i) First fit is used
 - ii) No matter which algorithm is used it will always occur
 - iii) Worst fit is used
 - iv) Best fit is used

P.T.O.

- g) Which of the following is not an operating system?
- i) Windows
 - ii) Linux
 - iii) Ms office
 - iv) DOS
- h) Logical memory is broken into blocks of the same size called _____
- i) Frames
 - ii) Pages
 - iii) Stores
 - iv) None of the above
- i) Which of the following cannot be scheduled by the kernel?
- i) Process
 - ii) User Level thread
 - iii) Kernel level thread
 - iv) None of the above
- j) Youtube live streaming system is an example of the following:
- i) Hard RTOS
 - ii) SOFT RTOS
 - iii) Firm RTOS
 - iv) None of the above
- k) In hard real time systems there is gurantee that _____
- i) All critical task are completed in time
 - ii) Some critical tasks are allowed some delay
 - iii) Some critical tasks are given tolerance
 - iv) None of the above
- l) Which are of the following is a real time operating system?
- i) RT Linux
 - ii) Windows CE
 - iii) VX works
 - iv) All of the above
- m) What command is used to count the total number of lines, words, and characters contained in a file?
- i) Count W
 - ii) W count
 - iii) WC
 - iv) Count P
- n) What a virtual memory miss is called?
- i) l tit miss
 - ii) Page hit
 - iii) Page fault
 - iv) Page miss
- o) The interrupt latency should be _____ for real time operating systems.
- i) maximum
 - ii) zero
 - iii) minimum
 - iv) None of the above

- p) In Unix which system call creates the new process?
- Create
 - Fork
 - New
 - None of the mentioned
- q) The address of the next instruction to be executed for the current process is stored in _____
- Program state
 - CPU registers
 - Program counter
 - None of the above
- r) What is common problem found in distributed system?
- Process synchronization
 - Communication Synchronization
 - Deadlock problem
 - Power failure
- s) What is the output of the following code OS = Unix
ect
- 40S
 - “\$OS”
 - ‘\$OS’
 - \$OS
1. Unix 2. Unix 3. Unix 4 Unix
 1. Unix 2. Unix 3. \$OS 4. Unix
 1. Unix 2. Unix 3. Unix 4. \$OS
 1. Unix 2. \$OS
- t) Which command is used to print a file
- Print
 - Ptr
 - lpr
 - None of the above

Q2) a) What is paging? Explain with diagram. [4]

b) What is operating system? Explain characteristics of OS. [6]

OR

a) Explain logical to physical memory mapping. [6]

b) Explain the states of process. [4]

Q3) a) What is PC 3? [4]

b) Explain Critical section concept with producer and consumer problem.[6]

OR

a) What is deadlock? Explain how deadlock can be detected? [6]

b) Explain time slicing. [4]

Q4) a) Describe the characteristics of Real time operating system. [6]

b) Explain the file systems used in windows operating system. [4]

OR

a) What is mobile operating system? [6]

b) Explain any 4 commands of liners. [4]

Q5) a) Write a shell script for adding two numbers and storing the result in a variable. [6]

b) Explain loops in Linux shell scripting. [4]

OR

a) What is RTOS? Give one example with explanation. [6]

b) Write a short note on Kernel. [4]



Total No. of Questions : 5]

SEAT No. :

PA-2555

[Total No. of Pages : 4

[5948]-105

M.C.A. - I (Management)

IT - 15 : NETWORK TECHNOLOGIES

(2020 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *All questions carry equal marks.*
- 3) *Draw neat diagrams wherever necessary.*

Q1) Write the correct option.

- a) Frames from one LAN can be transmitted to another LAN via _____ device
 - i) Router
 - ii) Bridge
 - iii) Modem
 - iv) Repeater
- b) Segmentation and reassembly is done at _____ layer.
 - i) Network
 - ii) Data Link
 - iii) Transport
 - iv) Presentation
- c) Encryption and compression are done at sender's side by _____ layer.
 - i) Presentation
 - ii) Transport
 - iii) Network
 - iv) Session
- d) Error detection at the data link layer is achieved by _____
 - i) bit stuffing
 - ii) cyclic redundancy codes
 - iii) hamming codes
 - iv) equalization
- e) Which one of the following task is not done by data link layer?
 - i) framing
 - ii) error control
 - iii) flow control
 - iv) channel coding
- f) In cyclic Redundancy checking, what is CRC?
 - i) the divisor
 - ii) quotient
 - iii) dividend
 - iv) remainder

P.T.O.

- g) Which error detection method uses is complement arithmetic?
- i) Simple parity check
 - ii) Two dimensional parity check
 - iii) CRC
 - iv) Checksum
- h) Which error detection method consists of one redundant bit per data unit?
- i) Simple parity check
 - ii) Two dimensional parity check
 - iii) CRC
 - iv) Checksum
- i) The IPV4 addresses are ____.
- i) unique
 - ii) universal
 - iii) unique and universal
 - iv) common
- j) IPV6 addresses are represented using.
- i) decimal notation
 - ii) binary notation
 - iii) dotted-decimal notation
 - iv) hexadecimal notation
- k) The address space of IPV6.
- i) 8 bits
 - ii) 32 bits
 - iii) 64 bits
 - iv) 128 bits
- l) _____ protocol allows the administrator to assign a cost called the metric to each route.
- i) RIP
 - ii) OSPF
 - iii) BGP
 - iv) None of the mentioned
- m) In OSPF, each router that is connected to two or more areas is called _____.
- i) back bone router
 - ii) area border router
 - iii) internal router
 - iv) as boundary router
- n) DHCP provides _____ to the client.
- i) IP address
 - ii) MAC address
 - iii) URL
 - iv) None of the mentioned
- o) A DNS client is called _____.
- i) DNS updater
 - ii) DNS resolver
 - iii) DNS Handler
 - iv) None of the mentioned

- p) SMTP uses which of the following TCP port?
- i) 31
 - ii) 43
 - iii) 25
 - iv) 27
- q) Which of the following is not a form of DOS Attack?
- i) Vulnerability attack
 - ii) Bandwidth flooding
 - iii) Connection flooding
 - iv) Trojan Horse
- r) Which methods are commonly used in serversocket class?
- i) public outputStream getOutputStream
 - ii) public socket accept ()
 - iii) public synchronized void done ()
 - iv) public void connect ()
- s) The _____ class is used to create Datagram packet?
- i) Data grampacket
 - ii) Datagramssocket
 - iii) Both of these
 - iv) None of the mentioned
- t) _____ is responsible for establishing a connection.
- i) Socket
 - ii) Serversocket
 - iii) Clientsocket
 - iv) None of the mentioned

Q2) a) Encode a binary word 11001 into the even parity hamming code

[Given number of data bits, $n = 5$] [5]

b) The received code word is 1100100101011, check if there is error in the code word if divisor is 10101. [5]

OR

a) A receiver received the hamming code 11001010101 with even parity. Find the error in received code. [5]

b) Generate the hamming code for the data 111011011 with odd parity. [5]

- Q3)** a) Determine the network address for the following IP-addresses [5]
- i) 87.52.26.71
 - ii) 77.12.133.86
 - iii) 193.56.77.22
 - iv) 128.76.44.37
 - v) 100.77.44.13
- b) Explain IP addressing with network masks and network addresses. [5]

OR

- a) Draw and explain IPV4 packet format. [5]
- b) Determine the network, subnetwork and host addresses if IP address is 27. 54. 19.33 and subnet mask is 255.255.224.0. [5]
- Q4)** a) Explain TCP protocol's working in detail. [5]
- b) Explain DNS and DNS - resource records in detail. [5]

OR

- a) What is open shortest path First protocol? Explain in detail. [5]
- b) Explain the functioning of SMTP protocol. [5]
- Q5)** a) What are security attacks? Explain passive attacks in detail. [4]
- b) WAP for establishing termination of connection between client and server using TCP. [6]

OR

- a) Explain OSI model in detail. [4]
- b) Write a program for implementing the sliding window protocol of window size 5. [6]



Total No. of Questions : 5]

SEAT No. :

PA-2556

[Total No. of Pages : 6

[5948]-201

M.C.A. - I (Management)

IT - 21 : PYTHON PROGRAMMING

(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Answer all sub questions at one place.*

Q1) Choose the correct option. (½ mark each)

[10]

- a) If `zoo = ['lion', 'tiger']`, what will be `zoo*2`?
 - i) `['lion', 'lion', 'tiger', 'tiger']`
 - ii) `['lion']`
 - iii) `['tiger']`
 - iv) `['lion', 'tiger', 'lion', 'tiger']`
- b) For dictionary `d = {plum : 0.66, pears : 1.25, oranges : 0.49}` which of the following statement correctly updates the price of oranges to 0.52?
 - i) `d [oranges] = 0.52`
 - ii) `d[0.49] = 0.52`
 - iii) `d [2] = 0.52`
 - iv) `d [plum] = 0.52`
- c) What is the correct syntax for creating single valued tuple?
 - i) `(a)`
 - ii) `(,)`
 - iii) `(a,)`
 - iv) `{a}`
- d) The length of `sys. argv` is
 - i) Only file name
 - ii) Total number of arguments including python command
 - iii) Total number of arguments including filename
 - iv) Total number of excluding the file name
- e) Which of these definitions correctly describes a module?
 - i) Denoted by triple quotes for providing the specification of certain program elements.
 - ii) Defines the specification of how it is to be used.
 - iii) Design and implementation of specific functionality to be incorporated into a program.
 - iv) Any program that reuses code

P.T.O.

