

				Course Code: B20CS3101			
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R20			
III B. Tech. I Semester MODEL QUESTION PAPER							
DATA WAREHOUSING AND DATA MINING							
(Common to CSE & CSD)							
Time: 3 Hrs.				Max.Marks:70			
Answer ONE Question from EACH UNIT							
All questions carry equal marks							
Assume suitable data if necessary							
				CO	KL	M	
UNIT-I							
1	a).	Define data mining? Explain the process of Knowledge Discovery (KDD)?			1	2	7
	b).	Explain Major Issues in Data Mining?			1	2	7
OR							
2	a).	Discuss about basic data objects and attributes types in Data Mining?			1	2	7
	b).	Discuss about estimating data dissimilarity measures on numeric data? Given two objects represented by the tuples (22,1,42,10) and (20,0,36,8). a) Compute Euclidean distance between the objects. b) Compute Manhattan distance between objects. c) Compute Supremum distance between the objects.			1	3	7
UNIT-II							
3	a).	What is data preprocessing? Explain data cleaning in detail?			2	2	7
	b).	Explain about data transformation strategies? Use these methods to normalize the following group of data: 200,300,400,600,1000 a) min-max normalization by setting min = 0 and max = 1 b) z-score normalization. c) z-score normalization using the mean absolute deviation instead of standard deviation			2	3	7
OR							
4	a).	What is data ware housing? Illustrate the multitier data ware house architecture?			2	2	7
	b).	Compare OLTP and OLAP systems? Explain typical OLAP operations on multidimensional data?			2	2	7
UNIT-III							
5	a).	Discuss about frequent item set mining? A data base has five transactions. Letmin_supD60%andmin_conf80%. Apply Apriori algorithm to find all frequent item sets.			3	3	7

		<table border="1"> <thead> <tr> <th>TID</th> <th>Items bought</th> </tr> </thead> <tbody> <tr> <td>T100</td> <td>{M,O,N,K,E,Y}</td> </tr> <tr> <td>T200</td> <td>{D,O,N,K,E,Y}</td> </tr> <tr> <td>T300</td> <td>{M,A,K,E}</td> </tr> <tr> <td>T400</td> <td>{M,U,C,K,Y}</td> </tr> <tr> <td>T500</td> <td>{C,O,O,K,I,E}</td> </tr> </tbody> </table>	TID	Items bought	T100	{M,O,N,K,E,Y}	T200	{D,O,N,K,E,Y}	T300	{M,A,K,E}	T400	{M,U,C,K,Y}	T500	{C,O,O,K,I,E}																																																																																						
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	b).	Demonstrate FP Growth algorithm with an example.	3	2	7																																																																																															
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6	a).	Explain mining frequent item sets using vertical data formats?	3	2	7																																																																																															
	b).	What are closed and max patterns? Explain about pattern mining in multidimensional and multilevel association?	3	2	7																																																																																															
		UNIT-IV																																																																																																		
7	a).	Demonstrate the construction of a Decision tree with an example.	4	2	7																																																																																															
	b).	Explain about rule based classification in detail?	4	2	7																																																																																															
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8	a).	<p>Apply Naïve Bayes algorithm on the following dataset and classify the following tuple: (Outlook=Sunny, Temperature=Cool, Humidity=High, Wind=Strong)</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="4">Predictors</th> <th>Response</th> </tr> <tr> <th>Outlook</th> <th>Temperature</th> <th>Humidity</th> <th>Wind</th> <th>Class Play=Yes Play=No</th> </tr> </thead> <tbody> <tr><td>Day1</td><td>Sunny</td><td>Hot</td><td>High</td><td>Weak</td><td>No</td></tr> <tr><td>Day2</td><td>Sunny</td><td>Hot</td><td>High</td><td>Strong</td><td>No</td></tr> <tr><td>Day3</td><td>Overcast</td><td>Hot</td><td>High</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day4</td><td>Rain</td><td>Mild</td><td>High</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day5</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day6</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Strong</td><td>No</td></tr> <tr><td>Day7</td><td>Overcast</td><td>Cool</td><td>Normal</td><td>Strong</td><td>Yes</td></tr> <tr><td>Day8</td><td>Sunny</td><td>Mild</td><td>High</td><td>Weak</td><td>No</td></tr> <tr><td>Day9</td><td>Sunny</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day10</td><td>Rain</td><td>Mild</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day11</td><td>Sunny</td><td>Mild</td><td>Normal</td><td>Strong</td><td>Yes</td></tr> <tr><td>Day12</td><td>Overcast</td><td>Mild</td><td>High</td><td>Strong</td><td>Yes</td></tr> <tr><td>Day13</td><td>Overcast</td><td>Hot</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>Day14</td><td>Rain</td><td>Mild</td><td>High</td><td>Strong</td><td>No</td></tr> </tbody> </table>		Predictors				Response	Outlook	Temperature	Humidity	Wind	Class Play=Yes Play=No	Day1	Sunny	Hot	High	Weak	No	Day2	Sunny	Hot	High	Strong	No	Day3	Overcast	Hot	High	Weak	Yes	Day4	Rain	Mild	High	Weak	Yes	Day5	Rain	Cool	Normal	Weak	Yes	Day6	Rain	Cool	Normal	Strong	No	Day7	Overcast	Cool	Normal	Strong	Yes	Day8	Sunny	Mild	High	Weak	No	Day9	Sunny	Cool	Normal	Weak	Yes	Day10	Rain	Mild	Normal	Weak	Yes	Day11	Sunny	Mild	Normal	Strong	Yes	Day12	Overcast	Mild	High	Strong	Yes	Day13	Overcast	Hot	Normal	Weak	Yes	Day14	Rain	Mild	High	Strong	No	4	3	7
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	b).	Discuss about Back propagation algorithm for neural network-based Classification of data?	4	2	7																																																																																															
		UNIT-V																																																																																																		
9	a).	Consider that the data mining task is to cluster the following seven points P1, P2, P3, P4, P5, P6, P7 into two clusters. P1(1,1), P2(2,2), P3(3,4), P4(5,7), P5(3,5), P6(4,5) and P7(4,6). The distance function is Euclidean distance. Apply K-means algorithm with two iterations to form two clusters by taking the initial cluster centres as points P1 and P4?	5	3	7																																																																																															
	b).	Compare partitional and hierarchical clustering algorithms?	5	2	7																																																																																															
		OR																																																																																																		

