AR20

CODE: 20AIT303 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May,2023

Advance Machine Learning

(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Explain the concept of ensemble methods in machine learning and how they can be used to improve model performance.	5	CO1	L2
	b)	What is bagging and how does it work?	5	CO1	L2
		(OR)			
2.	a)	The bias-variance tradeoff is a crucial concept in machine learning. How does ensemble learning help to balance this tradeoff? Discuss the impact of ensemble methods on bias and variance.	5	CO1	L2
	b)	Construct a decision tree by taking a data set.	5	CO1	L2
		UNIT-II			
3.	a)	What are the potential limitations and drawbacks of boosting algorithms in machine learning?	5	CO2	L2
	b)	Explain the concept of stacking in ensemble learning. How does stacking differ from other ensemble techniques.	5	CO2	L3
		(OR)			
4.	a)	Provide examples of real-world problems where boosting techniques have been successfully applied.	5	CO2	L2
	b)	What is Catboost, and how does it differ from other boosting algorithms?	5	CO2	L3
		UNIT-III			
5.	a)	Explain the concept of Contrastive Divergence, and how it is used to train Restricted Boltzmann Machines.	5	CO3	L2
	b)	What are Markov Random Fields, and how do they differ from other structured models?	5	CO3	L3
		(OR)			
6.	a)	What are the advantages of using structured models in machine learning?	5	CO3	L2
	b)	What are the potential limitations of structured models in machine learning? How can these be addressed to ensure reliable and accurate predictions?	5	CO3	L3
		UNIT-IV			
7.	a)	What are the different types of regularization techniques, and how do they work?	5	CO4	L2
	b)	Explain the concept of dropout layers in neural networks, and how they are used to prevent overfitting.	5	CO4	L3

(OR)

8.	a)	Describe the concept of randomised methods in machine learning, and how they are used to improve the generalization performance of models.	5	CO4	L2
	b)	Explain Early stopping model.	5	CO4	L3

UNIT-V

9.	a)	Explain Box-Jenkins model of forecasting.	5	CO5	L2
	b)	What is the Holt-Winters forecasting method, and how is it used to model time series data?	5	CO5	L3

(OR)

10.	a)	What is the ARIMA model, and how is it used to model and forecast time series data?	5	CO5	L2
	b)	How can time series forecasting be used to make strategic business decisions?	5	CO5	L3

UNIT-VI

11.	a)	Describe some of the most common NLP applications, including information extraction, question answering, and machine translation.	5	CO6	L2
	b)	Describe the process of text simplification, and how it can be used to make complex language more accessible to a wider audience.	5	CO6	L3

(OR)

12.	a)	Compare and contrast supervised and unsupervised methods for NLP.	5	CO6	L2
	b)	Explain the role of deep learning in NLP, and how it is being used to improve the accuracy and efficiency of NLP applications.	5	CO6	L3

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CODE: 20DSI303 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May, 2023

Predictive Modelling and Analytics

(Information Technology)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.		What is data clustering? Describe the various steps involved in converting raw data into a matrix.	10	CO 1	L3
		(OR)			
2.	a	Explain various ways to categorize the models used for predictive analytics.	5	CO 1	L2
	b	Explain how to describe and summarize the data of a predictive analytics project.	5	CO 1	L2
		UNIT-II			
3.		What is a Support Vector Machine(SVM)? Explain how data is classified by using SVM?	10	CO 2	L2
		(OR)			
4.	a	Write short notes on the learning and prediction stages in the data classification process.	5	CO 2	L2
	b	Write an algorithm for generating Decision Trees.	5	CO 2	L2
		UNIT-III			
5.		What is the Markov Model? Describe a typical prediction with a Markov model.	10	CO 3	L3
		(OR)			
6.	a	Explain Linear Regression algorithm with an example?	5	CO 3	L3
	b	With a clear diagram, describe the different layers of neural networks.	5	CO 3	L3
		UNIT-IV			
7.	a	Explain how to adopt predictive analytics to the business.	5	CO 4	L2
	b	Describe the process of identifying and cleaning the data.	5	CO 4	L3
		(OR)			
8		Explain how to develop and test the model with an example.	10	CO 4	L3
		UNIT-V			
9.	a	Describe the process for evaluating the visualization.	5	CO 5	L3
	b	How do you visualize outliers in your data?	5	CO 5	L3
		(OR)			
10.	a	Explain how to visualize the Decision Trees with an example.	5	CO 5	L3
	b	Describe the process for visualizing hidden categories in the data.	5	CO 5	L3
		UNIT-VI			
11.		Explain how to visualize the predictions using matplotlib.	10	CO 6	L3
		(OR)			
12.		Describe the use of visualisation as a tool for Big Data.	10	CO 6	L3

