					Course Code: B23CI3101
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		DESIGNING THE IOT			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define IoT and list its characteristics.	1	1	2
	b).	Explain any two design principles for IoT.	1	2	2
	c).	Identify any two types of sensors used in IoT.	2	1	2
	d).	Explain the concept of Edge Computing in IoT.	2	2	2
	e).	Write any two differences between C and Python in IoT.	3	1	2
	f).	Describe event-driven programming in embedded systems.	3	2	2
	g).	State the role of semaphores in RTOS.	4	1	2
	h).	Explain context switching in RTOS.	4	2	2
	i).	Name any two IoT security threats.	5	1	2
	j).	Describe the features of Raspberry Pi.	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Describe the architecture of IoT with necessary layers.	1	2	5
	b).	Illustrate how data acquisition and organization work in IoT systems.	1	2	5
		OR			
3.	**a).**	Explain the modularity and interoperability principles in IoT design.	1	2	5
	b).	Compare traditional systems with IoT systems based on architecture.	1	4	5
		UNIT-2			
4.	**a).**	Compare Microcontrollers and Microprocessors with respect to IoT applications.	2	4	5
	b).	Demonstrate the usage of MQTT and CoAP protocols in IoT	2	3	5
		OR			
5.	**a).**	Describe various wireless modules used in IoT (WiFi, ZigBee, etc.).	2	2	5
	b).	Use a block diagram to explain the role of IoT gateways.	2	3	5
		UNIT-3			
6.	**a).**	Develop a smart irrigation solution using sensor data in Python.	3	6	5

	b).	Explain how data is acquired and handled from a temperature sensor.	3	3	5
		OR			
7.	**a).**	Create a simple IoT-based home automation logic using C.	3	6	5
	b).	Illustrate multithreading concepts used in IoT programming.	3	2	5
		UNIT-4			
8.	**a).**	Justify the need for priority handling in IoT RTOS tasks.	4	4	5
	b).	Analyze the Nucleus SE RTOS architecture.	4	4	5
		OR			
9.	**a).**	Describe the process of RTOS initialization and task startup.	4	2	5
	b).	Assess the advantages of multitasking in RTOS.	4	5	5
		UNIT-5			
10.	**a).**	Evaluate the role of device management using NETCONF and YANG.	5	5	5
	b).	Choose appropriate IoT tools for healthcare domain and justify.	5	5	5
		OR			
11.	**a).**	Recommend secure communication techniques for IoT devices.	5	5	5
	b).	Explain the role of tools like Puppet and Ansible in IoT configuration.	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3102
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		CYBER SECURITY AND DIGITAL FORENSICS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define cybercrime and mention its major categories.	1	1	2
	b).	Explain the concept of social engineering in cyber-attacks.	1	2	2
	c).	List any two types of malware with examples.	2	1	2
	d).	Differentiate between white-hat and black-hat hackers.	2	2	2
	e).	State any two challenges in mobile device forensics.	3	2	2
	f).	What is the role of digital evidence in cybercrime investigations.	3	2	2
	g).	Define honeypots in cyber security.	4	1	2
	h).	Mention the stages of digital forensics process.	4	1	2
	i).	Define chain of custody and its importance.	5	1	2
	j).	Mention two provisions of the Indian IT Act, 2000 related to cybercrime.	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Classify the different social engineering attack techniques.	1	2	5
	b).	Compare Individual and Government/Organization Cybercrime.	1	2	5
		OR			
3.	**a).**	Determine SQL Injections, DDOS attacks, Ransomware, Brute Force attacks.	1	2	5
	b).	Explain the categories of Cybercrime by I4C.	1	2	5
		UNIT-2			
4.	**a).**	Explain in details about internet Hacking and Cracking.	2	2	5
	b).	Distinguish Exploitation and Stalking.	2	2	5
		OR			
5.	**a).**	Explain in detail about Software Piracy and its types.	2	2	5
	b).	Explain Trojans, Viruses, Worms and Backdoor attacks.	2	2	5
		UNIT-3			