10	a).	Explain Density based clustering and demonstrate DBSCAN algorithm with the help of an example?	5	2	7
	b).	Explain Grid based clustering and demonstrate STING algorithm with the help of an example?	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



Course Code: B20CD3101					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R20	
III B. Tech. I Semester MODEL QUESTION PAPER					
COMPUTER AIDED DESIGN					
(For CSD)					
Time: 3 Hrs.			Max. Marks:70		
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
UNIT-I					
1.	a).	Discuss the reasons for implementing CAD	1	2	7
	b).	Write the applications of computers for Design?	1	2	7
OR					
2.	a).	Discuss the programming languages and operating system in relation with computer systems.	1	2	7
	b).	What is the basic hardware structure of a digital computer.	1	2	7
UNIT-II					
3.	a).	Discuss the working principle of Raster Scan type of graphic terminal	2	2	7
	b).	Discuss the working principles of tracker ball and digitizer graphics input devices.	2	2	7
OR					
4.	a).	What are the functions of an operating system?	2	2	7
	b).	Describe the structure of IGES and what are the limitations of IGES.	2	2	7
UNIT-III					
5.	a).	Explain different types of curves.	3	2	7
	b).	Explain coons and Bezier surfaces.	3	3	7
OR					
6.		What are the types of geometric modelling techniques? Explain in detail.	3	2	14
UNIT-IV					
7.	a).	Discuss the importance of 2D and 3D transformations in any CAD system.	4	2	7
	b).	Discuss about windowing and clipping.	4	2	7
OR					
8.		A rectangle is formed with vertices A(50, 50), B(100, 50), C(100, 80) & D(50,80). (i) Calculate the new co –ordinates of the rectangle reduced to in size using a scaling factor of 0.5,0.6; (ii) If the rectangle is reduced to square of side equal to smaller side of the rectangle.	4	3	14

UNIT-V					
9.	a).	Discuss the application of AI in the design.	5	3	7
	b).	Explain the importance of inference process.	5	3	7
OR					
10.		What is an expert system? What are the various components of an expert system? How it is related to artificial intelligence?	5	2	14
CO-COURSE OUTCOME		KL-KNOWLEDGE LEVEL	M-MARKS		

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III B.Tech I Semester MODEL QUESTION PAPER

MACHINE LEARNING

(Common to AIML & CSD)

Time: 3 Hrs.