- f) To include use of functions which are present in random library, we must use the option
- i) random. h
 - ii) random. random
 - iii) import. random
 - iv) import random
- g) _____ is a string literal denoted by triple quote for providing the specifications of certain program elements.
- i) client
 - ii) docstring
 - iii) modularity
 - iv) Interface
- h) The correct way of inheriting a derived class from base class is:
- i) Class Derived (Base):
 - ii) Class Base (Devired):
 - iii) Class (Base) Derived:
 - iv) Class
- i) The + operator is overloaded using the method
- i) --plus-- ()
 - ii) --add-- ()
 - iii) --sum-- ()
 - iv) --total-- ()
- j) The syntax for using super() in derived class __init__() method definition looks like
- i) init--.super ()
 - ii) Super ().--init--(derived class parameters)
 - iii) Super ()
 - iv) Super ().--init-- (base class parameters)
- k) The character ____ and ____ matches the start and end of the string, respectively.
- i) \$ and \$
 - ii) * and &
 - iii) ^ and °
 - iv) ^ and \$
- l) Consider a file 21-12-2016. zip. The regular expression pattern to extract date from filename is
- i) ([0-9] {2} \- [0-9] {2} \- [0-9] {4})
 - ii) ([0-9] {1} \- [0-9] {2} \- [0-9] {4})
 - iii) ([0-9] {2} \- [0-9] {1} \- [0-9] {4})
 - iv) ([0-9] {2} \- [0-9] {2} \- [0-9] {2})

- m) When will the else part of the try-except-else be executed?
- i) When an exception occurs
 - ii) Always
 - iii) When there is no exception
 - iv) When an exception occurs in try block.
- n) When is the finally block executed?
- i) only if some condition that has been specified is satisfied
 - ii) always
 - iii) When an exception occurs
 - iv) When there is no exception
- o) Which of the following is not a valid attribute of the file object file-handler.
- i) file-handler.closed ii) file-handler.size
 - iii) file-handler.mode iv) file-handler.name
- p) Which of the following command is used in mongo shell to show all the databases.
- i) Show databases ii) Show dbs
 - iii) ls dbs iv) Show dbs. all
- q) The function that returns its arguments with a modified shape and the method that modifies the array itself respectively in Numpy are
- i) resize, reshape ii) reshape2, resize
 - iii) reshape2, resize2 iv) reshape, resize
- r) Which of the following is used for line graph?
- i) plt. line () ii) plt. plot ()
 - iii) plt. bar () iv) plt. scatter ()

- s) Which of the following statement is false?
- i) ndarray is also known as the axis array
 - ii) in numpy, dimensions are called axes
 - iii) numpy main object is the homogeneous multidimensional array
 - iv) ndarray dataitemsize is the buffer containing the actual elements of the array
- t) The method used in pandas to return top 5 rows
- i) top ()
 - ii) top - rows (5)
 - iii) row (5)
 - iv) head ()

- Q2)** a) Write a program that accept the string from user and display the same string after removing vowels from it. [3]
- b) Explain positional and keyword arguments in function. Use suitable example. [3]
- c) Describe instance variable, static variable and local variables in python object oriented programming with example. [4]

OR

- a) Compare List and tuple with suitable example. [3]
- b) Explain lambda with example. [3]
- c) Create class called, library with data attributes like Acc-number publisher, title and author, the methods of the class should include [4]
- i) Read () - Acc- number, title, author, publisher.
 - ii) Compute () - to accept the number of day late, calculate and display the fine charged at the rate of Rupees 5/- per day.
 - iii) Display the data

- Q3)** a) Develop a program to print the number of lines, words and characters present in the given file? Accept the file name from user. Handle necessary exceptions. [2]
- b) Illustrate CRUD operations in MongoDB with example [3]
- c) Compare SQL Database with No SQL Database. [2]
- d) Write a program to check whether entered string & number is palindrome or not. [3]

OR

- a) Develop a python program to remove the comment character from all the lines in the given file. Accept the file name from user [2]
- b) Write a python program to perform following operations. on MongoDB Database. [5]
- i) Create collection “EMP” with fields:
Emp-name, Emp- mobile, Emp, sal, Age
 - ii) Insert 5 documents.
 - iii) Find the employees getting salary between 5000 to 10000.
 - iv) Update mobile number for the employee named as “Riddhi”
 - v) Display all employees in the order of “Age”
- c) Write a python program to find the factorial of a given number using recursion [3]
- Q4)** a) Write a program to demonstrate: [4]
- i) Creating a Thread without using any class
 - ii) Creating a Thread by extending Thread class.
- b) Write a Python program to check the validity of a password given by user. [4]
- The password should satisfy following criteria:
- i) Contain at least 1 letter between a and z
 - ii) Contain at least 1 number between 0 and 9
 - iii) Contain at least 1 letter between A and Z
 - iv) Contain at least 1 character from \$, #, @, *
 - v) Minimum length of password : 8
 - vi) Maximum length of password : 20
- c) Explain Generators in python with suitable example. [2]

OR

- a) Write a program for synchronization of threads using RLOCK. Accept the two numbers from user and calculate factorial of both numbers simultaneously [4]
- b) Write a python program [4]
- To remove all leading 'zeros' from an IP address
 - To find all 5 character long words in a string Accept string from user.
- c) Explain decorators in python with suitable example [2]
- Q5)** a) Explain numpy integer indexing, array indexing, boolean array indexing and slicing with example. [4]
- b) Draw bar graph using matplotlib and decorate it by adding various elements [2]
- c) Prepare the pandas dataframe from csv file. perform following operations. [2]
- Fill all 'NaN' values with the mean of respective column.
 - Display last 5 rows.
- d) Explain constructors in python with example. [2]
- OR
- a) Write a program to illustrate numpy array attributes/functions. [4]
- ndarray. shape
 - np. zeros ()
 - np. eye ()
 - np. random. random () [4]
- b) Read data from csv file and create dataframe. Perform following operations.
- Display list of all columns.
 - Display data with last three rows and first three columns [2]
- c) Draw line graph using matplotlib and decorate it by adding various elements. Use suitable data.
- d) Explain multiple inheritance in python with suitable example. [2]



Total No. of Questions : 5]

SEAT No. :

PA-2557

[Total No. of Pages : 4

[5948]-202

M.C.A. -I (Management)

IT - 22 : SOFTWARE PROJECT MANAGEMENT

(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat labeled diagrams wherever necessary.*

Q1) Multiple choice questions (MCQ)

[20×½=10]

- a) Which of the following is not an attribute of a project.
 - i) Projects are unique
 - ii) Projects are developed
 - iii) Projects have primary customer or sponsor
 - iv) Project refinements
- b) Following is (are) the responsibility (ies) of the project managers
 - i) Budgeting & cost control
 - ii) Allocating resources
 - iii) Tracking project expenditure
 - iv) All of the above
- c) Which is/are ways to deal with risk?
 - i) Mitigate
 - ii) Contingency
 - iii) Transfer
 - iv) All of the above
- d) COCOMO predicts _____
 - i) Effort
 - ii) Effort & Schedule
 - iii) Cost & Effort
 - iv) Cost & Schedule
- e) Which mode you select for the project size 450 KLOC?
 - i) Organic
 - ii) Semidetached
 - iii) Embedded
 - iv) None of them
- f) Function count is developed by _____
 - i) Bary Bohem
 - ii) Alan Albrecht
 - iii) Pressman
 - iv) None of them
- g) Which of the following is not the level of CMM?
 - i) Defined
 - ii) Analysis
 - iii) Managed
 - iv) Optimizing
- h) An Agile approach values _____
 - i) Process over people
 - ii) People over process
 - iii) Plan over process
 - iv) Plans over people

P.T.O.