6.	**a).**	Demonstrate Password Cracking in detail.	3	2	5
	b).	Explain in detail about digital evidence collection.	3	2	5
		OR			
7.	**a).**	Explain the recovery process of deleted evidences.	3	2	5
	b).	Discuss the various steps in preserving digital evidence.	3	2	5
		UNIT-4			
8.	**a).**	Apply different Forensic Hardware tools with a real world scenario.	4	3	5
	b).	Apply Forensic Ballistics for Bullet and Cartridge case and make a report.	4	3	5
		OR			
9.	**a).**	Apply the process of fingerprint recognition to a forensic investigation scenario	4	3	5
	b).	Apply audio and video enhancement techniques in recovering digital evidence from tampered CCTV footage.	4	3	5
		UNIT-5			
10.	**a).**	Write about Indian IT Act provisions related to cybercrime.	5	2	5
	b).	Describe the roles of IPC and CrPC in handling cyber offenses.	5	2	5
		OR			
11.	**a).**	Discuss the key differences between IPC and CrPC in digital crime.	5	2	5
	b).	Explain the procedures involved in handling and preserving digital evidence as per legal standards.	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

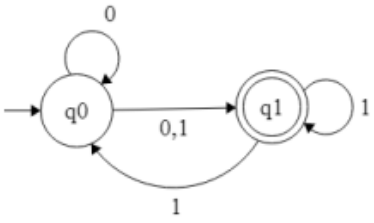
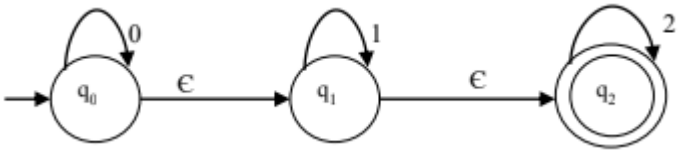
NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3103
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R23**
III B.Tech. I Semester MODEL QUESTION PAPER					
CRYPTOGRAPHY & NETWORK SECURITY					
(For CIC)					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer Question No.1 compulsorily					
Answer **ONE Question** from **EACH UNIT**					
Assume suitable data if necessary					
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define Phishing and give an example.	1	1	2
	b).	What is a block cipher? How does it differ from stream cipher?	1	2	2
	c).	Write any two advantages of Advanced Encryption Standard (AES).	2	1	2
	d).	Explain the differences between RC4 and RC5.	2	2	2
	e).	What is a cryptographic hash function? Mention its use.	3	2	2
	f).	Write short notes on HMAC.	3	1	2
	g).	Define Kerberos and state its purpose.	4	1	2
	h).	What is an Authentication Header (AH) in IP Security?	4	2	2
	i).	Write any two characteristics of firewalls.	5	1	2
	j).	What are the differences between SSL and TLS?	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain different types of Security Attacks and Security Services.	1	2	5
	b).	Illustrate the working of Substitution and Transposition techniques with examples	1	2	5
		OR			
3.	**a).**	Describe Block Cipher Modes of Operation.	1	2	5
	b).	Explain SQL Injection and Web-based attacks.	1	2	5
		UNIT-2			
4.	**a).**	Explain the architecture and working of AES algorithm.	2	2	5
	b).	Perform Encryption and Decryption using RSA algorithm for p=17,q=11,e=7,M=88	2	3	5
		OR			
5.	**a).**	Calculate the secret key shared between User A and User B using DiffieHellman Key exchange algorithm for the following:**q=97, a=5, the private keys XA = 36, XB = 58.**	2	3	5
	b).	Illustrate Elliptic Curve Cryptography (ECC)	2	2	5

