Program : Master of Computer Application	Sem –III
Course : Natural Language Processing	Marks : 60
Course Code : 20PMC308E	Time: 3 hrs

Instructions to the students

1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Marks

Q.1. Solve all questions.

A) Select correct option.(6-marks)

1. _____ don't alter word the meaning or word class of a word.
   A. Derivational morphemes   B.Word classes   C. Inflectional morphemes D. All of the above

2 Dialogue systems and summarization are the examples of NLP applications with _____ is used.
   A. Shallow Parsing   B.Recursive decendent parsing   C. All parsing D. Deep Parsing

3. ____ helps to easily identify the key elements in a text, like names of people, places,brands.
   A. Parsing   B.Chunking   C. FST   D. NER

4. _____ is used as linguistic resources in Natural Language Processing.
   A. Sampling   B.Corpus   C. Population   D. Non of above

5. POS tagging has been developed using the statistical implementations,_____ and sometimes both.
   A. Linguistic rules   B. Parsing rules   C. Both A and B D. None

6. Attempt to find a sequence of word continues until the whole sentence is reduced is the feature of ____ parser.
   A. recursive descent   B. Shift reduce   C. Dependency D. All method

B) Write short notes on (6-Marks)

1. Difference between Statistical/ML-based NLP2. Parameters to improve the accuracy of technique   3. relevance of parsing in NLP

Q.2 Solve any two
   a) Explain the process of Information retrieval (IR)?   (6)
   b) State and explain the various components involved in information retrieval   (6)
   c) Explain Query translation with diagram.   (6)

Q3. Solve any two.
   a) What are the Phases of NLP? Explain each in brief.   (5)
   b) State and explain Elements of Corpus Design.   (5)
   c) What are the types and applications of Treebank corpus?   (5)

Q4. Solve any two.
   a) What is CLIR? Explain document translation of CLIR with suitable diagram..   (6)
   b) Explain the HMM and state its applications.   (6)
   c) Write short notes on ML basic Algorithms and Text entailment   (6)

Q5. Solve any Two
   a) Differentiate between   (6)
      1. Derivational and Inflectional morphems,
      2. Deep Vs Shallow Parsing.
   b) What are the parameters to improve the accuracy of NLP techniques?   (6)
   c) Explain the relation between Finite Automata , Regular Grammars and Regular Expressions   (6)

**** END ****

MGM University
Aurangabad-431003
End Term Exam A.Y. 2021-22

Program	: Master of Computer Application	Sem –II
Course	: Machine Learning	Marks : 60
Course Code	: 20PMC204E	Time-3 hrs

Instructions to the students

1. Each Question carry 12 marks.
2. Solve all questions.
3. Draw fig. wherever required

Q1. Solve Any two.(6 marks each)

1. ML uses data to detect _____ in given set.
   a. Class   b. Pattern   c. Forecast
2. Spam filtering is an example of _____ learning
   a. Supervised   b. Unsupervised   c. Semi- Supervised
3. In Feed Forward ANN, information flow is _____.
   a. Unidirectional   b. Bidirectional   c.Multidirectional
4. _____ is an Applications of Neural Networks.
   a. Aerospace   b. Automotive   c. A & B both
5. In Genetic Algo._____is the value given to a gene in a specific chromosome.
   a. Reward   b. Policy   c. Function
6. What is back propagation?
   a.Genralisation   b. Under fitting   c. Over fitting
7. A decision tool that uses a tree-like graph or model of decisions and their possible consequences is _____
   a. decision tree   b. tree   c. Graph
8. In RL _____ signal indicates what is good in the short run while the _____ function indicates what is good in the long run
   a. Reward-value   b. Agent, Environment   c. Policy, Agent

Q2. Solve any two (6 marks each)

a). State and explain ANN types and applications   (6)
b) State any three K-Armed Bandit Action Selection Strategies.   (6)
c) What is Ensemble learning? Explain bagging and boosting.   (6)

Q3. Solve any two. (6 marks each)

a) State and explain techniques for Attribute selection measures (ASM).   (6)
b) Write short note on   (6)
   1. Hypothesis   2. Information Gain   3. Regression
c) Explain the element of reinforcement learning. Describe each element.   (6)

Q4. Solve any two. (6 marks each)

a) Explain Upper Confidence Bounds   (6)
b) What are the different types of Machine Learning? Explain each briefly.   (6)
c) Explain Genetic algorithm with suitable diagram   (6)

Q5. Solve any two (6 marks each)

a) Explain model based learning and temporal difference learning.   (6)
b) What are the dimensions of supervised Machine Learning Algorithm?