- i) According to Agile manifesto_____
 - i) Individuals & interactions over people & technique
 - ii) Individuals & interactions over project & tools
 - iii) Individuals & interactions over processes & tools
 - iv) Individuals & interactions over products & tools
- j) The product backlog is ordered by_____
 - i) Small items at the top to large items at the bottom
 - ii) Safer items at the top to riskier items at the bottom
 - iii) Least Valuable items at the top to most valuable at the bottom
 - iv) Whatever is deemed most appropriate by the product owner
- k) You can define agile team as “scrum team” & “technical team”_____
 - i) True
 - ii) False
 - iii) Can not determine
 - iv) None of these
- l) In scrum, when is sprint over?
 - i) When all the sprint backlog items are completed
 - ii) When the product owner suggests
 - iii) When the time box expires
 - iv) When the final testing is completed
- m) Which of the following is considered in a story point estimate?
 - i) Only time to develop & test
 - ii) Only effort to develop & test
 - iii) Only time to develop
 - iv) Time & effort to develop
- n) _____enables team to learn from the mistakes done in the previous iteration.
 - i) Pair grooming
 - ii) Estimation during release planning
 - iii) Estimation during iteration planning
 - iv) Retrospective
- o) What is an burn down graph?
 - i) A sprint plan which is burn to celebrate successful completion of sprint
 - ii) Produce review meeting
 - iii) A graph to measure human Burnout effort due to fast pace of sprint
 - iv) The trend of work remaining across time in a sprint, a release or a product.
- p) In order to_____the scope, project managers should compare performance reports with the project requirements.
 - i) Fix
 - ii) Control
 - iii) Manage
 - iv) Settle

- q) The reason for holding regular Retrospective is_____
- i) It allows the team to take necessary break from work
 - ii) It gives management information to use in team member's performance reviews
 - iii) It allows learning which can be used to improve team performance during project
 - iv) It prevents deviation from the process which the team has been following
- r) Git is a_____
- i) Localized version control system
 - ii) Distributed version control system
 - iii) Centralized version control system
 - iv) None of the above
- s) What is the main purpose of imposing limits on work in progress?
- i) To optimize through put
 - ii) To minimize resource allocation
 - iii) To visualize lead time
 - iv) To balance workflow
- t) Tracking project issues in an Agile project is the primary responsibility of the_____
- i) Tester
 - ii) Project leader
 - iii) Functional Manager
 - iv) Developer

Q2) a) Uk based KPO company working on “License Management System”. They are using number of expensive and licenced software tools. More than 5000 team members are sharing these tools. You have been deputed as project manager to ensure that a project finishesh within original budget, with the required scope of work and within the required timescales, and to ensure that throughout this process all the stakeholders, especially the client , are satisfied with the project results. **[6]**

Prepare Risk management process based on below points

- i) Risk identification
 - ii) Risk Analaysis
 - iii) Risk mitigation
- b) Explain the benefits of Agile project management in brief. **[4]**

OR

Explain Agile reports in brief. **[4]**

- Q3) a)** Consider a project with the following functional units. [6]
- i) Number of user inputs = 15
 - ii) Number of user outputs = 12
 - iii) Number of user enquiries = 07
 - iv) Number of user files = 20
 - v) Number of external interfaces = 05
- In addition to the above, system requires significant.
- Data communication (5)
 - Performance is very critical (4)
 - Designed code may be moderately reusable (2)
- Other complexity factors are treated as Average.
Compute the functional point for the project.
- b)** What are the various agile principles? [4]
- OR
- Differentiate agile project management Vs traditional project management. [4]
- Q4) a)** Explain the roles of Scrum Master, product owner, and development team in agile. [6]
- OR
- What are the various techniques to estimate story points in agile? [6]
- b)** Write short note (any one) [4]
- i) Agile tools
 - ii) Git hub
- Q5) a)** Explain the process to plan & execute iteration in agile. [6]
- OR
- How to facilitate retrospective process in agile management with suitable example. [6]
- b)** Write short note (any one) [4]
- i) Overview of project management framework
 - ii) Capability Maturity Model.



Total No. of Questions : 5]

SEAT No. :

PA-2558

[Total No. of Pages : 4

[5948]-203

M.C.A. - I (Management)

IT - 23 : ADVANCED INTERNET TECHNOLOGIES

(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat and labeled diagram wherever necessary.*

Q1) Choose the correct option (½ mark each) [10]

- a) Choose the item below that is not semantic element for text in HTML5.
 - i) `<wbr>`
 - ii) `<time>`
 - iii) `<mark>`
 - iv) `<article>`
- b) _____ is not a HTML5 tag.
 - i) `<source>`
 - ii) `<video>`
 - iii) `<slider>`
 - iv) `<canvas>`
- c) Which of the property in CSS used to change the background color of an element is _____
 - i) `bgcolor`
 - ii) `color`
 - iii) `background-color`
 - iv) All of the above
- d) Which selector is used to selects the elements that are the default among a set of similar elements?
 - i) `:: after`
 - ii) `: disabled`
 - iii) `: default`
 - iv) `: checked`
- e) Have to start Node REPL?
 - i) `$ node start`
 - ii) `$ node`
 - iii) `$ node repl`
 - iv) `$ node console`
- f) How to get an absolute path?
 - i) `Os.resolve ('main. js')`
 - ii) `Path. resolve ('main. js')`
 - iii) `fs. resolve ('main. js')`
 - iv) None of the above
- g) Which module is required for operating system specific operations?
 - i) `OS module`
 - ii) `fs module`
 - iii) `net module`
 - iv) None of the mentioned

P.T.O.

- sh) Which command will show all the modules installed globally?
- i) \$ npm ls- g
 - ii) \$ npm ls
 - iii) \$ node ls- g
 - iv) \$ node ls
- i) REPL is for
- i) Research Eval Program Learn
 - ii) Read Eval Print Loop
 - iii) Read Earn Point Learn
 - iv) Read Eval Point Loop
- j) What is the use of angular controllers in the application?
- i) angular controller are used for controlling the data
 - ii) angular controller are used for displaying the data
 - iii) Both of the above are correct
 - iv) None of the above
- k) Which of the following is an advantages of Angulars JS?
- i) AngularJS code is unit testable
 - ii) AngularJS provides reusable components.
 - iii) AngularJS uses dependency injection and makes use of seperation of concerns.
 - iv) All of the mentioned
- l) AngularJS is a_____framework.
- i) HTML
 - ii) Java
 - iii) Javascript
 - iv) SQL
- m) On which of the architectural pattern AngularJS is based?
- i) Observer pattern
 - ii) Decorater patteren
 - iii) MVC architecture pattern
 - iv) MVVM architectural pattern
- n) Select the directive which hide or shows the HTML element.
- i) ng- list
 - ii) ng- hidi
 - iii) ng- copy
 - iv) ng- open
- o) In PHP array index starts with position_____
- i) 1
 - ii) 0
 - iii) 2
 - iv) -1
- p) _____is not a variable scope in PHP.
- i) Extern
 - ii) Local
 - iii) Static
 - iv) Global
- q) What is tue use of isset () function in PHP?
- i) It is used to check whether variable is set are not
 - ii) It is used to check whether variable is free or not
 - iii) It is used to check whether variable is string or not
 - iv) None of the mentioned

- r) Which of the following is the correct syntax to add comment in php?
- i) &-----&
 - ii) // -----
 - iii) / * ----- */
 - iv) both b & c
- s) Which of the following is the correct way of defining a variable in PHP?
- i) \$ Variable name = value;
 - ii) \$ Variable _ name = value;
 - iii) \$ Variable = name = value;
 - iv) \$ Variable name as value;
- t) Which of the following is the use of strlen() function in PHP?
- i) It returns the type of string
 - ii) It returns the length of string
 - iii) It returns the value of string
 - iv) It returns both value & type of string

Q2) a) What is Node.js module? Explain its types in brief. [5]

b) Write a program to demonstrate ngif. & ngswitch statements. [5]

OR

a) What are different services in angular? [5]

b) Write a program to read the query string using url property in Node.js. [5]

Q3) a) What is NPM? How packages installed locally and globally? [5]

b) Create angular program which will demonstrate the usage of component directive. [5]

OR

a) What are the Typescript components? [5]

b) Write a program using NPM which will convert entered string into lower case & upper case. [5]

Q4) a) Explain <audio> and <canvas> tags in HTML5 with suitable examples. [4]

b) Write a PHP script to demonstrate variables in PHP. Use Globals, local & global keyword to access variables. [4]

c) Differentiate between include & require [2]

OR

a) What are semantic elements and how it works in HTML5? [4]

b) Write a PHP script to demonstrate any 4 operators. [4]

c) What is Var- dump() function in PHP? [2]

Q5) a) What are selectors in CSS? Explain with suitable example. [4]

b) Write a PHP script to display employees belongs to IT department and salary is in between 30, 000 – 80, 000 and store found records into another table. [6]

(Assume suitable table structure)

OR

a) What is CSS framework? What are the different sorts of css framework? [4]

b) Write a PHP script & insert at least 5 records into it & update specific record in database. Assume student table with required fields in database. [6]