		UNIT-3			
6.	**a).**	Apply MD5 algorithm to generate hash value with an example.	3	3	5
	b).	Explain HMAC and CMAC in detail.	3	2	5
		OR			
7.	**a).**	Use DSA to sign and verify signature with an example.	3	3	5
	b).	Discuss Elgamal Digital Signature Scheme.	3	2	5
		UNIT-4			
8.	**a).**	Explain the working of Kerberos authentication protocol.	4	2	5
	b).	Describe the architecture and functionality of IP Security (IPSec)	4	2	5
		OR			
9.	**a).**	What is S/MIME? Describe how it ensures secure email communication.	4	2	5
	b).	Discuss the OAKLEY and ISAKMP key management protocols.	4	2	5
		UNIT-5			
10.	**a).**	What are the Web Security Requirements? Explain in the context of SSL.	5	2	5
	b).	Explain various types of firewalls with diagrams.	5	2	5
		OR			
11.	**a).**	Describe the architecture and working of TLS protocol.	5	2	5
	b).	Demonstrate the configuration and use of firewalls in secure communication.	5	3	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3104
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		AUTOMATA THEORY & COMPILER DESIGN			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Differentiate DFA and NFA	1	2	2
	b).	Construct DFA to accept set of all strings over {0,1} and having even zero's and even one's	1	3	2
	c).	Construct regular expression to denote set of strings set of all strings beginning with 01 and ending with 10	2	3	2
	d).	Explain how pumping lemma is useful.	2	2	2
	e).	Construct Context free grammar for L= { WCW^R / W in (0+1)* }	3	3	2
	f).	Differentiate top down and bottom up parsers	3	2	2
	g).	Define PDA	4	1	2
	h).	Differentiate LR(0) item and LR(1) item	4	2	2
	i).	Define the Turing Machine	5	1	2
	j).	Explain about SDD	5	2	2
					5 x 10 =50Marks
		UNIT-1			
2.	**a).**	Construct DFA from the following NFA 	1	3	5
	b).	Explain different phases of compiler with neat diagram	1	2	5
		OR			
3.	**a).**	Construct NFA from the following ε-NFA 	1	3	5

	b).	Explain about different language processors with neat diagram	1	2	5
		UNIT-2			
4.	**a).**	Apply pumping lemma to show the set of all even length palindrome strings is not regular.	2	3	5
	b).	Explain the Role of lexical analyzer	2	2	5
		OR			
5.	**a).**	Construct NFA with ϵ moves equivalent to the RE (ab + aab)*	2	3	5
	b).	Explain the Recognition of Tokens.	2	2	5
		UNIT-3			
6.	**a).**	Construct Predictive parsing table for the following CFG S→iEtSS^1/a S^1→eS/ ε E→b	3	3	10
		OR			
7.	**a).**	Construct LMD and RMD for the string abba from the CFG S→aSbS / bSaS / ε	3	3	5
	b).	Show that the following CFG is ambiguous, construct parse trees for the ambiguous string. S→S+S/ S*S/a/b	3	3	5
		UNIT-4			
8.	**a).**	What is ID of PDA? Explain the acceptance of PDA by final state and empty stack	4	2	5
	b).	Construct PDA for recognizing the Context free language L= {a^n c b^n / n>=1}	4	3	5
		OR			
9.	**a).**	Explain how SLR parser operates, Construct SLR parsing table for the grammar S→AA A→aA/b	4	3	10
		UNIT-5			
10.	**a).**	Explain different types of TM?	5	2	5
	b).	Construct a TM for recognizing all the binary strings which have 00 substring 00	5	3	5
		OR			
11.	**a).**	Translate the expression a = (b * -c)+(b * -c) into Quadruples, triples and indirect triples.	5	3	5
	b).	Explain about the issues in the Design of a Code Generator	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3105
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		ARTIFICIAL INTELLIGENCE			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define AI Technique	1	1	2
	b).	What is state space representation	1	1	2
	c).	What is Heuristic search	2	1	2
	d).	Differentiate exhaustive search and uniform search	2	2	2
	e).	What is Adversarial search	3	1	2
	f).	Explain optimal decisions & strategies in games	3	2	2
	g).	Represent the following in clause form All men are mortal	4	2	2
	h).	Explain computable functions in predicate logic	4	2	2
	i).	Explain the components of a planning system	5	2	2
	j).	Explain expert system shell	5	2	2
					5 x 10 =50Marks
		UNIT-1			
2.	**a).**	Explain about different AI Problems	1	3	5
	b).	Explain about the state representation of water jug problem and suggest a solution to water jug problem	1	2	5
		OR			
3.	**a).**	Give an example AI problems in which solution steps are ignored, recovered and not possible to recover	1	3	5
	b).	Explain different types of agents	1	2	5
		UNIT-2			
4.	**a).**	Explain nearest neighbor algorithm andApply nearest neighbor algorithm to solve TSP	2	3	5
	b).	Differentiate BFS and DFS algorithms	2	2	5
		OR			
5.	**a).**	Explain about A* algorithm and Apply A* algorithm to solve 8 puzzle problem	2	3	10