Program : Master of Computer Applications	Sem –II
Course: Basic Cloud Computing Essentials	Marks: 60
Course Code: 20PMC206E	Duration: 3Hrs

Instructions to the students
1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary

	Marks

Q1. Solve any two

a) Explain three services mainly used in cloud computing area. (6)

b) Why on premises systems are not best options for companies? (6)
c) What are deployment models in cloud computing? How does these models work? (6)

Q2. Solve any two

a) What is Operating system virtualization? How does it work? (6)
b) What is Application virtualization? What are benefits of Application virtualization? (6)

c) Differentiate between Full virtualization and Para virtualization.. (6)

Q3. Solve any two

a) What is virtualization security management? Explain security virtualization. (6)

b) What are various cloud security challenges? (6)

c) Write short note on cloud computing and identity. (6)

Q4. Solve any two

a) What are different storage services in AWS? Explain any one. (6)

b) Why Amazon EC2 has become very popular in the world of cloud? (6)

c) Explain networking services provided by AWS. (6)

Q5. Attempt all questions

a) What are types of vulnerability assessment? (6)
b) Attempt all questions (6)
   1) It has the ability to run multiple virtual networks with each has a separate control and data plan.
      i)   Application Virtualization   ii) Desktop Virtualization
      iii) Storage Virtualization   iv) Network Virtualization

2) Hypervisors runs on
   i) Guest machine   ii) Host machine   iii) Both   iv) None of the mentioned

3) The need for load balancing in cloud computing is
   i)   Ability to handle sudden traffic spikes   ii) Increased scalability
   iii) Both i and ii   iv) None of the above

4) In Full virtualization, OS runs on Type---- hypervisor
   i)   Type1   ii) Type2   iii) Type3   iv) Type4

5) A _____ image makes a copy of the entire computer system inside a single container such as a file.
   i)   Software   ii) System   iii) Hardware   iv) All of the mentioned

6) Which is not a benefit of hardware virtualization?
   i)   Scalability   ii) Efficient backup and recovery
   iii) File and Application Replication   iv) Efficient its operations

Program : MCA

Course : **Advanced Computer Networks**

Marks : 60

Course Code : 20PMC105D

Sem –I

Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Marks

Q1. Attempt all Questions.

a) What are the Criteria for good network? (3)

b) What are the causes of Transmission Impairments? (3)

c) Find the minimum Hamming distance of the coding scheme (3)
d(00000,01011), d(00000,10101), d(00000,11110), d(01011,10101), d(01011,11110), d(10101,11110)

d) Find the error, if any, in the following IPv4 addresses. (3)
i) 111.56.045.78   ii) 75.45.301.14   iii) 11100010.23.14.67

Q2. Solve any two

a) What are the responsibilities of the Physical Layer? (6)

b) Responsibilities of the Transport Layer. (6)

c) Compare OSI Model and TCP/IP model (6)

Q3. Solve any two

a) Differentiate between Circuit Switching and Packet Switching (6)

b) What are the different categories of Multiplexing? Explain in detail. (6)

c) Explain Message Switching in detail (6)

Q4. Solve any two

a) Give the Taxonomy of protocols used in Data Link layer for Noisy and Noiseless Channel. Explain any one in detail. (6)

b) What is Framing? Explain Fixed size framing and variable sized framing. (6)

c) Write Sender-Site and Receiver-Site algorithm for the Stop-and-Wait Protocol. (6)

Q5. Solve any two

a) Differentiate between IPv4 and IPV6 (6)

b) Explain Distance Vector Routing in detail. (6)

c) Explain Link state routing in detail (6)

*** End of Paper ***

Program   : Master of Computer Application   Sem –I
Course   : Accounts and Financial Management   Marks : 50
Course Code   : 20PMC104D   Time-2 hrs

Instructions to the students

1. Question1 is compulsory.
2. Q.2 to Q.4 carries 12 marks each.
3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Marks

Q1. Solve any two. (14)

   a) Journalize the following transactions in the books March 1998   (7)

		Rs.
2	Ravi started business with cash	15000
3	Purchased good for cash	4000
6	Cash Sales to Madan	1200
9	Credit Sales to Salvi	2000
12	Paid Cash to Anant	1950
16	Paid into Bank	5000
30	Paid Salaries	20000

   b) Define the following Accounting Terms.   (7)

      a. Account   b. Bad Debt   c. Folio

      d. Asset   f. Creditors   g.Capital   h.Liabilities

   c) What is Ledger? Explain procedure of Ledger posting.   (7)