Total No. of Questions : 5]

SEAT No. :

PA-2559

[Total No. of Pages : 4

[5948]-204

M.C.A. - I (Management)
IT - 24 : ADVANCED DBMS
(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Write correct option or fill in the blanks of following questions (each ½ marks) **[10]**

- a) Part of entire database is shown by _____ level of abstraction.
 - i) Physical
 - ii) Conceptual
 - iii) View
 - iv) Logical
- b) Schema Definition is written by _____.
 - i) Database Administration
 - ii) Application Developer
 - iii) Storage manager
 - iv) Database manage
- c) What is the aim of NOSQL _____.
 - i) Not suitable for storing structured data
 - ii) Allow storing non-structured data
 - iii) New data format to store large datasets
 - iv) An alternative to SQL database to store textool data
- d) Normalization is a process of restructuring a relation to _____.
 - i) Minimize duplication of data in a database
 - ii) Maximize duplication of data in a database
 - iii) Make it of uniform size
 - iv) allowaddition of data
- e) Arelation is said to be 3-Nf if which of the following is/are ture _____.
 - i) No partial key dependencies
 - ii) All attributes are atomic
 - iii) No presence of transitive dependencies
 - iv) All of the mention
- f) What are the ACID properties of a transaction _____.
 - i) Atomicity, consistency, Isolation, Database
 - ii) Atomicity, consistency, Isolation, Durability
 - iii) Atomicity, consistency, Inconsistence, Durability
 - iv) Atomatically, concurrency, Isolation, Durability

P.T.O.

- g) Which of the following are the simplest NOSQL database_____
- i) Key-Value
 - ii) Wide Column
 - iii) Document
 - iv) All of the mention
- h) The initial State of a transaction is known as_____
- i) Active
 - ii) Failed
 - iii) Aborted
 - iv) Partial committed
- i) NOSQL database is used mainly for handling large volumes of_____ data
- i) Unstructured
 - ii) Structured
 - iii) Semi-structured
 - iv) All of the above
- j) Which of the following is not NO-SQL database?
- i) Cassandra
 - ii) MongoDB
 - iii) SQL server
 - iv) None of the above
- k) When has partitioning is a better choice than range partitioning_____
- i) Dont know beforehand how much data will map into a given range
 - ii) Size of range partitions would differ Quite substaintially
 - iii) Partition pruning and partition-wise joins on a partitioning attributes are important
 - iv) All of the mentioned
- l) The core principle of NOSQL is _____
- i) high availability
 - ii) low availability
 - iii) Both high & low availability
 - iv) None of above
- m) Which of the following is not parallel database arechitecture?
- i) Shared memory
 - ii) Shared processor
 - iii) Shared Disk
 - iv) Shared Nothing
- n) In which state, the transaction will wait for the final statement has been executed_____
- i) Active
 - ii) Failed
 - iii) aborted
 - iv) Partial Committed
- o) A SQL query with location transparency needs to specify
- i) Fragment
 - ii) locations
 - iii) local formates
 - iv) all of the above
- p) _____is an essential part of any backup system.
- i) Filter
 - ii) recovery
 - iii) Scalability
 - iv) Security
- q) In log based recovery, the log is sequence of_____
- i) Filter
 - ii) records
 - iii) block
 - iv) numbers

- r) _____ deals with individual transactions.
- i) Isolate transactions ii) transaction recovery
 - iii) system recovery iv) media recovery
- s) Public-key cryptography is also known as _____
- i) Asymmetric ii) Symmetric
 - iii) Both (i) & (ii) iv) None of the above
- t) A schedule in which each transaction is executed atomically is called a _____
- i) Non-serial schedule ii) Serial schedule
 - iii) parallel schedule iv) Non-parallel schedule

Q2) Case study:

Organisation made up to various department, each having a name. identifying no. and an employee who is the manager. A department may be located in different places. Information about employee includes name, identification number, birth date, address, sex, & salary. Each employee is assigned to one department, the date the manager is appointed to a department is also tracked. Employees may be directly supervised by another employee. Each project within the organization is controlled by a department employees (not necessarily from the controlling dept). are assigned to projects. Information about project includes project name, no, and location hours spent by employees on each project are also kept.

Draw the E-R diagram for the above system & explain the notations & relationship. [10]

OR

What is concurrency control? Explain all protocols in concurrency control. [10]

Q3) a) Describe the three- schema architecture. [5]

b) Compare RDBMS, OODBMS with at least 5 points. [5]

OR

a) What are the characteristics of the DBMS. Explain data independency. [5]

b) Explain the multimedia database with its architecture. [5]

Q4) a) What do you mean by log-based recovery. Explain with example. [5]

b) What is difference between Discretionary access control & mandatory access control. [5]

OR

a) What are different types of database backups & explain any one. [5]

b) Write short note on Grant & revoking privileges. [5]

Q5) a) What is Distributed database system? Explain the data Replication & Data fragmentation. [10]

OR

b) Explain Inter- Operational & Intra- operational parallelism in details. [10]



Total No. of Questions : 5]

SEAT No. :

PA-2560

[Total No. of Pages : 8

[5948]-205

M.C.A. (Management)

MT - 21 : OPTIMIZATION TECHNIQUES

(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Use of statistical table and non-programmable calculator is allowed.*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt the following multiple choice questions (0.5 marks each) [10]

- a) _____ are expressed in the form of in equities or equations.
 - i) Constraints
 - ii) Objective function
 - iii) Both (i) and (ii)
 - iv) None of the above
- b) Time required by each job and each machine is known as _____ time
 - i) Elapsed
 - ii) Idle
 - iii) Processing
 - iv) Average
- c) Another term commonly used for activity slack time is
 - i) total float
 - ii) free float
 - iii) independent float
 - iv) all of the above
- d) Which of the following criterion is not used for decision-making under uncertainty?
 - i) Maximin
 - ii) Maximax
 - iii) Minimax
 - iv) Minimize expected losses
- e) A two-person-zero-sum-game means that
 - i) the sum of losses to one player is equal to the sum of gains to other.
 - ii) the sum of losses to one player is not equal to the sum of gains to other.
 - iii) no any player gains or losses
 - iv) none of the above
- f) In markov analysis the likelihood that any system will change from one peroid to the next is revealed by the
 - i) identity matrix
 - ii) transition elasticities
 - iii) matrix of state probabilities
 - iv) matrix of transition probabilities

P.T.O.

- g) The variable whose coefficient vectors are unit vectors are called as_____
- Unit variables
 - Basic variables
 - Non-basic variables
 - None of the above
- h) Time between starting of the first job and completion of last job in sequencing problem is known as_____
- total time
 - elapsed time
 - assigned time
 - idle time
- i) If an activity has zero slack, it implies that
- it lies on the critical path
 - it is a dummy activity
 - the project is progressing well
 - none of the above
- j) Decision theory is concerned with
- Methods of arriving at an optimal decision
 - Selecting optimal decision in a sequential manner
 - Analysis of information that is available
 - All of the above
- k) The size of the pay- off matrix of a game can be reduced by using the principle of
- game inversion
 - rotation reduction
 - diominance
 - game transpose
- l) In assigning random numbers in a Monte Carlo simulation it is important to
- Develop cummulative probability distribution
 - Use random numbers from a random number table
 - Use only a single set of random numbers
 - Use excel spreadsheets
- m) The first step in formulating the LP problem is
- Graph the problem
 - Understand the managerial problem being faced
 - Identify the objective and the constraints
 - Define the decision variables
- n) If the problem is a 3- machine problem, we have to convert it into_____machine problem.
- 1
 - 2
 - m
 - none of the above
- o) The activity that can be delayed without affecting the execution of immediate succeeding activity is determined by
- total float
 - free float
 - independent float
 - none of the above

- p) The _____ can be referred to as a graphical model of a decision process.
- Expected Opportunity Loss (EOL)
 - Decision Tree
 - Expected Value of Perfect Information (EVPI)
 - Expected Monetary Value (EMV)
- q) The pay-off value for which each player in a game always selects the same strategy is called the
- saddle Point
 - equilibrium point
 - both (i) and (ii)
 - none of these
- r) Cumulative probabilities are found by
- Summing all the probabilities associated with a variable
 - Simulating the initial probability distribution
 - Summing all the previous probabilities upto the current value of the variable
 - Any method one chooses
- s) The maximization or minimization of a quantity is the
- goal of the management science
 - decision for decision analysis
 - Constraint of an LPP
 - Objective of linear programming
- t) A dummy activity is used in the network diagram when
- two parallel activities have the same tail and head events
 - the chain of activities may have a common event yet be independent by themselves
 - both (i) and (ii)
 - none of the above