		UNIT-3			
6.	**a).**	Explain about constraint satisfaction algorithm and apply it to solve any AI problem	3	3	10
		OR			
7.	**a).**	Explain about minimax search procedure.	3	2	5
	b).	Explain about alpha-beta pruning.	3	2	5
		UNIT-4			
8.	**a).**	Explain different approaches for knowledge representation	4	2	5
	b).	Differentiate Procedural verses declarative knowledge	4	3	5
		OR			
9.	**a).**	Explain Resolution algorithm. 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.	4	3	10
		UNIT-5			
10.	**a).**	Explain about Goal stack planning	5	2	5
	b).	Explain different types of expert systems	5	2	5
		OR			
11.	**a).**	Explain about Bayesian networks	5	2	5
	b).	Explain the architecture of Expert system	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3106
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		MICROPROCESSORS & MICROCONTROLLERS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain the role of BIU and EU in 8086 architecture.	1	2	2
	b).	Describe the purpose of the MN/MX pin in 8086.	1	2	2
	c).	Use MOV instruction to transfer data from memory to register.	2	3	2
	d).	Apply the XLAT instruction for character conversion.	2	3	2
	e).	Define the function of control word in 8255 PPI.	3	2	2
	f).	Explain the role of 8257 DMA controller in interfacing.	3	2	2
	g).	Identify the role of TXD and RXD in serial communication.	4	3	2
	h).	Apply the USART 8251 in a serial data transmission system.	4	3	2
	i).	Use an instruction to move data between two registers in 8051.	5	3	2
	j).	Identify the role of CPSR in ARM processors.	5	3	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Summarize the different addressing modes used in 8086 microprocessors with suitable examples.	1	2	5
	b).	Classify the different types of instructions in the 8086-instruction set.	1	2	5
		OR			
3.	**a).**	Illustrate the function of various pins of 8086 in maximum mode.	1	2	5
	b).	Explain the segmented memory structure of 8086 with an example.	1	2	5
		UNIT-2			
4.	**a).**	Implement an assembly program to multiply two 16-bit numbers using 8086 instructions.	2	3	5
	b).	Develop an assembly language program for BCD to binary conversion.	2	3	5
		OR			
5.	**a).**	Write an assembly program to count the number of vowels in a string.	2	3	5
	b).	Apply assembler directives such as ORG, EQU, and END in a small program example.	2	3	5