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CODE: 20EVT303 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May, 2023

BATTERY TECHNOLOGIES

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a.	Describe electromotive force pertaining to battery.	5M	CO1	Understanding
	b.	Interpret the components of total energy content in a chemical cell.	5M	CO1	Understanding
		(OR)			
2.	a.	Differentiate between reversible and irreversible chemical cells.	5M	CO1	Understanding
	b.	Discuss current challenges pertaining to energy density of batteries.	5M	CO1	Understanding
		UNIT-II			
3.	a.	Illustrate voltage data versus state of charge for a primary battery.	5M	CO2	Understanding
	b.	Describe the constructional aspects of lead acid battery.	5M	CO2	Understanding
		(OR)			
4.	a.	Discuss the effect of operating temperature on service life of battery.	5M	CO2	Understanding
	b.	Sketch and describe the discharge curves of secondary batteries.	5M	CO2	Understanding
		UNIT-III			
5.	a.	Identify the active materials for negative electrode of lithium polymer secondary batteries.	5M	CO3	Applying
	b.	Explain the application of solid state batteries.	5M	CO3	Applying
		(OR)			
6.	a.	Discuss various electrolytes for lithium ion and lithium polymer batteries.	5M	CO3	Applying
	b.	Interpret the approach for high power density in nickel-metal hydride batteries.	5M	CO3	Applying
		UNIT-IV			
7.	a.	Explain solid state anode materials in solid state electrolyte batteries.	5M	CO4	Applying
	b.	Describe the constructional aspects of super capacitor.	5M	CO4	Applying
		(OR)			
8.	a.	Illustrate the characterization of electrode-solid electrolyte interface.	5M	CO4	Applying
	b.	Describe the applications of thin film batteries.	5M	CO4	Applying
		UNIT-V			
9.	a.	Interpret how battery capacity is determined foe various requirements in an electric vehicle.	5M	CO5	Applying
	b.	Analyse the DOE targets for vehicular energy storage system	5M	CO5	Analysing
		(OR)			
10.	a.	Differentiate the electric vehicles based on degree of electrification.	5M	CO5	Applying
	b.	Explain different sizes of batteries and its applications.	5M	CO5	Analysing
		UNIT-VI			
11.	a.	Discuss the equivalent circuit representing the operation of battery.	5M	CO6	Understanding
	b.	Recycling of certain elements of battery would reduce chemical footprint involved in battery production and usage. Justify with possible approaches in recycling of batteries.	5M	CO6	Applying
		(OR)			
12.	a.	Describe the simulation model of battery.	5M	CO6	Understanding
	b.	Identify the environmental concerns in production of batteries.	5M	CO6	Applying

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CODE: 20IOT303 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May, 2023

IoT Web development and Applications

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Discuss the use of frames in creation of HTML document.	5M	CO 1	L2
	b)	Define Form tag. Design a Registration page by using all Form controls	5M		
		(OR)			
2.		What is CSS? Describe various methods to include CSS in webpage with an example.	10M	CO 1	L2
		UNIT-II			
3.	a)	How to create a Date object using JavaScript?	5M	CO 2	L2
	b)	Write a JavaScript to display whether given number prime or not.	5M		
		(OR)			
4.	a)	Give a brief note on DOM.	5M	CO 2	L2
	b)	Write JavaScript to find sum of first 'n' even numbers and display the result. Get the value of 'n' from user.	5M		
		UNIT-III			
5.	a)	Write the key features of J2ME application.	5M	CO 3	L2
	b)	Describe alert class in detail.	5M		
		(OR)			
6.		What is Midlet Suite and explain the life cycle of Midlet in detail.	10M	CO 3	L2
		UNIT-IV			
7.	a)	Explain how IoT can be used to use drones in pesticides.	5M	CO 4	L2
	b)	List the kinds of sensors that are used in IoT-based smart farming.	5M		
		(OR)			
8.	a)	Discuss how the weather monitoring system works.	5M	CO 4	L2
	b)	Explain about precision farming using IoT.	5M		
		UNIT-V			
9.	a)	Explain About the Health care Architecture using Internet of things.	5M	CO 5	L2
	b)	Describe the SBC-ADL Architecture, And Explain With the Health care Example.	5M		
		(OR)			
10.	A	Explain about IOMT applications in detail.	10M	CO 5	L2
		UNIT-VI			
11.	a	Explain about the Health Care Sensors, and draw the circuit diagram for connectivity between Microprocessor and sensors.	10M	CO 6	L2
		(OR)			
12.	a	Explain about the Process of Wearable devices for Remote monitoring of Physiological parameter	10M	CO 6	L2