Max. Marks:70

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M																																																																																										
UNIT-I																																																																																															
1	a).	Illustrate in detail about ingredients of Machine Learning.	1	2	7																																																																																										
	b).	Demonstrate about curse of Dimensionality and Over fitting.	1	2	7																																																																																										
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2	a).	List out & explain the models in the output of Machine Learning.	1	2	7																																																																																										
	b).	Differentiate between Prior Probability and Conditional Probability.	1	2	7																																																																																										
UNIT-II																																																																																															
3	a).	Describe the ordinary least-squares method for linear regression	2	2	7																																																																																										
	b).	Demonstrate Nearest Neighbor Classification with suitable example.	2	2	7																																																																																										
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4	a).	Develop Decision trees for following set of training examples. <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th>Day</th> <th>Outlook</th> <th>Temperature</th> <th>Humidity</th> <th>Wind</th> <th>Play Tennis</th> </tr> </thead> <tbody> <tr><td>D1</td><td>Sunny</td><td>Hot</td><td>High</td><td>Weak</td><td>No</td></tr> <tr><td>D2</td><td>Sunny</td><td>Hot</td><td>High</td><td>Strong</td><td>No</td></tr> <tr><td>D3</td><td>Overcast</td><td>Hot</td><td>High</td><td>Weak</td><td>Yes</td></tr> <tr><td>D4</td><td>Rain</td><td>Mild</td><td>High</td><td>Weak</td><td>Yes</td></tr> <tr><td>D5</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>D6</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Strong</td><td>No</td></tr> <tr><td>D7</td><td>Overcast</td><td>Cool</td><td>Normal</td><td>Strong</td><td>Yes</td></tr> <tr><td>D8</td><td>Sunny</td><td>Mild</td><td>High</td><td>Weak</td><td>No</td></tr> <tr><td>D9</td><td>Sunny</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>D10</td><td>Rain</td><td>Mild</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>D11</td><td>Sunny</td><td>Mild</td><td>Normal</td><td>Strong</td><td>Yes</td></tr> <tr><td>D12</td><td>Overcast</td><td>Mild</td><td>High</td><td>Strong</td><td>Yes</td></tr> <tr><td>D13</td><td>Overcast</td><td>Hot</td><td>Normal</td><td>Weak</td><td>Yes</td></tr> <tr><td>D14</td><td>Rain</td><td>Mild</td><td>High</td><td>Strong</td><td>No</td></tr> </tbody> </table>	Day	Outlook	Temperature	Humidity	Wind	Play Tennis	D1	Sunny	Hot	High	Weak	No	D2	Sunny	Hot	High	Strong	No	D3	Overcast	Hot	High	Weak	Yes	D4	Rain	Mild	High	Weak	Yes	D5	Rain	Cool	Normal	Weak	Yes	D6	Rain	Cool	Normal	Strong	No	D7	Overcast	Cool	Normal	Strong	Yes	D8	Sunny	Mild	High	Weak	No	D9	Sunny	Cool	Normal	Weak	Yes	D10	Rain	Mild	Normal	Weak	Yes	D11	Sunny	Mild	Normal	Strong	Yes	D12	Overcast	Mild	High	Strong	Yes	D13	Overcast	Hot	Normal	Weak	Yes	D14	Rain	Mild	High	Strong	No	2	3	7
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	b).	Explain how linear SVM is used for classification	2	2	7
		UNIT-III			
5	a).	Explain Feature construction and selection.	3	2	7
	b).	Compare Bagging and random forests.	3	2	7
		OR			
6	a).	Explain how thresholding and discretization is done in feature transformations	3	2	7
	b).	Demonstrate Gradient Boosting. Algorithm	3	2	7
		UNIT-IV			
7	a).	Summarize Principal Component Analysis.	4	2	7
	b).	Illustrate LDA	4	2	7
		OR			
8	a).	Compare Model Evaluation Techniques.	4	2	7
	b).	Demonstrate the Regularization Process	4	2	7
		UNIT-V			
9	a).	Explain back propagation in Neural Network with suitable Example.	5	2	7
	b).	Explain Markov Decision Process.	5	2	7
		OR			
10	a).	Compare multilayer perceptrons with linear perceptron.	5	2	7
	b).	Outline the uses of Reinforcement Learning.	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

Code: B20CS3104					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R20	
III B. Tech. I Semester MODEL QUESTION PAPER					
ARTIFICIAL INTELLIGENCE					
(Common to CSE & CSD)					
Time: 3 Hrs.			Max. Marks:70		
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
UNIT-I					
1	a).	Explain about different problem characteristics of AI problem.	1	2	7
	b).	Explain production system in AI.	1	2	7
OR					
2	a).	Explain about water jug problem and suggest a suitable solution to water jug problem.	1	2	7
	b).	Explain how to perform Turing test.	1	3	7
UNIT-II					
3	a).	Explain A* algorithm with an example.	2	2	7
	b).	Apply nearest neighbor heuristic algorithm to solve TSP.	2	3	7
OR					
4	a).	Explain about Means ends analysis.	2	2	7
	b).	Apply simple hill climbing to solve 8-puzzle problem.	2	3	7
UNIT-III					
5	a).	Apply unification algorithm to the following a. Like (john, x) Hate (john, x) b. Like (Marcus, Caesar, john) and Like (x, y) c. Like (john, kate) and Like (x, kate)	3	2	7
	b).	Explain Truth maintenance system in detail.	3	2	7
OR					
6	a).	Apply the Resolution algorithm to Prove that: John likes peanuts. From the following facts: a. John likes all kind of food. b. Apple and vegetable are food. c. Anything anyone eats and not killed is food. d. Anil eats peanuts and still alive. e. Harry eats everything that Anil eats.	3	3	7
	b).	Explain about Clause conversion algorithm.	3	2	7