Q2) a) Solve the following LPP

[6]

$$\text{Minimize } Z = 5x_1 + 3x_2$$

Subject to

$$2x_1 + 4x_2 \leq 12$$

$$2x_1 + 2x_2 = 10$$

$$5x_1 + 2x_2 \geq 10$$

$$x_1, x_2 \geq 0$$

- b) Solve the game for the given pay-off matrix [4]

		Player B		
		B_1	B_2	B_3
Player A	A_1	30	40	-80
	A_2	0	50	-20
	A_3	90	20	50

OR

- a) Solve the following LPP [6]

Maximize $Z = 3x_1 + 2x_2$

Subject to

$$x_1 + x_2 \leq 4$$

$$x_1 - x_2 \leq 2$$

$$x_1, x_2 \geq 0$$

- b) Solve the game for given pay- off matrix [4]

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	3	5	4	2
	A_2	5	6	2	4
	A_3	2	1	4	0
	A_4	3	3	5	2

- Q3) a) The following table shows the jobs of a network along with their time estimates [6]

Activity	Immediate Predecessor	Time (days)		
		Optimistic	Most Likely	Pessimistic
A	—	4	6	8
B	A	5	7	15
C	A	4	8	12
D	B	15	20	25
E	B	10	18	26
F	C	8	9	16
G	E	4	8	12
H	D, F	1	2	3
I	G, H	6	7	8

- i) Draw the network diagram.
 - ii) Find the expected duration and variance for each activity. What is the expected project length and variance of the project.
 - iii) Find the probability that the project is completed in 44 days.
- b) A retailer purchases cherries every morning at Rs. 50/- a case and sells them for Rs. 80/- a case. Any case remaining unsold at the end of the day can be disposed off next day at a salvage value of Rs. 20/- per case. Past sales have ranged from 15 to 18 cases per day.

The following is the record of the sales for the past 120 days.

Cases sold	15	16	17	18
No. of days	12	24	48	36

Find how many cases the retailer should purchase per day to maximize the profit. [6]

OR

- a) For the data given in the table below, draw the network. Crash the activities systematically to determine the optimal project duration and cost. [6]

Activity	Time (weeks)		Cost is Rs. (000)	
	Normal	Crash	Normal	Crash
1 - 2	2	1	10	15
1 - 3	8	5	15	21
2 - 4	4	3	20	24
3 - 4	1	1	7	7
3 - 5	2	1	8	15
4 - 6	5	3	10	16
5 - 6	6	2	12	36

- i) Draw the network diagram.
 - ii) Determine the critical path and the normal duration and associated cost.
 - iii) Crash the activities so that the project completion time reduces to 9 weeks with minimum additional cost.
- b) Suresh find the probability of demand distribution of luxury car 's' as follows: [6]

Probability of Demand	0.2	0.4	0.1	0.3
Demand for each car each day	1	2	3	4

The selling price of the car is Rs. 10,00,000/- and it costs to Suresh Rs.6,00,000/- Suresh has always followed a rule for initial purchase, purchase 3 cars.

Find the expected daily profit under the decision rule of buying three cars each morning. If the fees for perfect information is Rs. 1,00,000/- calculate the expected monetary value of the venture with perfect information (EVPI)

- Q4) a)** We have 5 jobs each of which must go through the machines A, B and C in the order ABC. The processing times are as follows: [6]

Job	1	2	3	4	5
Machine A	8	10	6	7	11
Machine B	5	6	2	3	4
Machine C	4	9	8	6	5

- i) Find the optimal job sequence.
- ii) Find idle time for machine A, B and C
- b) The “School of International studies for population” found out through its survey that the mobility of the population(in percent) of a state to a village, town and city is in the following percentages. [4]

		To		
		Village	Town	City
From	Village	50	30	20
	Town	10	70	20
	City	10	40	50

What will be the proportion of population in village, town and city after 2 years, given that the present population has proportion 0.7, 0.2 and 0.1 in the village, town and city respectively?

OR

- a) A company has to process five items on 3 machines A, B and C. Processing times are given in the following table. [6]

Item	A _i	B _i	C _i
1	4	4	6
2	9	5	9
3	8	3	11
4	6	2	8
5	3	6	7

- i) Find the sequence that minimizes the total elapsed time
- ii) Find the idle times for all the machines.
- b) A market research organization studied the car purchasing trends in a certain region, with a conclusion that a new car is purchased on an average once every 4 years. The buying pattern of the customers is as follows: Of the current small car owners 80% will replace the car again with a small car and 20% with a large car. Similarly 60% of the large car owners will replace it with a small car, while 40% with another large car. Assuming that the market and preferences remain the same, [4]
- i) Construct the transition matrix.
- ii) If there are currently 40,000 small cars and 20,000 large cars in the region, what will be the distribution in 8 years from now

- Q5) a) Over 100 days period, the daily demand of a certain commodity shows the following frequency distribution pattern. [4]

Daily Demand	0	1	2	3	4	5
No. of days	10	20	40	20	6	4

Simulate the demand for 10 days using the random numbers

67, 84, 01, 77, 90, 14, 15, 74, 44, 77

Also find the average demand.

- b) Explain the following terms [4]
- i) Unbounded solution
- ii) Pessimistic Time

OR

- a) A bakery keeps stock of a popular brand of cake. Previous experience shows the daily demand pattern for the item with associated probabilities as given below:

Daily Demand	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Use the following random numbers to simulate the demand for next 10 days.

25, 39, 65, 76, 12, 05, 73, 89, 19, 49

Also estimate the daily average demand for the cakes on the basis of the simulated data. [4]

- b) Explain the following terms. [4]
- i) In feasible solution
 - ii) Float of an activity



Total No. of Questions : 5]

SEAT No. :

PA-2561

[Total No. of Pages : 4

[5948]-301

M.C.A.- II

IT - 31 : MOBILE APPLICATION DEVELOPMENT

(2020 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat labeled diagram wherever necessary.*

Q1) Multiple choice questions.

[20×½=10]

For each of the following multiple choice question, choose the correct answer.

- a) Andriod is based on which kernel
 - i) Linux
 - ii) Windows
 - iii) Mac
 - iv) Redhat
- b) What is manifest xml in android
 - i) It has all information about layout in an application
 - ii) It has all information about an application
 - iii) It has all information about activities in an application
 - iv) It has information about java clases in an application
- c) Adb stands for _____
 - i) Android Debug Bridge
 - ii) Android Driver Bridge
 - iii) Android Delete Bridge
 - iv) Android Destroy Bridge
- d) Flutter was developed by
 - i) Oracle
 - ii) Facebook
 - iii) Google
 - iv) IBM
- e) _____set the gravity of the view or layout in its parent?
 - i) android: gravity
 - ii) android: layout- gravity
 - iii) android: weight
 - iv) android: orientation
- f) _____converb java byte code into Dalvik bytecode
 - i) Mobile Interpretive compare
 - ii) Dex compiler
 - iii) Dalvik converter
 - iv) None of the above
- g) SQLite is a _____
 - i) NoSQL database
 - ii) Distributed database
 - iii) Relational database
 - iv) Operational database
- h) React Native Alert API accepts two methods as
 - i) get (), post ()
 - ii) alert (), prompt ()
 - iii) get (), alert ()
 - iv) post (), prompt ()

P.T.O.

- i) The extras can be set and read using the_____
- SetExtras () and getExtras () method
 - PutsExtras () and getsExtras () method
 - SetsExtras () and getsExtras () method
 - PutExtras () and getExtras () method
- j) Firebase is a backend platform for building_____
- web application
 - IOs application
 - Android application
 - All the above
- k) Which of the following Android view sub-classes uses the webkit rendering engine to display a web pages?
- Pageview
 - WebView
 - MapView
 - HttpClient
- l) Which of the following command is used to create a react app?
- Install-g create-react-app
 - npm install create-react-app
 - npx create-react-app reactapp
 - None of the above
- m) JSON stands for_____
- Java standard output Network
 - Javascript object Notation
 - Javascript output Name
 - Java source Open Network
- n) What method you should overried to use Android menu system?
- Oncreate option menu()
 - Oncreate Menu()
 - On menu Created ()
 - On Create Context menu ()
- o) Which of the following are part of Android Architecture
- Applications
 - Linux kernel
 - Android Application Framework
 - All the above
- p) _____means it will occupy the complete space available on the display of the device.
- wrap-content
 - match-content
 - match-parent
 - wrap-parent
- q) Which of the following is an application development environment for IOS?
- Cocoa
 - Cocoa touch
 - Cocoa IOs
 - Cocoa begin

- r) An android_____is an abstract description of an operation to be performed. It can be used with Start Activity to launch Activity.
- i) Filters
 - ii) Intent
 - iii) Service
 - iv) Broadcast Receiver
- s) Which of the following is a dialog class in android
- i) AlertDialog
 - ii) DatePickerDialog
 - iii) ProgressDialog
 - iv) All the above
- t) The method that is called to cleanup any resources used by services is_____
- i) Stopself ()
 - ii) Onstop ()
 - iii) OnDestroy ()
 - iv) Stopservice ()