		UNIT-3			
6.	**a).**	Compare the working of Mode 0 and Mode 1 in 8255 PPI.	3	2	5
	b).	Discuss the control and status signals used in 8257 DMA controller.	3	2	5
		OR			
7.	**a).**	Explain the interfacing of an ADC with 8086 using control signals.	3	2	5
	b).	Illustrate the memory interfacing technique in 8086 with necessary diagrams.	3	2	5
		UNIT-4			
8.	**a).**	Design a serial communication system using RS-232 standard and 8251 USART.	4	3	5
	b).	Write a program to transmit a string serially using 8086 and 8251.	4	3	5
		OR			
9.	**a).**	Construct the initialization routine for 8251 USART to enable asynchronous mode.	4	3	5
	b).	Demonstrate the interfacing of modem with 8086 microprocessor using 8251.	4	3	5
		UNIT-5			
10.	**a).**	Write an 8051 program to toggle an LED connected to Port 1 using Timer interrupt.	5	3	5
	b).	Implement a delay using Timer 1 in 8051 and explain each step.	5	3	5
		OR			
11.	**a).**	Develop an 8051 program to transmit data through the serial port using polling method.	5	3	5
	b).	Design a program to read a switch status and control a motor using 8051 microcontroller.	5	3	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3107
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. I Semester MODEL QUESTION PAPER			
		LIGHT WEIGHT CRYPTOGRAPHY			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain Anti-counterfeiting.	1	2	2
	b).	Explain RFID.	1	2	2
	c).	Discuss Violations of Privacy.	2	2	2
	d).	Explain Insecurities of Privacy.	2	2	2
	e).	Explain NFC.	3	2	2
	f).	Discuss EPC System.	3	2	2
	g).	Explain Traceability.	4	2	2
	h).	Explain Cloning.	4	2	2
	i).	Discuss Authentication.	5	2	2
	j).	Explain Random Number Generator.	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.		Explain Networked RFID Systems.	1	2	10
		OR			
3.		Explain PC Network Architecture.	1	2	10
		UNIT-2			
4.		Explain RFID Tag Vulnerabilities in RFID Systems	2	2	10
		OR			
5.		Explain RFID Product Authentication Techniques.	2	2	10
		UNIT-3			
6.		Explain EPC System for a Safe & Secure Supply Chain.	3	2	10
		OR			
7.		Explain the Potential of RFID and NFC in Anti-Counterfeiting	3	2	10
		UNIT-4			

8.		Illustrate Strengthening the Security of Machine-Readable Documents.	4	3	10
		OR			
9.		Illustrate Enhancing Security of Class I Generation 2 RFID against Traceability and Cloning.	4	3	10
		UNIT-5			
10.		Illustrate Low-Cost Solution to Cloning and Authentication Based on a Lightweight Primitive	5	3	10
		OR			
11.		Illustrate Lightweight Cryptography for Low-Cost RFID.	5	3	10

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3201
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		WIRELESS SENSOR NETWORKS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	List two application domains of WSNs.	1	2	1
	b).	Define node density	1	2	1
	c).	Give one enabling technology for WSN hardware.	2	2	1
	d).	What is energy harvesting (one line)?	2	2	1
	e).	Expand PAN and state its meaning	3	2	1
	f).	What is a long preamble used for in B-MAC?	3	2	1
	g).	Describe a drawback of blind flooding.	4	2	1
	h).	Name one real-time support mechanism in WSN	4	2	1
	i).	Explain why hotspot nodes near sink drain faster.	5	2	1
	j).	Mention any one function of a WSN–Internet gateway.	5	2	1
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Critically compare WSNs with traditional wireless networks in six dimensions: addressing model, traffic pattern, node resources, mobility, QoS philosophy, and lifetime objectives.	1	3	10
		OR			
3.	**a).**	Describe five fundamental design trade-offs in WSNs (energy vs. latency, reliability vs. redundancy, coverage vs. cost, scalability vs. manageability, precision vs. lifetime).	1	2	5
	b).	Contrast data-centric and address-centric communication models with examples	1	2	5
		UNIT-2			
4.	**a).**	Develop a comprehensive plan to mitigate coverage holes: detection techniques, redeployment strategies, and algorithmic adjustments	2	3	10
		OR			
5.	**a).**	Differentiate WSN vs MANET protocol design philosophy (at least three points).	2	3	5

	b).	Discuss time synchronization challenges and briefly outline two protocols	2	2	5
		UNIT-3			
6.	**a).**	Compare S-MAC and B-MAC on energy efficiency, latency, adaptability, and complexity.	3	3	10
		OR			
7.	**a).**	Explain the 802.15.4 beacon-enabled superframe: CAP, CFP (GTS), and inactive period roles.	3	2	5
	b).	Describe Issues in designing MAC protocols for adhoc wireless networks	3	2	5
		UNIT-4			
8.	**a).**	Compare AODV and DSR focusing on route maintenance & overhead.	4	3	5
	b).	Explain how OLSR reduces flooding using MPRs with a small illustrative node set.	4	2	5
		OR			
9.	**a).**	State the challenges in energy-aware routing metric design.	4	2	5
	b).	Analyse benefits & costs of hierarchical routing using LEACH vs flat flooding for periodic sensing.	4	3	5
		UNIT-5			
10.	**a).**	Compare three MAC QoS mechanisms: TDMA, priority CSMA, hybrid 802.15.4.	5	2	5
	b).	Analyse trade-offs in choosing aggregation window size for event bursts.	5	3	5
		OR			
11.	**a).**	Design a joint security + QoS plan (confidential health data): specify which flows receive encryption, key management strategy, impact on duty cycle, and how you mitigate added delay.	5	3	10