Q.2 Solve any two (12)

   a) Explain the rules of all type of accounts with proper example.   (6)
   b) What is Double entry System and main features of it   (6)
   c) What is Balance Sheet? Describe format of Balance sheet   (6)

Q.3 Solve any two (12).

   a) State and explain techniques of Costing.   (6)
   b) Explain Depreciation and the causes of depreciation.   (6)
   c) What is the importance and use of Cost-Volume-Profit (CVP) Analysis?   (6)

Q4. Solve any two (12)

   a) What is Budget? State the features of budget .   (6)
   b) State and explain any five methods of Costing.   (6)
   c) Differentiate between financial and cost accounting.   (6)

End of paper

Program : **MCA**
Course : **Agile Software Development**
Course Code : **20PMC202D**

Sem –I
Marks : **60**
Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc. wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Q1. Attempt any six Questions. (2 marks for each)

Marks
12

1) What is a key concept behind Agile?
  a. Plan driven   b. Large batches   c. Test at the end   d. Value and quality driven

2) Who is responsible for defining features, managing input from end-users and managing stakeholders?
  a. Scrum Master   b. Product Owner   c. Development Team   d. All of the above

3) Which of the following risks are derived from the software or hardware technologies that are used to develop the system?
  a. Managerial risks   b. Technology risks   c. Estimation risks   d. Organizational risks

4) User requirements are expressed as _____ in Extreme Programming.
  a. implementation tasks   b. functionalities   c. scenarios   d. none of the mentioned

5) Which backlog contains user stories a team may be working on?
  a. The Team Backlog   b. The System Backlog   c. The Product Backlog   d. The Program Backlog

6) How should user stories be written?
  a. The system shall…   b. Given...when…then...   c. As a…I want…so that...   d. If inputs…then outputs…

7) How do you measure success of a Scrum team?
  a. Velocity   b. Agility   c. Business value   d. Number of team members

8) What is the unit of measurement that is used to measure the size of a user story for an Agile project?
  a. Function points   b. Story points   c. Work breakdown points   d. Velocity points

Q2. Solve any two

a) Difference between Traditional Project management and Agile Project Management (6)
b) What are the different agile manifesto and its Values? (6)
c) Explain the role of Scrum master and product owner (6)

Q3. Solve any two

a) Explain Risk Management in Agile.
b) How to assess Progress in a sprint? Explain any one of it with advantage and disadvantages. When to apply it? (6)
c) What is Quality? Explain Agile Approach to Quality. (6)

Q4. Solve any two

a) What is Acceptance Criteria for User Stories? Write down an Acceptance Criteria for a seat reservation app for a movie theatre user story.
b) What is product backlog? Why it is important? Explain its Characteristics (6)
c) Explain Feature Driven Development in detail (6)

Q5. Solve any two

a) What is Scaled Agile Framework (SAFe)? Why to use agile framework?
b) What are the different Quality Development Techniques? (6)
c) What is Agile Testing? Explain Agile Testplan (6)

*** End of Paper ***

First Term Exam A.Y. 2021-22

Program: MCA	Sem –I
Course: Data Structures & Algorithms	Marks : 60
Course Code: 20PMC102D	Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.
2. All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks
Q1. Solve all questions	
a) Explain linear probing	(3)
b) Discuss 2D Array	(3)
c) Discuss binary Tree	(3)
d) Explain recursion	(3)
Q2. Solve any two	
a) Explain Queue concept with insert(), delete(), display() operations with example.	(6)
b) Explain Circular Queue with suitable examples	(6)
c) Write a program for stack operations	(6)
Q3. Solve any two	
a) Write insert_last() and delete_last() function for doubly linked list.	(6)
b) Explain doubly linked list with various operations	(6)
c) Write a program for queue using doubly linked list	(6)
Q4. Solve any two	
a) Explain Graph traversal techniques with suitable example	(6)
b) Write a program for binary search tree insertion operation	(6)
c) Explain Min cost spanning tree using Kruskal's algorithm with example.	(6)
Q5. Solve any two	
a) Explain working of radix sort with suitable example?	(6)
b) Write a program for binary search	(6)
c) Write a program for bubble sort .	(6)

---------End of paper-------

Program: Master of Computer Applications	
Course: Operating System	Sem –I
Course Code: 20PMC103D	Marks : 60
	Duration : 3Hrs