Q2) a) What is Fragment? Explain Fragment Life cycle. [6]

OR

b) What is Layout? Explain various Layout with suitable example [6]

Q3) a) Explain Android project folder structure. [6]

b) Explain Android Architecture with suitable diagram [6]

OR

a) What are Adapter? Explain ArrayAdapter with suitable example [6]

b) Write a short note on Dalvik Virtual Machine. [6]

Q4) a) What is Curson? Demonstrate a SQLite database application to insert a record in table. [6]

b) What is Android XML paring explain with example [6]

OR

a) Demonstrate a webview to display the web page in an android application. [6]

b) Write a short note on firebase database. [6]

- Q5) a) Explain React Native Geolocation API [6]**
- b) Design an android application for login activity. Write an android code to check login credentials with user name = “SPPU” & password = “Exam” Display appropriate message to the user [4]**

OR

- a) Write a steps to build simple Flutler application [6]**
- b) Short note on Activity Life Cycle. [4]**



Total No. of Questions : 5]

SEAT No. :

PA-2562

[Total No. of Pages : 6

[5948]-302

M.C.A. (Management)

IT - 32 : DATA WAREHOUSING AND DATA MINING

(2020 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Draw neat & labelled diagrams wherever necessary.

Q1) Answer the following multiple- choice questions.

[20×½=10]

- a) The functions, transfer of data from source to destination, recommending rules for extraction are performed by
 - i) ETL Tools
 - ii) Database tools
 - iii) Mining Tools
 - iv) All of the mentioned
- b) Text mining tasks involves _____
 - i) Text Categorization
 - ii) Text clustering
 - iii) DFD
 - iv) Both (i) and (ii)
- c) Web page contents used for mining of data are collected from _____
 - i) Log files
 - ii) Web page contents
 - iii) Images
 - iv) Audio
- d) Google PR checker, Lin viewer are tools for _____
 - i) Text mining
 - ii) Web content mining
 - iii) Web structure mining
 - iv) Web usage mining
- e) K in the K-means Algorithm stands for _____
 - i) Data set
 - ii) Number of clusters
 - iii) Error function
 - iv) Knowledge
- f) Agglomerative clustering falls under which type of clustering method?
 - i) Partition method
 - ii) Hierarchical method
 - iii) Both (i) and (ii)
 - iv) Nither (i) and (ii)
- g) In Bayes is Theorem Class conditional probability is called as _____
 - i) Evidence
 - ii) Likelihood
 - iii) Prior
 - iv) Posterior

P.T.O.

- h) K-means squared error function is related with which of the following?
- i) Manhattan distance ii) Hamming distance
 - iii) Euclidean distance iv) Minkowski distance
- i) _____ collects all the information and the subjects about an entire organization.
- i) Data Mart ii) Virtual warehouse
 - iii) Data warehouse view iv) enterprise warehouse
- j) A star schema has which types of relationship between dimensional and fact tables?
- i) Many to many ii) One to one
 - iii) One to many iv) All of the mentioned
- k) _____ maps the core warehouse metadata to business concepts, familiar and is useful to end users.
- i) Application level metadata ii) User level metadata
 - iii) End user level metadata iv) Core level metadata
- l) Which of the following is not a component of a data warehouse?
- i) Metadata ii) Current detailed data
 - iii) Lightly summarized data iv) Component key
- m) Which is NOT a basic conceptual schema in Data warehouses?
- i) Star schema ii) Tree schema
 - iii) Snowflake Schema iv) Fact constellation schema
- n) The Extract process is _____
- i) Capturing all of the data contained in various operational system
 - ii) Capturing sub set of the data contained in various operational system
 - iii) Capturing all of the data contained in various decision support systems
 - iv) Capturing of sub set of the data contained in various decision support systems.

- Q3)** a) What are Discretization and concept Hierarchy generation process? Give an example for each. [5]
- b) Explain the tools used for data warehouse development. [5]

OR

- a) Explain the different data sources for data warehouse and methods of data collection. [5]
- b) Explain the different steps of creating on OLAP, with examples. [5]

- Q4)** a) Consider the data set given below, compute the support for item sets {e}, {b, d} and {b, d, e} [5]

customer ID	Transaction ID	Items Brought
1	0001	{a, d, e}
1		
1	0024	{a, b, c, e}
2	0012	{a, b, d, e}
2	0031	{a, c, d, e}
3	0015	{b, c, e}
3	0022	{b, d, e}
4	0029	{c, d}
4	0040	{a, b, c}
5	0033	{a, d, e}
5	0038	{a, b, e}

- b) Using the result from problem a, above, compute the confidence for the association rules {b, d}→{e} and {e} → {b, d} [5]

OR

- a) A consultancy wants to categorize MCA students into classes as Excellent, Good, and Average. The data collected from students are their average percentage in MCA- I year and result of the aptitude test conducted by the consultancy.

Solve the problem using decision tree Algorithm.

[5]

- b) Using Bayes an classification to classify the sample data: {6, 43}. As male or female. Training data is given. [5]

Person	Height	Weight
Male	6.2	82
Male	5.11	65
Male	5.7	58
Male	5.11	55
Female	4.10	42
Female	5.5	50
Female	5.0	43
Female	5.75	50

- Q5) a) Construct a FP-Tree Algorithm, to find frequency patterns for the given data. [5]

Transaction ID	Item Bought
100	{f, a, c, d, g, i, m, p}
200	{a, b, c, f, l, m, o}
300	{b, f, h, j, o}
400	{b, c, k, s, p}
500	{a, f, c, e, l, p, m, n}

- b) Explain Hierarchical clustering using examples.

[5]

OR

- a) Perform K. means clustering and show all the calculations at each iteration, to form the final cluster. Assume the initial clusters are A, E and H. [5]

Points	X1	X2
A	3	3
B	8	5
C	4	4
D	2	4
E	7	7
F	5	8
G	3	5
H	4	8
I	6	9
J	9	6

- b) What are agent based and database based approaches in web mining? Explain with example. [5]



Total No. of Questions : 7]

SEAT No. :

PA-2563

[Total No. of Pages : 1

[5948]-303

M.C.A.

IT - 33 : SOFTWARE TESTING AND QUALITY ASSURANCE

(2020 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *Q.1 and Q.7 are compulsory.*
- 2) *Solve any four questions from Q.2 to Q.6.*

- Q1)** a) Write a detailed test plan for university result declaration system, which provides the facility to view students result (Sem/year) wise, system should have facility to apply for rechecking/re-evaluation with payment. Your plan should include the desired test document. [8]
b) Design suitable test cases for above application. [4]
- Q2)** Explain building blocks of SQA and SQA activities. [8]
- Q3)** An OTP number which contains only six digits, less or more than six digits will not accepted and the application will redirect the user to the error page. Using Equivalence partitioning write valid and invalid test cases. [8]
- Q4)** Explain different types of computer Aided software Testing Tools (CAST). What are the benefits in using testing tools. [8]
- Q5)** What are the levels of Testing? Explain in detail. [8]
- Q6)** Explain in detail different types of reviews. [8]
- Q7)** Write short notes (any two) [6]
a) Difference between QA and QC
b) Selenium
c) Project Risk
d) Product Risk



Total No. of Questions : 5]

SEAT No. :

PA-2564

[Total No. of Pages : 4

[5948]-304

M.C.A. (Management Faculty)

**IT - 34 : KNOWLEDGE REPRESENTATION & ARTIFICIAL
INTELLIGENCE : ML, DL
(2020 Pattern) (Semester - III)**

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) For MCQ select appropriate choice from options given.
- 3) From Q2 to Q5 having internal choice.
- 4) Figure to right indicate full marks

Q1) MCQ.

[20×½=10]

- a) The wumpus world is a cave with _____
 - i) 8
 - ii) 16
 - iii) 4
 - iv) 12
- b) Which of the following is not a limitation of AI?
 - i) High cost
 - ii) Lacking creativity
 - iii) High Accuracy
 - iv) Un employment
- c) In wumpus world the knowledge based agent start from location
 - i) Room [1, 1]
 - ii) Room [2, 2]
 - iii) Room [1, 2]
 - iv) Room [4, 4]
- d) The symbolization for a conjunction is
 - i) $p \rightarrow q$
 - ii) $p \wedge q$
 - iii) $p \vee q$
 - iv) $\sim p$
- e) What will be backward chaining algorithm return?
 - i) additional statements
 - ii) substitutes matching the query
 - iii) logical statement
 - iv) final goals
- f) Inference algorithm is complete, only if it
 - i) can drive any sentence
 - ii) can drive any sentence that is an entailed version
 - iii) is truth pre serving
 - iv) it can derive any sentence that is an entailed version and it is truth prevesing

P.T.O.