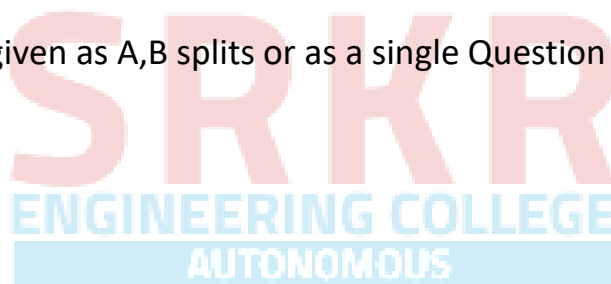
UNIT-IV					
7	a).	Differentiate Procedural knowledge and Declarative Knowledge.	4	2	7
	b).	Represent the following facts using Partitioned Semantic Nets: a. The dog bite the mail carrier b. Every batter hit every bowler	4	3	7
OR					
8	a).	Differentiate Forward and Backward Reasoning.	4	3	7
	b).	Represent the following facts in Conceptual Dependency a. John gave the AI book to marry. b. John punched marry	4	3	7
UNIT-V					
9	a).	Explain about goal stack planning.	5	3	7
	b).	Explain different types of expert systems.	5	2	7
OR					
10	a).	Explain various steps in the natural language processing.	5	2	7
	b).	Explain the architecture of the Expert system.	5	3	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

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Course Code: B20CD3102					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R20
III B. Tech. I Semester MODEL QUESTION PAPER					
OBJECT ORIENTED ANALYSIS AND DESIGN					
(For CSD)					
Time: 3 Hrs.			Max.Marks:70		
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
UNIT-I					
1	a).	Explain the Architecture of UML	1	3	7
	b).	Describe the basic activities in Object oriented analysis and explain	1	3	7
OR					
2	a).	Explain the different phases of Unified Process	1	3	7
	b).	Illustrate the software development life cycle	1	3	7
UNIT-II					
3		Describe the strategies used to identify conceptual classes. Describe the steps to create a domain model used for representing conceptual classes	2	2	14
OR					
4		Describe the UML notations for class diagram with an example. Explain the concept of Link, association and inheritance	2	3	14
UNIT-III					
5	a).	Sketch the activity diagram for the following scenario. Booking a ticket on the movies	3	3	7
	b).	Differentiate aggregation and composition with examples.	3	2	7
OR					
6		Sketch and explain the use case diagram and Interaction diagram for an online purchase system	3	3	14
UNIT-IV					
7		List and construct of the state diagram. Use the same to Sketch the state diagram for a software that controls an elevator in a building with seven floors and write the merits and demerits of state diagram.	4	3	14
OR					
8		What is the purpose of deployment diagrams? Explain the basic elements of a deployment diagram through an example	4	3	14

		UNIT-V			
9		Write the case study for Library Application with all diagrams	5	4	14
		OR			
10		Write the case study for college management with all diagrams	5	4	14
		CO-COURSE OUTCOME	KL-KNOWLEDGE LEVEL	M-MARKS	

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		Course Code: B20CD3103			
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)	R20		
III B. Tech. I Semester MODEL QUESTION PAPER					
HUMAN COMPUTER INTERACTION					
(For CSD)					
Time: 3 Hrs.		Max Marks:70			
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
		CO	KL	M	
UNIT-I					
1	a).	Give a brief introduction of the GUI.	1	2	7
	b).	Discuss about the importance of good design.	1	2	7
OR					
2	a).	Define HCI. What is the importance of good design?	1	2	7
	b).	Write a brief history of screen design.	1	1	7
UNIT-II					
3	a).	Define the importance of human characteristics in design?	2	2	7
	b).	Discuss about design team?	2	2	7
OR					
4	a).	How human is consideration in design?	2	3	7
	b).	Describe about obstacles and pitfall in development process?	2	2	7
UNIT-III					
5	a).	Explain system training and documentation?	3	2	7
	b).	Determine business function & Possible Problems in Requirements Collection?	3	2	7
OR					
6	a).	Define business function & requirement analysis?	3	2	7
	b).	Explain about style guides?	3	2	7
UNIT-IV					
7	a).	Explain Human Considerations in Interface and Screen Design?	4	2	7
	b).	What are various windows interface?	4	2	7
OR					
8	a).	Explain various types of System Menus? Explain each type in detail?	4	2	7
	b).	What is meant by test for good design	4	2	7
UNIT-V					
9	a).	What is meant by device based control?	5	2	7

	b).	Explain about operable control and presentation control?	5	2	7
		OR			
10	a).	What is meant by section control & amp; combining entry control?	5	2	7
	b).	Explain about selecting proper control?	5	2	7