Instructions to the students
1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary

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Q1. Solve any two　　　　　　　　　　　　　　　　　　　　　　　　　Marks

　　a) What is system call? Explain various types of system calls.
　　b) What is Operating System? Explain Batch Operating system in OS.　　(6)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)
　　c) Differentiate process with threads with suitable diagram.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

Q2. Solve any two

　　a) What is critical section problem? Explain.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

　　b) Process　　　　Burst Time
　　　　P1　　　　　　5
　　　　P2　　　　　　3
　　　　P3　　　　　　8
　　　　P4　　　　　　6

　　Consider above data and draw Ghantt chart and calculate average waiting time of processes by FCFS and SJF algorithms.
　　c) What is load balancing in multiprocessor scheduling?　　(6)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

Q3. Solve any two

　　a) Differentiate between static and dynamic memory allocation.
　　b) What are various page replacement algorithms? Explain FIFO algorithm with example.　　(6)
　　c) What is segmentation in memory management?　　(6)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

Q4. Solve any two

　　a) Explain various operations which can be performed on files.
　　b) What are different file accessing methods?　　(6)
　　c) What are various attributes of file? Explain.　　(6)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

Q5. Attempt all questions

　　a) What are various functions of Operating System?
　　b) What is use of Process Control Block? What information is stored in it?　　(6)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6)

Program : **MCA**

Course : **Data Warehousing & Data mining**

Course Code : **20PMC201D**

Sem –I

Marks : **60**

Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.
2. All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc. wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks

Q1. Attempt any six Questions. (2 marks for each) — Marks **12**

1) The important aspect of the data warehouse environment is that data found within the data warehouse is___
   a. Subject oriented   b. Time Variant   c. Integrated   d. all of the mentioned

2) "Data about data" is referred to as _____
   a. Information   b. Metadata   c. Database   d. File

3) If we analyse monthly data in terms of the days of each month we are ____
   a. Slicing   b. Pivoting   c. Drilling Down   d. Dicing

4) A snowflake schema is which of the following types of tables?
   a. Fact   b. Dimension   c. Helper   d. All of the above

5) The analysis performed to uncover interesting statistical correlations between associated-attribute-value pairs is called?
   a. Mining of Correlations   b. Mining of Clusters   c. Mining of Association   d. None of the mentioned

6) Classification of a sample is dependent on the target values of the neighboring points falls under which of the following classification algorithm type
   a. Multi Class Classification   b. K-Nearest neighbour   c. Feature   d. Divisive

7) The distance between two mean points of a cluster is known as
   a. Density   b. Average   c. Centroid   d. Divisive

8) Which of the following clustering technique is used by K- Means Algorithm
   a. Hierarchical Technique   b. Agglomerative   c. Divisive   d. Partitional technique

Q2. Solve any two
   a) Draw and Explain Data Warehouse Architecture (6)
   b) Explain Data Cleaning Process in detail (6)
   c) Explain Knowledge Discovery process with diagram (6)

Q3. Solve any two
   a) Explain the Star schema with suitable diagram (6)
   b) Explain OLAP tools with its operations (6)
   c) Differentiate between OLAP and OLTP (6)

Q4. Solve any two
   a) What is classification? What are the issues regarding classification and prediction (6)
   b) Explain Decision Tree classification with example (6)
   c) If T consist of 500000 transactions, 20000 transaction contain bread, 30000 transaction contain jam, 10000 transaction contain both bread and jam. Find the support & confidence of buying bread and jam. (6)

Q5. Solve any two
   a) What is Cluster Analysis? Explain Different types of cluster analysis. (6)
   b) What are the requirements of clustering in data mining. Give applications of clustering (6)
   c) Explain K-means clustering in detail (6)

*** End of Paper ***

First Term Exam A.Y. 2021-22

Program: MCA	Sem –I
Course: Object Oriented Programming using JAVA	Marks : 50
Course Code: 20PMC106D	Time : 2 Hr