- g) Which distance metric(s) are suitable for categorical variables to find the closest neighbors
- i) Euclidean Distance
 - ii) Manhattan Distance
 - iii) Minkowski Distance
 - iv) Hamming Distance
- h) Logistic Regression is a _____ Regression technique that is used to model data having a _____ out come
- i) Linear, Numeric
 - ii) Linear, Binary
 - iii) Non linear, Numeric
 - iv) Non linear Binary
- i) Naive Bayes classifiers are a collection _____ of algorithms.
- i) Classification
 - ii) Clustering
 - iii) Regression
 - iv) All
- j) Selecting data so as to assure that each class is properly represented in both the training and test data
- i) cross-validation
 - ii) stratification
 - iii) verification
 - iv) boot strapping
- k) The most common Neural Network consist of _____ network layers
- i) 1
 - ii) 2
 - iii) 3
 - iv) 4
- l) If there is only a discrete numbers of possible out comes (called categories) the process become a
- i) Regression
 - ii) Classification
 - iii) Model Tree
 - iv) Categories
- m) RNN stands for
- i) Recurrent Neural Network
 - ii) Recpu Neural Network
 - iii) Regenerate Neural Network
 - iv) Reverse Neural Network
- n) Weight sharing occurs in which neural network architecture?
- i) CNN
 - ii) RNN
 - iii) CNN & RNN
 - iv) Fully connect Neural Network
- o) ANN stands for
- i) Artificial Neural Network
 - ii) Advanced Neural Network
 - iii) Arithmatic Neural Network
 - iv) Artificial Neural Node

- p) ANN used for
- i) Pattern Recognition
 - ii) Classification
 - iii) Clustering
 - iv) All
- q) GAN stands for
- i) Generative Advert Networks
 - ii) Generative Adversarial Networks
 - iii) General Advert Networks
 - iv) General Adversarial Networks
- r) ReLU stand for
- i) Rectified Linear Unit Function
 - ii) Rectified Linear Unit Formula
 - iii) Rectified Loss Unit Function
 - iv) Reverse Linear Unit Function
- s) What are the devices that sense the physical environments
- i) Control Unit
 - ii) Sensors
 - iii) CPU
 - iv) Firmware
- t) Chat bot is based on which AI Technique
- i) Big data
 - ii) Variance
 - iii) Dispersion
 - iv) Bias

Q2) a) Why do we need Artificial Intelligence. [4]

b) Write a FOL of following statement [6]

- i) Mary Loves everyone
- ii) No one talks
- iii) Everyone Loves Everyone
- iv) Everyone Loves Everyone except himself
- v) Some one loves everyone
- vi) Some walks and someone talks.

OR

a) Explain properties of good knowledge Based system. [4]

b) Show that “If I look into the sky and I am alert then, I will see a dim star or if I am not alert then I will not see a dim star” is valid. [6]

- Q3)** a) Differentiate between supervised and unsupervised learning. [4]
b) The values of independent variable x and dependent variable y are given

x	0	1	2	3	4
y	2	3	5	4	6

Find the least square regression line $y = ax + b$. estimate the value of y when x is given 10. [6]

OR

- a) State the mathematical formulation of SVM. [5]
b) How SVM can be used for classification of Linearly separable data? [5]

- Q4)** a) Explain the use of Long Short Term Memory (LSTM). [5]
b) Why do we use pooling layers in CNN. [5]

OR

- a) Explain uses and application of Deep learning. [4]
b) Why we need Back propagation? Explain Back propagation algorithm. [6]

- Q5)** Write a short notes [10]

- a) Application of AI
b) LSTM
c) NLP
d) Data Center
e) Training data and Testing data

OR

- a) List out type of AI
b) Advantage of Logistic Regression
c) Building Block of DL
d) CPU
e) Chat bot



Total No. of Questions : 5]

SEAT No. :

PA-2565

[Total No. of Pages : 4

[5948]-305

**M.C.A. (Management Faculty)
IT - 35 : CLOUD COMPUTING
(2020 Pattern) (Semester - III)**

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicates full marks.*

Q1) Attempt all MCQs.

[10]

- a) Which of the following is not a type of cloud server?
 - i) Public cloud servers
 - ii) Private cloud servers
 - iii) Dedicated cloud servers
 - iv) Merged cloud servers
- b) What type of computing technology refers to services and applications that typically run on a distributed network through virtualized resources?
 - i) Distributed computing
 - ii) Cloud computing
 - iii) Soft computing
 - iv) Parallel computing
- c) Cloud computing is a kind of abstraction which is based on the notion of combining physical resources and represents them as _____ resources to users.
 - i) Real
 - ii) Cloud
 - iii) Virtual
 - iv) None of the mentioned
- d) Which one of the following cloud concepts is related to sharing and pooling the resources?
 - i) Polymorphism
 - ii) Virtualization
 - iii) Abstraction
 - iv) None of the Mentioned
- e) Which of the following is an essential concept related to cloud?
 - i) Reliability
 - ii) Abstraction
 - iii) Productivity
 - iv) All of the mentioned

P.T.O.

- f) The technology used to distribute service requests to resources is referred to as _____
- i) load performing
 - ii) load scheduling
 - iii) load balancing
 - iv) all of the mentioned
- g) Which one of the following options can be considered as the cloud?
- i) Hadoop
 - ii) Intranet
 - iii) Web Applications
 - iv) All of the mentioned
- h) Which of the following describes a message-passing taxonomy for a component-based architecture that provides services to client upon demand?
- i) SOA
 - ii) EBS
 - iii) GEC
 - iv) All of the mentioned
- i) Which of the following is repeatable task within a business process?
- i) Service
 - ii) Bus
 - iii) Methods
 - iv) Process
- j) What is cloud computing replacing?
- i) Corporate data centers
 - ii) Expensive personal computer hardware
 - iii) Expensive software upgrades
 - iv) All of the above
- k) In this type of cloud, an organization rents cloud services from cloud providers no-demand basis?
- i) Private
 - ii) Public
 - iii) Protected
 - iv) Hybrid
- l) Which of these is not a major type of cloud computing usage?
- i) Hardware as a service
 - ii) Platform as a service
 - iii) Software as a service
 - iv) Infrastructure as a service
- m) Cloud services have a _____ relationship with their customers.
- i) Many-to-many
 - ii) One-to-many
 - iii) One-to-One
 - iv) One-to-All
- n) Which of the following factors might offset the cost of offline access in hybrid application?
- i) Scalability
 - ii) Costs
 - iii) Ubiquitous access
 - iv) All of the mentioned

- o) What are Microsoft Hiper-V predecessor called?
 - i) System center virtual machine manager
 - ii) Window server 2008
 - iii) Virtual server 2005
 - iv) Hyper - V
- p) APIs and Deployment are second level application attributes in accordance with:
 - i) Application
 - ii) Costs
 - iii) Maintenance
 - iv) User interface
- q) which of the following is a common means for losing encrypted data?
 - i) lose of keys
 - ii) lose the encryption standard
 - iii) lose the account
 - iv) None of these
- r) Which of the following model allows vendor to provide security as part of the Service Level Agreement?
 - i) SaaS
 - ii) PaaS
 - iii) IaaS
 - iv) None of these
- s) Who provide GUI (Graphical User Interface) to interact with the cloud?
 - i) Client
 - ii) Application
 - iii) Server
 - iv) Client Infrastructure
- t) Which of the following characteristics should you consider when deciding whether to deploy on application or service to a virtual machine?
 - i) Hardware Requirement
 - ii) Software support and compatibility
 - iii) Licensing
 - iv) All of the above

Q2) What is cloud computing and write down the characteristics of cloud computing. [10]

OR

Explain the advantages and disadvantages of cloud computing in details. [10]

- Q3)** a) What is VM wate? Explain the benifits of virtualization [5]
b) Explain cloud Governance. [5]

OR

- a) Explain SOAP Service. [5]
b) Explain virtual machine [5]

- Q4)** a) What is parallel processing. [5]
b) What is cloud bursting. [5]

OR

- a) Explain Applications in the cloud. [5]
b) What is parallel programming. [5]

- Q5)** Explain cloud computing security challenges. [10]

OR

How can we execute privacy and security incloud? [10]



Total No. of Questions : 5]

SEAT No. :

PA-2566

[Total No. of Pages : 4

[5948]-401
S.Y.M.C.A.
COMPUTER MANAGEMENT
IT - 41 : DEVOPS
(2020 Pattern) (Semester - IV)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicates full marks.*

Q1) Multiple choice questions.