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Course Code: B20CD3104					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					R20
III B. Tech. I Semester MODEL QUESTION PAPER					
VISUAL DESIGN AND COMMUNICATION					
(For CSD)					
Time: 3 Hrs.			Max.Marks:70		
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
UNIT-I					
1	a).	Define visual design? Explain in detail?	1	2	7
	b).	Explain the elements of visual language?	1	2	7
OR					
2	a).	Describe is importance of understanding visual design?	1	2	7
	b).	Explain about following: Dots, Lines, Pattern & Textual?	1	2	7
UNIT-II					
3	a).	Discuss about various Principles of visual Language?	2	2	7
	b).	Explain the Concepts of harmony, balance, contrast, proportion, order & symmetry?	2	2	7
OR					
4	a).	Identify the importance of Colour , and Space in visualization	2	2	7
	b).	Explain the following asymmetry, rhythm, tension, juxtaposition, proximity, size, scale?	2	2	7
UNIT-III					
5	a).	Explain in details about Typography & how it is useful in visualization?	3	2	7
	b).	Discuss about Content Development for Information Hierarchy?	3	2	7
OR					
6	a).	Describe the applications of typography & social communications?	3	2	7
	b).	Explain about the term visual principles of text and image composition?	3	2	7
UNIT-IV					
7	a).	Explain in detail about photography?	4	3	7
	b).	Define the process of create short 2 minutes video explain?	4	2	7
OR					
8	a).	What is meant by photography imagery? Explain?	4	2	7
	b).	Explain about videography and its uses?	4	3	7

UNIT-V					
9	a).	Discuss about various process of understanding in visual language?	5	2	7
	b).	Describe various problems in story telling & narratives?	5	2	7
OR					
10	a).	Explain about process of communication?	5	2	7
	b).	What is story telling & narratives Explain its role in design?	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



SRKR
ENGINEERING COLLEGE
AUTONOMOUS

SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)

III B.Tech I Semester MODEL QUESTION PAPER

INTERNET OF THINGS

(Common to AIML & CSD)

Time: 3 Hrs.

Max. Marks: 70

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
UNIT – I					
1.	a)	Explain the Characteristics of Internet of Things.	1	2	7
	b)	Describe in detail about the IoT levels .	1	2	7
OR					
2.	a)	Explain in detail about the drivers behind new network Architectures.	1	2	7
	b)	Discuss in detail about the logical design of IoT.	1	2	7
UNIT – II					
3.	a)	Define in detail about 6LoWPAN technology.	2	2	7
	b)	Explain the constrained application protocol (CoAP).	2	2	7
OR					
4.	a)	Detailed discussion about Bluetooth Low Energy.	2	2	7
	b)	Explain in detail about MQTT communication technology.	2	2	7
UNIT – III					
5.	a)	Explain about Basic building blocks of an IOT device.	3	2	7
	b)	Describe in detailed about Components of Arduino board.	3	2	7
OR					
6.	a)	Explain in details about radio Frequency Identification technology.	3	2	7
	b)	Write a program for Arduino interface for Temperature dependent Auto cooling system.	3	2	7
UNIT – IV					
7.	a)	Explain about Data Acquiring and storage.	4	2	7
	b)	Describe in detailed about Integration and Enterprise Systems.	4	2	7
OR					
8.	a)	Describe about the Transaction and Business Processes.	4	2	7
	b)	Explain about Managing and Storing Processes.	4	2	7

UNIT – V					
9.	a)	Explain the IoT Security Tomography and Layered Attacker model.	5	2	7
	b)	Illustrate in details about case study of smart irrigation system.	5	2	7
OR					
10.	a)	Explain about the Access control secure message communication.	5	2	7
	b)	Illustrate about Home intrusion detection.	5	2	7
CO-COURSE OUTCOME			KL-KNOWLEDGE LEVEL		M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



III B.Tech II Semester MODEL QUESTION PAPER

COMPUTER NETWORKS

(Artificial Intelligence and Machine Learning)

Time: 3 Hrs.

