

CBGS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

22SCS21

Second Semester M.Tech. Degree Examination, June/July 2023 Big Data Analytics

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain MapReduce data flow with multiple tasks with a diagram.	10	L1	CO1
	b.	Briefly explain the following HDFS concepts: (i) Blocks (ii) Name Node and Data Nodes (iii) HDFS High Availability	10	L1	CO1
OR					
Q.2	a.	Explain the Hadoop File system and Basic File system operations commands.	10	L1	CO1
	b.	How a client writing data to HDFS with a diagram.	10	L1	CO1
Module – 2					
Q.3	a.	Explain Anatomy of a YARN Application Run with a neat diagram.	10	L1	CO2
	b.	Explain scheduling in YARN with a neat diagram.	10	L1	CO2
OR					
Q.4	a.	Explain Data Integrity and Compression in HDFS.	10	L1	CO2
	b.	With a neat diagram, explain sequence file format with record compression and block compression.	10	L1	CO2
Module – 3					
Q.5	a.	Explain (i) Types of Hadoop Logs (ii) Tuning a Job checklist	10	L2	CO3
	b.	Briefly discuss about Apache Oozie and program for Oozie work flow definition to run the maximum temperature MapReduce Job.	10	L2	CO3
OR					
Q.6	a.	Explain the Anatomy of a MapReduce Job RUN with a neat diagram.	10	L2	CO3
	b.	How status updates are propagated through the MapReduce system with a neat diagram.	10	L2	CO3
Module – 4					
Q.7	a.	Explain the Input Format class hierarchy with a neat diagram.	10	L3	CO4
	b.	Explain the Output Format class hierarchy with a neat diagram.	10	L3	CO4
OR					
Q.8	a.	With a neat diagram, explain how FLUME Agent with a spooling directory source and a logger sink connected by a file channel.	10	L3	CO4
	b.	Describe how Load balancing between two Agents in FLUME with a diagram.	10	L3	CO4
Module – 5					
Q.9	a.	Discuss about PIG. Explain the two execution modes of PIG and three ways of executing PIG program.	10	L3	CO5
	b.	Explain Loading, Storing, Grouping, Joining and Splitting Data in PIG.	10	L3	CO5
OR					
Q.10	a.	Discuss about SPARK. How SPARK Runs a Job with a diagram.	10	L3	CO5
	b.	Explain SPARK on YARN client mode with a diagram.	10	L3	CO5

* * * * *

Second Semester M.Tech. Degree Examination, June/July 2023
Artificial Intelligence and Machine Learning

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	What is AI? Explain the fields where foundations of AI is used. Mention some applications of AI.	10	L2	CO1
	b.	You are provided with two water jugs, one with 5 gallons of capacity and the other with 3 gallons of capacity. Neither have any measuring marks on it. How can we get exactly 4 gallons of water in 5 gallon jug? i) Write down the production rules for the above problem. ii) Find any one solution for the above problem.	10	L2	CO1
OR					
Q.2	a.	Write Breadth first search algorithm and explain by taking suitable example.	10	L2	CO1
	b.	Explain the process of simple hill climbing with algorithm and also explain the problems with hill climbing.	10	L2	CO1
Module – 2					
Q.3	a.	Explain MINIMAX procedure, strategy and algorithm.	12	L2	CO1
	b.	Show that $\alpha : (A \wedge B) \wedge (B \rightarrow \sim A)$ is unsatisfiable using the tableau method.	8	L2	CO1
OR					
Q.4	a.	Write down the steps to transform a formula to its equivalent CNF. Convert the formula $(\sim A \rightarrow B) \wedge (C \wedge \sim A)$ into its equivalent CNF representation.	10	L2, L3	CO1
	b.	Explain the game playing problem with an example game tree, where MAX is playing first.	10	L2, L3	CO2
Module – 3					
Q.5	a.	What is Means Ends analysis? Write the algorithm and explain by taking suitable example.	10	L2	CO2
	b.	Explain semantic net method of knowledge representation with an example.	10	L2	CO2

1 of 2

OR

Q.6	a.	Discuss about knowledge representation with frames. Give the structure and faults in a frame.	10	L3	CO2
	b.	Demonstrate forward reasoning and backward reasoning inference mechanism for the following set of classes: isa (X, human \leftarrow is a (X, man) isa (John, man).	10	L3	CO2

Module – 4

Q.7	a.	Explain the concept of Bayes theorem and derive Bayes theorem from conditional probability.	10	L2	CO2
	b.	We are given probability of any person chosen at random bring literate as 0.40 and probability of any person chosen at random having age > 60 years as 0.005. Find the probability of the fact that a person chosen at random of age > 60 years is literate.	10	L2	CO2

OR

Q.8	a.	Discuss about K Means and hierarchical clustering techniques in brief.	10	L2	CO2
	b.	Explain the components of a learning system with a neat sketch.	10	L2	CO2