[20×½=10]

- a) DevOps culture is about _____ between Dev and Ops.
 - i) Collaboration
 - ii) Speed
 - iii) Stability
 - iv) Combination
- b) What is the core of the Linux operating system?
 - i) Terminal
 - ii) Kernel
 - iii) Command
 - iv) Shell
- c) In GIT, _____ is equivalent to fetch and merge.
 - i) Pull
 - ii) Synchronize
 - iii) Push
 - iv) fetch
- d) After you add a file in GIT, it becomes _____.
 - i) committed
 - ii) unavailable
 - iii) staged
 - iv) modified
- e) If you want to change the currently active branch, which of the following command will you use?
 - i) git checkout
 - ii) git clone
 - iii) git add
 - iv) git commit
- f) Which of the following is a powerful automation platform that provides away to transform infrastructure into code?
 - i) Consul
 - ii) Chef
 - iii) Docker
 - iv) Gerrit

P.T.O.

- g) _____ are sometimes referred as clients, as they are machines, that runs the chef-client software.
- i) Server
 - ii) Workstation
 - iii) Nodes
 - iv) Client
- h) A _____ is a collection of Resources that describes a particular configuration or policy.
- i) Resource
 - ii) Cookbook
 - iii) Action
 - iv) Recipe
- i) Which command will you use to upload a cookbook to chef server?
- i) Chef cookbook upload
 - ii) Knife cookbook chef
 - iii) Knife cookbook upload
 - iv) Knife cookbook
- j) The _____ provides certificates that enable you to securely communicate with the chef server.
- i) End kit
 - ii) Med kit
 - iii) Starter kit
 - iv) Cookbook
- k) Which of the following is not a type of maven Repository?
- i) Local
 - ii) Remote
 - iii) Central
 - iv) Dependancy
- l) In Maven, POM stand for _____
- i) Project object method
 - ii) Process object model
 - iii) Project object model
 - iv) procedural object module
- m) Which command can tell the version of maven?
- i) mvn version
 - ii) mvn--version
 - iii) maven -- version
 - iv) maven-version
- n) Maven plugins are generally used to create _____
- i) jar file, ear file, war file
 - ii) zip file, jar file, ear file
 - iii) exe file, zip file, war file
 - iv) class file, jar file, ear file
- o) Which of following statements is true about the architecture of Docker?
- i) The architecture is client-server
 - ii) Docker containers are run as root.
 - iii) The daemon must be run as root
 - iv) All mentioned

- p) What is the purpose of an image in Docker?
- i) To provide a traditional process for an application.
 - ii) To provide the network configuration for an application's network stack.
 - iii) To provide the filesystem for an application.
 - iv) To provide an isolate process for an application.
- q) Which of the following correctly describes a Docker container?
- i) A text file describing the dependencies of an application
 - ii) An online registry of Docker images.
 - iii) An instance of an application created from a Docker image.
 - iv) A package consisting of an application and all its dependencies.
- r) The docker client talks to the _____ which does the heavy lifting of building running and distributing your docker containers.
- i) Docker daemon
 - ii) Docker server
 - iii) Docker Desktop
 - iv) Docker registry
- s) A Docker registry is a place to store and distribute Docker _____
- i) Files
 - ii) Images
 - iii) Codes
 - iv) Containers
- t) Which of the following Network interface gets created when you install Docker runtime on a Docker host?
- i) Docker 1
 - ii) Docker 0
 - iii) eth 0
 - iv) eth 1

- Q2)** a) What is DevOps? [5]
- b) What are some technical and business benefits of DevOps work culture? [5]

OR

- a) What is a data bag in chef ? [5]
- b) Explain how to create and manage data bags? [5]

Q3) How do you configure a Git repository to run code sanity checking tools right before making commits and preventing them if test fails? [10]

OR

Write and explain different phases of maven build life cycle. [10]

Q4) a) Explain in detail, Node in Chef. [5]

b) Explain the use of following GIT commands-
git add, git branch, git pull, git push, git clean [5]

OR

a) Explain Docker architecture in detail with diagram. [5]

b) How to setup chef workstation? [5]

Q5) a) What are maven dependencies? [5]

b) Why Linux OS is more important to use in DevOps? [5]

OR

a) What are the fundamental differences between DevOps and Agile? [5]

b) Explain what is a distributed VCS? [5]



Total No. of Questions : 5]

SEAT No. :

PA-2567

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[5948]-402

M.C.A. - II

**BM - 41 : PRINCIPAL AND PRACTICES OF MANAGEMENT
AND ORGANIZATIONAL BEHAVIOUR
(2020 Pattern) (Semester - IV)**

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) All question carries equal marks.

Q1) Select correct choice.

[20×½=10]

- a) One of the external environment factors that influences management is
 - i) Socio-cultural
 - ii) Technical
 - iii) Legal
 - iv) Political
- b) _____ is known as 'the father of scientific management'
 - i) Fredrick W. Taylor
 - ii) Henry Fayol
 - iii) Robert Owen
 - iv) Ken Peterson
- c) Non-programmed decisions are most likely to be made by _____
 - i) Middle management
 - ii) Lower management
 - iii) Top management
 - iv) Supervisory management
- d) A technique to bring changes in the entire organization rather than focusing attention on individuals to bring changes easily.
 - i) organizational development
 - ii) organizational change
 - iii) organizational culture
 - iv) organizational conflicts
- e) Which theory assumes that, people are naturally lazy and will avoid work and responsibility, if possible
 - i) Theory X
 - ii) Theory Y
 - iii) Theory Z
 - iv) Henry Fayol
- f) Which of the following OB topic is not central to managing employees fear about terrorism?
 - i) Emotion
 - ii) Motivation
 - iii) Communication
 - iv) Work design

P.T.O.

- g) Which is also known as non-reinforcement
- i) Punishment
 - ii) Negative reinforcement
 - iii) Extinction
 - iv) Forgiveness
- h) The extent to which individuals consistently regard themselves as capable, worthy, successful etc. is _____
- i) Self esteem
 - ii) Authoritarianism
 - iii) Tolerance for ambiguity
 - iv) Workhollism
- i) _____ is once view of reality
- i) Attitude
 - ii) Perception
 - iii) Outlook
 - iv) Personality
- j) Individual - level independent variable include all of the following except _____
- i) Leadership
 - ii) Learning
 - iii) Perception
 - iv) Motivation
- k) The extent to which individual believes in importance of power, status difference in organization
- i) Self esteem
 - ii) Authoritarianism
 - iii) Tolerance for ambiguity
 - iv) Workhollism
- l) _____ theory believes that employees dislike work
- i) X theory
 - ii) Y theory
 - iii) Z theory
 - iv) Maslow theory
- m) The group formed by an organization to accomplish narrow range of purposes within a specified time
- i) Formal group
 - ii) Task group
 - iii) Interest group
 - iv) Functional group
- n) _____ is an attitude reflects the extent to which an individual is gratified or fulfilled by his work
- i) Motivation
 - ii) Job satisfaction
 - iii) Cantribution
 - iv) Cognitive dissonance
- o) The elements that make up personality are called
- i) factors
 - ii) phonemes
 - iii) traits
 - iv) threats

- p) _____ is largely childish, irrational, never satisfied, demanding and destructive of others
- i) Ego
 - ii) Negative Ego
 - iii) Super ego
 - iv) Id
- q) A decision made before the occurrences of an external or internal change called a decision.
- i) Reactive
 - ii) Proactive
 - iii) Intuitive
 - iv) Systematic
- r) What does situational theory of leadership emphasize?
- i) Personality traits
 - ii) Events
 - iii) Environment
 - iv) Political situation
- s) One of the stages of conflict process is
- i) Intentions
 - ii) Technology
 - iii) Art
 - iv) Team
- t) It is the set of forces that energize, direct and sustain behaviour
- i) Motivation
 - ii) Expectation
 - iii) Organization
 - iv) Stress

Q2) a) Explain the nature and characteristics of management. [5]

b) Discuss scientific management by Taylor's view. [5]

OR

a) Explain different functions of management. [5]

b) Discuss system approach with reference to management and organization. [5]

Q3) a) What is decision? Discuss different types of decision. [5]

b) What is corporate culture? Why it is important? [5]

OR

a) Explain decision making process with suitable example. [5]

b) What is organization? Explain any two types of organizational structure. [5]

- Q4)** a) What is Theory X and Theory Y? And how it is important. [5]
b) Explain different types of team in organization. [5]

OR

- a) Elaborate five different styles of leadership with example. [5]
b) As a project manager, you have been asked to create team suitable for your project. List and explain different stages of team development that will help you to built good team. [5]

- Q5)** a) Explain various strategies to overcome stress. [5]
b) Explain Johari window and its importance with example. [5]

OR

- a) What is conflict? Explain different types of conflicts. [5]
b) Explain different states of ego with suitable example of a normal person.[5]