Instructions to the students

1 .All questions are compulsory

2. Illustrate your answers with neat sketches, diagram etc wherever necessary

3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks
Q1. Solve all questions	
a) Differentiate between error and an exception?	(2.5)
b) What is a package? Write the syntax to define a "package".	(2.5)
c) Define AWT? What are the limitations of AWT?	(2.5)
d) What are the methods in applet life cycle?	(2.5)
Q2. Solve any two	
a) What is a Constructor? Classify the types of Constructors in Java?	(5)
b) Distinguish Method Overriding and Method Overloading.	(5)
c) Write a java program to implement inheritance concept.	(5)
Q3. Solve any two	
a) What is Multithreading? Illustrate the ways to create multiple threads in java.	(5)
b) Write a java method to find minimum value in given two values.	(5)
c) What is exception handling? Explain an example of exception handling in the case of division by zero.	(5)
Q4. Solve any two	
a) How to Write and Read a file in java with an example.	(5)
b) List out the steps for creating simple user Registration form using java Applet with an example.	(5)
c) Write a java program to insert a student record into stud table.	(5)
Q5. Solve any two	
a) What is collection in java? Describe about collection class in java.	(5)
b) What is JDBC? Explain various steps to create a JDBC application.	(5)
c) Write about various stream classes in java.	(5)

---------End of paper-------

Program: MCA	Sem –I
Course: Object Oriented Programming using JAVA	Marks : 50
Course Code: 20PMC106D	Time : 2 Hr

Instructions to the students

1 .All questions are compulsory

2. Illustrate your answers with neat sketches, diagram etc wherever necessary

3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks

Q1. Solve all questions

a) Differentiate between error and an exception? (2.5)

b) What is a package? Write the syntax to define a "package". (2.5)

c) Define AWT? What are the limitations of AWT? (2.5)

d) What are the methods in applet life cycle? (2.5)

Q2. Solve any two

a) What is a Constructor? Classify the types of Constructors in Java? (5)

b) Distinguish Method Overriding and Method Overloading. (5)

c) Write a java program to implement inheritance concept. (5)

Q3. Solve any two

a) What is Multithreading? Illustrate the ways to create multiple threads in java. (5)

b) Write a java method to find minimum value in given two values. (5)

c) What is exception handling? Explain an example of exception handling in the case of division by zero. (5)

Q4. Solve any two

a) How to Write and Read a file in java with an example. (5)

b) List out the steps for creating simple user Registration form using java Applet with an example. (5)

c) Write a java program to insert a student record into stud table. (5)

Q5. Solve any two

a) What is collection in java? Describe about collection class in java. (5)

b) What is JDBC? Explain various steps to create a JDBC application. (5)

c) Write about various stream classes in java. (5)

---------End of paper-------

Program: Master of Computer Application	Sem –I
Course: Statistics ad Probability	Marks : 60
Course Code: 20PMC101D	Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.

2 All questions are compulsory

3. Illustrate your answers with neat sketches, diagram etc wherever necessary

4. If some part or parameter is noticed to be missing,you may appropriately assume it and should mention it clearly.

Marks

Q1. Solve any two

  a) 1. U= { n | n ∈ N, n<= 15 }, A = { n | n ∈ N, 3<n<15 }, B = { n | n ∈ N, 2<n<12 }
     Find $A^c - B^c$

    (3)

    2. What is Probability? Explain its types.

    (3)

  b) Explain any six properties of probabilities.

    (6)

  c) How many 4 digit numbers that are divisible by 10 can be formed from the numbers 3, 5, 7, 8, 9, 0 such that no number repeats?

    (6)

Q2. Solve any two

  a) In a certain factory turning out optical lenses, there is a small chance 1/500 for any one lens to be defective. The lenses are supplied in a packet of 10. Use Poisson distribution to calculate approximate number of packets containing no defective and one defective lens in a consignment of 20000 packets. Given that $e^{-0.02}$= 0.9802

    (6)

  b) 8 fair coins are tossed simultaneously. What is the probability of getting at least 6 heads?

    (6)

  c) The average test marks in a particular class is 79. Standard deviation is 5. If the marks are distributed normally, how many students in a class of 200 did not receive marks between 75 and 82? Given

    P(0<Z<0.8)= 0.2881
    P(0<Z<0.6)= 0.2257

    (6)

Q3. Solve any two

  a) From the following table calculate coefficient of correlation by Karl Pearson's method.

    X: 6   2   10   4   8
    Y: 9   11   ?   8   7

    Arithmetic mean of X and Y series are 6 and 8 respectively.

    (6)

  b) Raking of 10 trainees at the beginning(X) and at the end (Y) of a certain course are given below. Calculate Spearman's Rank correlation coefficient.