Max.Marks:70M

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
		UNIT-I			
1	a)	Define computer network and describe various network topologies.	1	3	7
	b)	Sketch layered Architecture of TCP/IP and discuss functions of each layer.	1	3	7
		OR			
2	a)	Elaborate various Digital-to-Digital data transmission techniques	1	3	7
	b)	Discuss about various Guided media	1	2	7
		UNIT-II			
3	a)	Solve the following. A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x^4+x+1 . What is the actual bit string transmitted?	2	3	7
	b)	Describe Sliding window flow control Algorithm	2	3	7
		OR			
4	a)	Illustrate various ARQ mechanisms	2	3	7
	b)	Discuss about HDLC protocol.	2	2	7
		UNIT-III			
5	a)	Discuss CSMA/CD protocol	3	2	7
	b)	Compare Fast Ethernet and Gigabit Ethernet	3	3	7
		OR			
6	a)	Demonstrate Architecture of Bluetooth.	3	3	7
	b)	Discuss services at MAC sub layer of IEEE 802.11	3	2	7
		UNIT-IV			
7	a)	Discuss IPV4 addressing and importance of Subnetting.	4	2	7
	b)	Describe Internet Protocol (IP) header.	4	2	7
		OR			
8	a)	Explain Link state Routing Algorithm.	4	3	7

	b)	What is NAT? Explain how address translation is done using NAT?	4	2	7
		UNIT-V			
9	a)	Define UDP Datagram and Explain the UDP frame format?	5	3	7
	b)	Explain slow start algorithm and briefly discuss Reno TCP?	5	3	7
		OR			
10	a)	Describe SMTP, POP protocols.	5	2	7
	b)	Discuss about Following Application layers protocols a) DNS b) HTTP	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



SRKR

ENGINEERING COLLEGE

AUTONOMOUS

III B. Tech. II Semester MODEL QUESTION PAPER

AUTOMATA THEORY AND COMPILER DESIGN

(For CSD)

Time: 3 Hrs

Max. Marks:70

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
UNIT-I					
1	a).	Design a DFA that accepts the language over the alphabet, $\Sigma = \{0, 1, 2\}$ where the decimal equivalent of the language is divisible by 3.	1	3	7
	b).	What is a regular language? Convert the given regular expression to regular language? a. $(1+\hat{1})(00^*1)0^*$ b. $(0^*1^*)000(0+1)^*$ c. $(00+10)^*1^*(10+00)^*$	1	3	7
OR					
2	a).	Design DFA which accepts even number of a's and even number of b's where the input is a,b.	1	3	7
	b).	Explain the classification of Finite Automata. Discuss the applications of it?	1	2	7
UNIT-II					
3	a).	Construct an LL(1) parsing Table for the following grammar $S \rightarrow aBDh, \quad B \rightarrow cC, \quad C \rightarrow bC \epsilon,$ $D \rightarrow EF, \quad E \rightarrow g \epsilon, \quad F \rightarrow f \epsilon.$	2	3	7
	b).	Explain about six phases of compiler with its neat diagram?	2	3	7
OR					
4	a).	Design LR parser for the given grammar and check the acceptance of input string of your own $R \rightarrow R+ +R RR R^*(R) a b$	2	3	7
	b).	Derive the left most & right most derivations of string 'aabbaa'. $G = (\{S,A\}, \{a,b\}, S, P)$ where P is $S \rightarrow aAS a$ $A \rightarrow SbA SS ba$	2	3	7
UNIT-III					
5	a).	What is phase structure grammar? What is Chomsky normal form of grammar? Explains the steps used to reduce a CFG to CNF.	3	2	7
	b).	Convert the following grammar into Chomsky normal form. $S \rightarrow AAA B$	3	3	7

		$A \rightarrow aA \mid B$ $B \rightarrow \epsilon$			
		OR			
6	a).	Compare Inherited attributes and Synthesized attributes with an example	3	3	7
	b).	Construct triples of an expression: $a * - (b + c)$.	3	3	7
		UNIT-IV			
7	a).	What is code optimization? Compare machine dependent and independent code optimization techniques.	4	2	7
	b).	Explain Storage allocation strategies with suitable examples?	4	3	7
		OR			
8	a).	Explain the peephole optimization Technique?	4	2	7
		Explain the following (a) Copy Propagation (b) Dead-Code Elimination (c) Code Motion (d) Reduction in Strength.	4	2	7
		UNIT-V			
9	a).	Describe and write all issues in code generation	5	3	7
	b).	Explain the code generation process involving the environment of the code generator. Explain the steps in code generation of the expression $(A + B) / C + D$. Assuming two machine registers are available.	5	3	7
		OR			
10	a).	Explain the various issues in the design of code generation .Construct the DAG for the following basic block. $d := b * c$ $e := a + b$ $b := b * c$ $a := e - d$	5	2	7
	b).	Explain about Generic code generation algorithm?	5	2	7
		CO-COURSE OUTCOME	KL-KNOWLEDGE LEVEL	M-MARKS	

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

III B.Tech II Semester MODEL QUESTION PAPER

SOFTWARE ENGINEERING

(Common to AIML & CSD)

Time:3Hrs.