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

		Course Code: B23CI3202			
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R23**
III B.Tech. II Semester MODEL QUESTION PAPER					
CLOUD COMPUTING					
(For CIC)					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer Question No.1 compulsorily					
Answer **ONE Question** from **EACH UNIT**					
Assume suitable data if necessary					
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	What is cloud computing?	1	1	2
	b).	List any two advantages of cloud computing.	1	1	2
	c).	What is the role of Remote Procedure Call (RPC) in distributed systems?	2	1	2
	d).	Define parallel computing.	2	1	2
	e).	Mention one advantage and one disadvantage of virtualization	3	1	2
	f).	List any two characteristics of a virtualized environment.	3	1	2
	g).	Define cloud interoperability in cloud computing	4	1	2
	h).	Name two methods used to improve energy efficiency in cloud data centers.	4	1	2
	i).	Differentiate between serverless and traditional server-based computing	5	2	2
	j).	Name one public cloud and one open-source platform for serverless computing.	5	1	2
					5 x 10 = 50 Marks
		UNIT-1			
2.		Explain the types of cloud service models with suitable example for each.	1	2	10
		OR			
3.		Explain the cloud computing reference model in detail, describing each abstraction layer and its function.	1	2	10
		UNIT-2			
4.		Explain the architecture types: SISD, SIMD, MISD, and MIMD. Provide examples of each.	2	2	10
		OR			
5.	**a).**	Discuss how Inter-Process Communication (IPC) and Remote Procedure Call (RPC) facilitate distributed computing.	2	2	5
	b).	Describe the role of virtualization, SOA, and web services as enabling technologies for the cloud. How do they support scalability and	2	2	5

		interoperability?			
		UNIT-3			
6.		Explain, with examples, the taxonomy of virtualization techniques (hardware, OS, server, network, storage, application virtualization)	3	2	10
		OR			
7.	**a).**	Describe in detail the working of Amazon Elastic Container Service and how it differs from VM-based services like EC2.	3	2	5
	b).	Briefly describe the taxonomy of virtualization techniques, mentioning Type 1 and Type 2 hypervisors and their key differences.	3	2	5
		UNIT-4			
8.		Explain how cloud scalability and fault tolerance improve service availability for enterprise applications.	4	2	10
		OR			
9.	**a).**	Explain the concept of federated clouds. What challenges do they address and introduce?	4	2	5
	b).	Describe the cloud security architecture. Discuss how security varies across different deployment models (public, private, hybrid).	4	2	5
		UNIT-5			
10.	**a).**	Explain how event-driven execution works in serverless platforms.	5	2	5
	b).	Describe the architecture of Function-as-a-Service (FaaS) with examples such as AWS Lambda and OpenFaaS.	5	2	5
		OR			
11.		Discuss the role of edge and fog computing in extending the benefits of serverless architectures	5	2	10

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3203
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		BLOCKCHAIN TECHNOLOGY			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain the origin of blockchain.	1	2	2
	b).	Explain different types of blockchain.	1	2	2
	c).	Explain public blockchain.	2	2	2
	d).	Explain different types of Oracles	2	2	2
	e).	Explain Byzantine Fault.	3	2	2
	f).	Discuss the advantages of Ripple.	3	2	2
	g).	Explain Security Aspects in Bitcoin	4	2	2
	h).	Explain Limitations of Blockchain	4	2	2
	i).	Discuss How to Use Python Online Editor	5	2	2
	j).	Explain the Chain codes.	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain the Components of Blockchain.	1	2	5
	b).	Identify the importance of Consensus Protocol in the Blockchain.	1	2	5
		OR			
3.	**a).**	Explain Decentralization and Distribution in the Blockchain.	1	2	5
	b).	Explain different types of Cryptocurrencies.	1	2	5
		UNIT-2			
4.	**a).**	Explain Public Blockchain system.	2	2	5
	b).	Discuss different Characteristics of a Smart Contract	2	2	5
		OR			
5.	**a).**	Explain the Ethereum Blockchain system.	2	2	5
	b).	Explain Smart Contracts in Ethereum.	2	2	5
		UNIT-3	3	2	5
6.	**a).**	Explain Key Characteristics of Private Blockchain.	3	2	5