Trainees:	A	B	C	D	E	F	G	H	I	J
X:	1	6	3	9	5	2	7	10	8	4
Y:	6	8	3	7	2	1	5	9	4	10

Program : Master of Computer Applications Course: Data Science and Visualization Course Code: 20PMC208E	Sem –II Marks: 60 Duration: 3Hrs

Instructions to the students

1. Each question carries 12 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary

	Marks
Q1. Solve any two	
a) What are various roles and responsibilities of Data Scientist?	(6)
b) Enlist various tools available in the area of Data Science. Explain any two.	(6)
c) How Business Intelligence is differing from Data Science?	(6)

Q2. Solve any two

a) What are different ways to collect data for analysis purpose? (6)

b) Find out Mean and Median from the following data. (6)

Weight (Kg)	No. of Students
93-97	3
98-102	5
103-107	12
108-112	17
113-117	14
118-122	6
123-127	3
128-132	1

c) What is use of Support Vector machine algorithm? Explain its types. (6)

Q3. Solve any two

a) Explain various ways to encode categorical variables. (6)
b) What are various types of data visualization? Explain. (6)

c) Explain Treemap chart which is used for data visualization. (6)

Q4. Solve any two

a) Describe steps in creating an ingographic? Explain with example. (6)

b) What are various types of data transformation? (6)

c) What are benefits and challenges of data transformation? (6)

Q5. Attempt all questions

    a) What is statistical analysis? Explain its categories.   (6)

    b) Solve all questions   (6)

       i)   What is part of SVM algorithm?
           1) Hyperplane   2) Machine   3) DFD   4) Histogram

       j)   How missing data or corrupted data in a dataset is handled?
           1) Drop missing rows or columns   2) Assign a unique category to missing values
           3) Replace missing values with mean/median/mode   4) All of the above

       k)   Which of the following are real world applications of the SVM?
           1) Text and Hypertext Categorization   2) Image Classification
           3) Clustering of News Articles   4) All of the above

       l)   Which of the following is false?
           1) Raw data should be processed only one time
           2) Subsetting can be used to select and exclude variables and observations
           3) Merging concerns combining datasets on the same observations to produce a result with more variables
           4) None Of the above

       m)   Which of the following methods do we use to find the best fit line for data in Linear regression?
           1) Maximum Likelihoodn   2) Least Square Error
           3) Logarithmic Loss   4) Both A and B

       n)   Selection of tools does not depend on
           1) method of data science   2) Data in data science
           3) Decision of problem solving   3) summarization in data science

Program: MCA	Sem –II
Course: Cloud Security & Migration	Marks : 60
Course Code: 20PMC210E	Time : 3 Hrs

Instructions to the students

1 .All questions are compulsory

2. Illustrate your answers with neat sketches, diagram etc wherever necessary

3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks
Q1. Solve all questions	
a) Explain Apache VCL	(2.5)
b) Discuss Authorization	(2.5)
c) Discuss Identity & Access Management	(2.5)
d) Explain Role & Policy in IAM	(2.5)
Q2. Solve any two	
a) What is IAM? Explain user, group, role and policy.	(5)
b) Explain availability management under security management in the cloud.	(5)
c) Demonstrate authorization for S3 policy to IAM user.	(5)
Q3. Solve any two	
a) Explain security vulnerability and patch management.	(5)
b) Explain Data life cycle.	(5)
c) Explain various threats to virtual machine.	(5)
Q4. Solve any two	
a) Explain various cloud security threats.	(5)
b) Explain VM security recommendations.	(5)
c) Demonstrate authorization for EC2 policy to IAM group.	(5)
Q5. Solve any two	
a) Explain Secure Execution environment in the cloud.	(5)
b) Explain VM Specific security techniques.	(5)
c) Explain VM specific security recommendations.	(5)
Q6. Solve any two	
a) Explain best practices to be followed to move over the cloud.	(5)
b) Explain the future of cloud computing.	(5)
c) Explain how cloud computing evolved (Evolution of cloud computing)	(5)

---------End of paper-------

Program : MCA	Sem –III
Course : DevOps	Marks 60
Course Code : 20PMC311D	Time: 3 hrs