Max.Marks:70

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
UNIT-I					
1	a)	Explain about Nature of the software.	1	2	7
	b)	Explain about Evolutionary process models.	1	2	7
OR					
2	a)	Explain about Software Myths.	1	2	7
	b)	Explain about Agile Process.	1	2	7
UNIT-II					
3	a)	Explain the concept of use cases with the help of an example.	2	2	7
	b)	Explain the process of requirements engineering.	2	2	7
OR					
4	a)	State and explain various aspects in the requirements validation process.	2	2	7
	b)	Elaborate the main focus of requirement analysis.	2	2	7
UNIT-III					
5	a)	Explain about UML models that supplement use cases.	3	2	7
	b)	What is Class based Modeling? Explain Elements of Class based Modeling.	3	2	7
OR					
6	a)	Explain the steps to create a behavior model for a System.	3	2	7
	b)	Explain about the requirements patterns with an example.	3	2	7
UNIT-IV					
7	a)	Explain about different architecture Styles.	4	2	8
	b)	Explain WebApps Interface Design.	4	2	6
OR					
8	a)	Explain the process of Designing Class-Based Components for WebApps	4	2	8
	b)	Explain the Golden Rules for User Interface Design	4	2	6

		UNIT-V			
9	a)	Explain the testing strategies for conventional software.	5	2	7
	b)	What is Debugging? Explain about the art of Debugging.	5	2	7
		OR			
10	a)	Explain the testing strategies for Object Oriented software.	5	2	7
	b)	Explain basic path testing with one example	5	2	7
		CO-COURSE OUTCOME	KL-KNOWLEDGE LEVEL	M-MARKS	

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



Course Code: B20CD3202					
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)				R20	
III B. Tech. II Semester MODEL QUESTION PAPER					
DEEP LEARNING					
(For CSD)					
Time: 3 Hrs.			Max. Marks:70		
Answer ONE Question from EACH UNIT					
All questions carry equal marks					
Assume suitable data if necessary					
			CO	KL	M
UNIT-I					
1	a).	Distinguish supervised vs unsupervised learning	1	3	7
	b).	Explain about cross-validation	1	2	7
OR					
2	a).	What is Dimensionality reduction? Explain	1	2	7
	b).	Explain about overfitting and under fitting	1	2	7
UNIT-II					
3	a).	Illustrate Deep feed forward networks	2	2	7
	b).	Explain about early stopping	2	2	7
OR					
4	a).	Explain about Various Activation Functions	2	3	7
	b).	What is Regularization for Deep learning? Explain Drop out	2	2	7
UNIT-III					
5	a).	Illustrate Convolutional Network	3	2	7
	b).	What is max pooling? Explain	3	2	7
OR					
6	a).	Illustrate Recurrent Neural Networks	3	2	7
	b).	Explain about Long Short-Term Memory	3	2	7
UNIT-IV					
7	a).	What are Auto encoders? Explain	4	2	7
	b).	Explain about stochastic gradient descent	4	2	7
OR					
8	a).	What is denoising auto encoder? Explain	4	2	7
	b).	What is Optimization for Deep Learning? Explain Adam optimization algorithm	4	2	7
UNIT-V					
9	a).	Illustrate Alexnet architecture	5	2	7

	b).	Analyze how to improve performance of a model with Transfer learning	5	4	7
		OR			
10	a).	Illustrate ResNet architecture	5	2	7
	b).	Write about Deep Generative Models	5	3	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



III B. Tech. II Semester MODEL QUESTION PAPER

CRYPTOGRAPHY AND NETWORK SECURITY

(For CSD)

Time: 3 Hrs.

Max. Marks:70

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
UNIT-I					
1.	a).	Differentiate Active attacks and Passive attacks.	1	2	7
	b).	Explain Traditional Block cipher Structure	1	2	7
OR					
2.	a).	What is mono alphabetic cipher? How it differs from Caesar cipher.	1	2	7
	b).	Explain Block cipher design principles.	1	2	7
UNIT-I					
3.	a).	Perform Encryption and Decryption using RSA algorithm for $p=17, q=11, e=7, M=88$.	2	3	7
	b).	Explain the structure of AES algorithm with neat diagram and describe the steps in AES encryption.	2	2	7
OR					
4.	a).	Find the secret key shared between User A and User B using Diffie Hellman Key exchange algorithm for the following: $q=97, a=5$, the private keys $X_A = 36, X_B = 58$.	2	3	7
	b).	Explain Block Cipher modes of operations	2	2	7
UNIT-III					
5.	a).	Illustrate digital signature algorithm with neat diagram and explain how to sign and verify using DSS algorithm.	3	3	7
	b).	Differentiate between HMAC and CMAC	3	2	7
OR					
6.	a).	List and explain various steps of SHA in detail with neat diagram.	3	2	7
	b).	Describe Kerberos with steps to grant the ticket.	3	2	7
UNIT-IV					
7.	a).	Describe IP sec architecture with neat diagram.	4	2	7
	b).	Discuss the services provided by PGP with neat diagram.	4	2	7
OR					
8.	a).	Discuss in detail about SSL/TLS.	4	3	7

	b).	Explain Web security requirements	4	2	7
		UNIT-V			
9.	a).	Explain key elements in Blockchain technology.	5	2	7
	b).	Explain about different types of firewalls	5	2	7
		OR			
10.	a).	Explain how firewalls are configured.	5	2	7
	b).	Describe how Blockchain technology is used in smart contracts.	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