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CODE: 20ROI303 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May, 2023

ROBOT PROGRAMMING AND APPLICATIONS

(MECHANICAL ENGINEERING)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

		Marks	CO	Blooms Level
	UNIT-I			
1.	List any 5 motion commands used for Robot with detailed syntaxes of CProg.	10	1	Understanding
	(OR)			
2.	Explain about Input/ output controls with Various commands by VAL-II	10	1	Understanding
	UNIT-II			
3.	Explain about Robot library for existing Computer language with some examples. List any two general commands to operate the gripper using IGUS.	10	2	Applying
	(OR)			
4.	Explain about levels of robot programming languages	10	2	Understanding
	UNIT-III			
5.	Explain about Gripper sensing capabilities with suitable illustrations	10	3	Understanding
	(OR)			
6.	Explain about motion commands for maximum configuration of individual joints of an industrial robot	10	3	Understanding
	UNIT-IV			
7.	Write a program in CProg for material handling (pick, move& place) assume a mechanical gripper is used.	10	4	Applying
	(OR)			
8.	Write a program in CProg / IGUS for assembling (insertion, screwing, placing) consider the obstacle avaoidance during assembly operation.	10	4	Applying
	UNIT-V			
9.	List the industrial applications of the following a) Micro robots b) Service robots	10	5	Understanding
	(OR)			
10.	List various types of accidents that can occur with industrial robots and list any 5 causes of accidents.	10	5	Applying
	UNIT-VI			
11.	List application of cognitive-robots and their construction with suitable illustration.	10	6	Understanding
	(OR)			
12.	List various types of medical robots and explain principle of any one medical robot with suitable illustration.	10	6	Applying

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CODE: 20SCT303 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, May, 2023

SMART WATER & WASTE MANAGEMENT SYSTEMS

(CIVIL ENGINEERING)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a	Explain in detail the role of smart technology in resolving water challenges?	7	1	1
	b	Write a detailed note Smart Water Management?	3	1	2
		(OR)			
2.	a	Describe in detail about flood and drought management?	7	1	1
	b	Write a detailed note on retention ponds?	3	1	2
		UNIT-II			
3.	a	Explain in detail about collection equipment's, frequency of collection and labour requirements?	7	2	1
	b	Write a note on sources of MSW?	3	2	2
		(OR)			
4.	a	Describe the need for transfer stations, types and manpower requirements as a part of Waste Transportation?	7	2	1
	b	Write a note on factors influencing waste generation?	3	2	2
		UNIT-III			
5.	a	Describe in detail about incineration of municipal solid waste?	7	3	1
	b	Write a note on purpose of mechanical volume reduction?	3	3	2
		(OR)			
6.	a	Explain in detail about landfill site selection?	7	3	1
	b	Write note environmental impacts of open disposal of waste?	3	3	2
		UNIT-IV			
7.	a	Explain in detail about storage and collection of hazardous waste?	7	4	1
	b	Write a note decommissioning of nuclear power reactors?	3	4	2
		(OR)			
8.	a	Describe in detail about types and characteristics of nuclear waste	7	4	1
	b	Write a note environmental effect of nuclear waste?	3	4	2
		UNIT-V			
9.	a	Explain in detail about hazardous waste management in Indian industries?	7	5	1
	b	Write a note on hazardous waste minimization?	3	5	2
		(OR)			
10.	a	Describe the characteristics and identification methods of hazardous waste?	7	5	1
	b	Write note challenges in hazardous waste management?	3	5	2
		UNIT-VI			
11.	a	Explain in detail about biomedical waste management in India?	7	6	1
	b	Write a note on types of biomedical waste?	3	6	2
		(OR)			
12.	a	Describe in detail about treatment and disposal techniques for biomedical waste management?	7	6	1
	b	Write a note environmental effect of biomedical waste?	3	6	2