Instructions to the students

1. Each question carries 12 marks.

2 All questions are compulsory

3. Illustrate your answers with neat sketches, diagram etc wherever necessary

4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks
Q1. Solve all questions	
a) Differentiate between Git and Github	(3)
b) What is Jenkins?Explain advantages and disadvantages of Jenkins	(3)
c) Explain Docker image and container	(3)
d) Explain Nagios ? Which are other tools similar to Nagios	(3)
Q2. Solve any two	
a) Explain characteristics of DevOps	(6)
b) Explain various Git commands	(6)
c) Explain how to upload local repository contents to remote repository	(6)
Q3. Solve any two	
a) Explain steps to create and execute a job in Jenkins	(6)
b) How to execute maven job using Jenkins?	(6)
c) Explain how to integrate Jenkins with git	(6)
Q4. Solve any two	
a) Explain docker architecture	(6)
b) How to execute java file using docker application	(6)
c) Explain Ansible architecture	(6)
Q5. Solve any two	
a) What is Nagios? Explain Nagios architecture with suitable diagram	(6)
b) Explain how to install Nagios on windows OS	(6)
c) Write short note on (Any two)	
a) Nagios plugin b) Nagios applications c) Nagios features	(6)

End of paper

Program :MCA

Course : Internet of Things

Course Code :20PMC301D

Semester –III
Marks : 60
Time : 3 Hr

Instructions to the students

1. Each question carries 12 marks.

2 All questions are compulsory

3. Illustrate your answers with neat sketches , diagram etc wherever necessary

4. If some part or parameter is noticed to be missing ,you may appropriately assume it and should mention it clearly

Marks

Q1. Solve any two

   a) Illustrate the generic block diagram of an IoT device and explain it briefly   (6)

   b) With the help of neat diagrams, describe the levels of IoT with an example each   (6)

   c) Describe and explain the characteristics of IoT.   (6)

Q2. Solve any two

   a) Define how the IoT technology can be implemented in smart lightening and intrusion detection systems.   (6)

   b) Draw and explain IoT in agriculture and health care system.   (6)

   c) List the advantages of Home Automation using IOT and explain.   (6)

Q3. Solve any two

   a) With the help of neat diagram, explain the M2M system architecture.   (6)

   b) Describe how SDN can be used for various levels of IoT.   (6)

   c) List out the various steps involved in IoT system design methodology.   (6)

Q4. Solve any two

   a) Describe the following steps involved in IoT system design methodology:

(i) Purpose & Requirements Specification (ii) Process Specification   (6)

   b) Describe how NFV can be used for virtualizing IoT device.   (6)

   c) With a neat sketch, explain the push-pull communication model of IoT.   (6)

Q5. Solve any two

   a) Describe various features of a Raspberry Pi device.   (6)

   b)Explain Simple Network Management protocol with its limitations.   (6)

   c) Justify how Raspberry Pi is different from a desktop computer.   (6)

End of paper

Program :MCA   Sem –III
Course :Software Testing
Course Code :20PMC312D

Instructions to the students
1. All questions are compulsory
2. Illustrate your answers with neat sketches , diagram etc wherever nece
3. If some part or parameter is noticed to be missing ,you may appropria
   mention it clearly

Q1. Solve any two
   a) State the difference between automation testing and manual te

   b) What is software testing? Explain advantages and disadvantage

   c) What are the different things which you can consider during we

Q2. Solve any two:
a)   Explain V-Model in software testing in detail.

OR

a)   What is UAT testing? Explain which tests comes under UAT

b)   Write the difference between static testing and dynamic testing

OR

b)   Write the difference between Load testing and Stress Testing.

Q3. Solve any two
 a) What is white box testing mechanism? Explain types of white box testing —
b) Explain Decision Coverage and Condition coverage in Testing.

 c) Write down the difference between white box testing and black b

Q4. Solve any two
   a) Explain contents of Bug report.

OR

a) How a bug can be reported in the organization.

b) What is defect? How to analyze defect?

OR

b) How you will collect test data for the large application .

End of paper

Program :MCA   Sem –III

Course :Software Testing   Marks : 50

Course Code :20PMC312D   Time : 2Hr

Instructions to the students

1. All questions are compulsory
2. Illustrate your answers with neat sketches , diagram etc wherever necessary
3. If some part or parameter is noticed to be missing ,you may appropriately assume it and should mention it clearly

                                                                Marks

Q1. Solve any two

   a) State the difference between automation testing and manual testing.   (6)

   b) What is software testing? Explain advantages and disadvantages of Automation Testing. (6)

   c) What are the different things which you can consider during web testing.   (6)

Q2. Solve any two:

   a) Explain V-Model in software testing in detail.   (6)

OR

   a) What is UAT testing? Explain which tests comes under UAT   (6)

   b) Write the difference between static testing and dynamic testing   (7)

OR

   b) Write the difference between Load testing and Stress Testing.   (7)