Module – 5

Q.9	a.	What is SVM? Outline the working of SVM (Support Vector Machine) for linear and non linear classification.	10	L2	CO3
	b.	Discuss the different issues while designing an ANN (Artificial Neural Network).	10	L3	CO3

OR

Q.10	a.	What is an ANN? Explain a neuron model with relevant expressions.	10	L2	CO3
	b.	Design a perceptron for Boolean or function using learning algorithm. Assume $W_1 = -0.2$, $W_2 = 0.4$ and Learning rate $A = 0.2$.	10	L2	CO3

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

22SCS234

Second Semester M.Tech. Degree Examination, June/July 2023 Cyber Security and Cyber Law

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Define cybercrime. List the classification of cybercrimes. Explain any two in brief.	10	L2	CO1
	b.	Write a note on : i) Types of cyber criminals ii) Cybercrime as Legal Perspectives iii) Cybercrime as Indian Perspective	10	L1	CO1
OR					
Q.2	a.	Explain how criminals plan the attacks.	10	L1	CO2
	b.	Explain social engineering and its classification.	10	L2	CO1
Module – 2					
Q.3	a.	Explain the types of attacks against 3G mobile networks.	10	L2	CO1
	b.	Explain Authentication service security.	10	L2	CO1
OR					
Q.4	a.	What are the operating guidelines for implementing mobile device security policies?	10	L1	CO3
	b.	Explain Laptop's physical security countermeasures.	10	L1	CO2
Module – 3					
Q.5	a.	Write a note on : i) Phishing and its working procedure ii) Software key loggers and hardware key loggers.	12	L1	CO1
	b.	Explain Password Cracking.	08	L2	CO2
OR					
Q.6	a.	Explain Levels of DoS attacks.	10	L2	CO2
	b.	Explain types of Identify Theft.	10	L2	CO2
Module – 4					
Q.7	a.	Explain how an emails are traced for forensics purpose. Outline the various key steps involved.	10	L2	CO2
	b.	Explain the steps involved in the relevance of the OSI 7 Layer Model to Computer Forensics.	10	L2	CO1
OR					
Q.8	a.	Explain Digital forensics lifecycle.	14	L2	CO1
	b.	Explain briefly the challenges faced in cyber forensics.	06	L2	CO1
Module – 5					
Q.9	a.	Discuss the various standards and regulations available for information security.	10	L2	CO3
	b.	What security policies and review process should an organization develop and maintain?	10	L2	CO3
OR					
Q.10	a.	Write a short note on Copyright and Patent.	10	L2	CO3
	b.	What different categories of Intellectual properties has been defined in India.	10	L2	CO3

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

22SCS/SAM/SAD244

Second Semester M.Tech. Degree Examination, June/July 2023 Agile Technologies

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain different types of success with a neat diagram.	10	L2	CO2
	b.	How agile development helps to achieve organizational success?	10	L1	CO2
OR					
Q.2	a.	What does it mean to “be agile”?	05	L1	CO2
	b.	What are Agile methods?	05	L1	CO2
	c.	List the principles behind the agile manifesto.	10	L1	CO2
Module – 2					
Q.3	a.	Explain XP lifecycle and briefly explain how it works.	10	L2	CO1
	b.	Discuss the functions of on-site customers and product managers in XP team.	10	L2	CO1
OR					
Q.4	a.	Discuss the recommendation for adopting XP.	10	L2	CO1
	b.	Discuss the function of management support, team management and collocated team.	10	L2	CO2
Module – 3					
Q.5	a.	What is root-cause analysis? How do you find root cause? When to fix and not to fix root cause?	10	L1	CO2
	b.	What is iteration demo? How to conduct iteration demo?	10	L1	CO2
OR					
Q.6	a.	What are the technique XP uses to achieve zero bugs? Explain in detail.	10	L1	CO1
	b.	What is meant by documentation? Explain different types of documentation.	10	L1	CO1
Module – 4					
Q.7	a.	Define “values”, “principles” and “practices” in XP.	10	L1	CO1
	b.	When do you think it's time to break the rules?	05	L1	CO1
	c.	Anything more is wasteful. Eliminate it! How do you do it?	05	L1	CO3
OR					
Q.8	a.	Discuss how we build effective relationship with people.	10	L2	CO3
	b.	How to build process for the people? Explain.	10	L1	CO3
Module – 5					
Q.9	a.	Only releasable code has value. Justify.	10	L2	CO3
	b.	Discuss the Universal Design Principles.	10	L2	CO3
OR					
Q.10	a.	Explain how do you state great designs.	10	L2	CO3
	b.	Software doesn't exist. Justify.	05	L2	CO3
	c.	Design is for understanding. Justify.	05	L2	CO1