III B.Tech II Semester MODEL QUESTION PAPER

DISTRIBUTED SYSTEMS

(Common to AIML & CSD)

Time: 3 Hrs.

Max. Marks:70

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
		UNIT-I			
1	a).	Describe the characteristics of Parallel Systems	1	2	7
	b).	Explain Different Primitives for Distributed Communication	1	2	7
		OR			
2	a).	Distinguish between Message Passing Systems versus Shared Memory Systems.	1	2	7
	b).	Explain different design issues in Distributed Systems.	1	2	7
		UNIT-II			
3	a).	Discuss about different Message ordering Paradigms	2	3	7
	b).	Explain the Chandy–Lamport algorithm for FIFO channels.	2	2	7
		OR			
4	a).	Explain about Group Communication.	2	2	7
	b).	Explain the Issues in recording a global state.	2	3	7
		UNIT-III			
5	a).	Explain about the LAMPORT'S ALGORITHM.	3	2	7
	b).	Explain different Issues in Deadlock Detection.	3	2	7
		OR			
6	a).	Explain the three basic approaches for implementing distributed mutual exclusion	3	2	7
	b).	Explain the SUZUKI-KASAMI'S BROADCAST ALGORITHM	3	2	7
		UNIT-IV			
7	a).	Explain about Communication-induced Check pointing rollback-recovery technique.	4	2	7
	b).	Explain CONSENSUS PROBLEM IN ASYNCHRONOUS SYSTEMS.	4	2	7
		OR			
8	a).	Why is rollback recovery of distributed systems complicated?	4	3	7

	b).	Explain the NONBLOCKING UNIVERSAL ALGORITHM.	4	2	7
		UNIT-V			
9	a).	Explain the Content Addressable Network (CAN).	5	2	7
	b).	Explain Napster P2P System.	5	2	7
		OR			
10	a).	Distinguish between Structured vs. unstructured overlays	5	3	7
	b).	Explain Extended Barabasi-Albert Model.	5	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks



III B. Tech. II Semester MODEL QUESTION PAPER

NETWORK PROGRAMMING

(Common to CSE & CSD)

Time: 3 Hrs.

Max. Marks:70

Answer ONE Question from EACH UNIT

All questions carry equal marks

Assume suitable data if necessary

			CO	KL	M
UNIT-I					
1.	a).	Explain the steps involved in creating raw socket	1	2	7
	b).	Explain the fundamental differences between the operation of TCP and UDP protocols.	1	2	7
OR					
2.	a).	Explain SCTP Network architecture	1	2	7
	b).	Write a note on differences between IPv4 and IPv6	1	2	7
UNIT-II					
3.	a).	Describe elementary TCP socket functions with an example.	2	3	7
	b).	Illustrate the concept of server host crashes with a suitable example.	2	2	7
OR					
4.	a).	Illustrate Concurrent Servers and write close, read & Write functions	2	3	7
	b).	Explain socket functions for TCP client server model	2	2	7
UNIT-III					
5.	a).	Write briefly POSIX Signal Handling and Termination of Server Process.	3	3	7
	b).	Explain the functionality provided by select function. List the differences between Poll and Select functions	3	2	7
OR					
6.		What is I/O Multiplexing? Explain different types of Synchronous and asynchronous I/O models.	3	2	14
UNIT-IV					
7.	a).	Describe the UDP Echo server functions and lost datagram with an example	4	2	7
	b).	Describe the getaddr info function as applicable to IPV6. Write briefly about IPV4 socket options.	4	2	7
OR					
8.		Write briefly about lack of flow control with UDP. List the differences between TCP and UDP.	4	3	14

UNIT-V					
9.	a).	Explain in detail how the IPC functionality is provided by message queues.	5	2	7
	b).	What are the advantages of shared memory over pipes, FIFO and message queues? Explain the process of Copying file data from server to client using shared memory	5	2	7
OR					
10.	a).	Write a short notes on a) FTP b) SMTP C) TELNET	5	2	7
	b).	Explain the differences among the exec family of functions of Unix.	5	2	7
CO-COURSE OUTCOME		KL-KNOWLEDGE LEVEL	M-MARKS		

NOTE : Questions can be given as A,B splits or as a single Question for 14 marks