Q3. Solve any two

   a) What is white box testing mechanism? Explain types of white box testing.   (6)
   b) Explain Decision Coverage and Condition coverage in Testing.   (6)

   c) Write down the difference between white box testing and black box testing   (6)

Q4. Solve any two

   a) Explain contents of Bug report.   (6)

OR

   a) How a bug can be reported in the organization.   (6)

   b) What is defect? How to analyze defect?   (7)

OR

   b) How you will collect test data for the large application .   (7)

End of paper

MGM University

Jawaharlal Nehru Engineering College, Aurangabad

Master of Computer Application (MCA)

Semester III

Course Code: 20PMC302D   **Name of course: Artificial Intelligence**

Max Marks: 50   **Time: 2hrs**

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches, diagram etc. wherever necessary. .
3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

Q1.Solve the following questions.

A. What is AI? Explain intelligent agent.	(7 Marks)
B. Explain the concept of rationality in AI.	(6 Marks)
OR	
C. With a suitable diagram, explain structure of an intelligent agent	(6 Marks)

Q2. Solve any TWO the following questions

A. Discuss Constraint Satisfaction Problems.	(6 Marks)
B. What is inference in AI? Discuss Constraint Propagation	(6 Marks)
C. Explain 1) Local Search for CSPs 2) Backtracking Search for CSPs	(6 Marks)

Q3.Solve the following questions.

A. With a suitable example explain Knowledge-Based Agent	(7 Marks)
B. Write a short note on Effective Propositional Model Checking.	(6 Marks)
OR	
D. Explain 1) First- Order Logic2) First-Order Inference	(6 Marks)

Q4.Solve any TWO of the following questions.

A. What is Uncertainty? Explain basic Probability Notation.	(6 Marks)
B. Discuss Bayes' Rule and Its applications.	(6 Marks)
C. Write a short note on Inference using Full Joint Distributions	(6 Marks)

Program: MCA
Course: Cloud Services
Course Code: 20PMC306E

Semester –III
Marks : 60
Time : 3Hr

Instructions to the students

1. All questions are compulsory
2. Illustrate your answers with neat sketches, diagram etc wherever necessary
3. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Q1. Write Short Notes on
   a) Cloud Computing Features
   b) AWS Lambda.
   c) Virtualization in Cloud
   d) Azure Drive

(3)
(3)
(3)
(3)

Q2. Solve any two
a) Define Clod Computing? Explain cloud computing models
   b) Explain VPC and Subnets in AWS
   c)Explain AWS architecture.

(6)
(6)
(6)

Q3. Solve any two
   a) Write difference between Block Storage and Object Storage in AWS.
   b) Explain EBS and EBS snapshot in AWS.
   c) Explain AWS S3 Services in detail.

(6)
(6)
(6)

Q4. Solve any two
   a) Explain various types of roles in azure
   b) What is data centres? What are the challenges present with data centres?
   c) Explain Windows Azure Architecture?

(6)
(6)
(6)

Q5. Solve any two
   a) Explain windows azure storage in detail.
   b) Explain different storage options with AWS
   c) Explain how to remote desktop to a windows azure virtual machine.

(6)
(6)
(6)

End of paper

Program : MCA	Sem –III
Course : Cyber Security	Marks : 50
Course Code : 20PMC311D	Time: 2 hrs

Instructions to the students
1. Each question carries 10 marks.
2 All questions are compulsory
3. Illustrate your answers with neat sketches, diagram etc wherever necessary
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

	Marks
Q1. Solve all questions	
a) Explain encryption and decryption with suitable example	(2.5)
b) Explain Firewall	(2.5)
c) Explain Malware in detail	(2.5)
d) Write about insecure API on cloud platform	(2.5)
Q2. Solve any two	
a) Explain various principles of security	(5)
b) Explain substitution and transposition technique for encryption with example	(5)
c) Explain various types of attack	(5)
Q3. Solve any two	
a) Explain symmetric type of encryption with suitable diagram	(5)
b) Explain biometric based authentication	(5)
c) Explain knapsack algorithm for encryption and encryption	(5)
Q4. Solve any two	
a) What is fuzzing? Explain intelligent fuzzing with sulley	(5)
b) Explain SQL injection attack in detail	(5)
c) Explain Cross site scripting attack and its types	(5)
Q5. Solve any two	
a) Explain different vulnerabilities of cloud platform	(5)
b) Explain different vulnerabilities of mobile platform	(5)
c) Explain how to prevent mobile platform vulnerabilities	(5)

End of paper