	b).	Discuss different Blockchain Fundraising Methods.			
		OR			
7.	**a).**	Explain Characteristics of Consortium Blockchain	3	2	5
	b).	Discuss Pros and Cons of Initial Coin Offering	3	2	5
		UNIT-4			
8.	**a).**	Explain the Security and Privacy Challenges of Blockchain.	4	2	5
	b).	Illustrate how Blockchain can be used in Banking and Finance.	4	3	5
		OR			
9.	**a).**	Discuss the process of Safeguarding Blockchain Smart Contract.	4	2	5
	b).	Illustrate how Blockchain can be used in Internet of Things	4	3	5
		UNIT-5			
10.	**a).**	Illustrate how Python Packages can be used for Blockchain.	5	3	5
	b).	Illustrate Blockchain Application Development Using Fabric Java SDK.	5	3	5
		OR			
11.	**a).**	Explain different Components of Hyperledger Fabric Network	5	2	5
	b).	Illustrate how Blockchain can be used in Health Care.	5	3	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

				Course Code: B23CI3204	
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		SOFTWARE ENGINEERING			
		(For CIC)			
Time: 3 Hrs.				**Max. Marks: 70 M**	
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
				10 x 2 = 20 Marks	
			CO	**KL**	**M**
1.	**a).**	How is computer systems engineering different from software engineering?	1	2	2
	b).	Are the terms SDLC and software development process synonymous? Explain your answer.	1	2	2
	c).	List any four desirable characteristics of a good software specification (SRS) document	2	1	2
	d).	What is a stereotype in UML explain with an example?	2	2	2
	e).	What are the advantages of component-based user interface development?	3	1	2
	f).	Distinguish between user-centric interface design and interface design by users.	3	2	2
	g).	What is regression testing and how it is performed?	4	2	2
	h).	What is cyclomatic complexity of a program?	4	1	2
	i).	Define any two commonly used project size estimation metrics	5	1	2
	j).	Define software reverse engineering.	5	1	2
				5 x 10 = 50 Marks	
		UNIT-1			
2.	**a).**	Explain what is meant by the control flow structure of a program. Describe some techniques for designing a clear and effective control flow in a program with an example.	1	3	10
		OR			
3.	**a).**	Briefly explain agile software development model. Give an example of a project for which agile model would be suitable and one project for which agile model would not be appropriate.	1	3	10
		UNIT-2			
4.	**a.)**	Draw a class diagram using UML syntax to represent the following. An engineering college offers B.Tech degrees in three branches. Each branch can admit 30 students each year. For a student to complete the	2	3	5

		degree, he/she has to clear all the 30 core courses and at least 10 of the elective courses.			
	b.)	What is the difference between a use case and a scenario? Identify all scenarios for the withdraw cash use case of a standard bank ATM	2	3	5
		OR			
5.	**a).**	What is the difference between functional and non-functional requirements of a system? Identify at least two functional requirements and one non-functional requirement of a bank automated teller machine (ATM) system.	2	3	5
	b).	Develop an use case model for a standard bank ATM.	2	3	5
		UNIT-3			
6.		Explain balancing a DFD with an example.	3	2	10
		OR			
7.	**a).**	What is a design review? Mention the list of items that can be used as a checklist for carrying out the review	3	2	5
	b).	Explain top-down decomposition in the context of function-oriented design with suitable example	3	2	5
		UNIT-4			
8.		How do software reliability and quality approaches impact the overall performance of a software system?	4	2	10
		OR			
9.		Explain types of white box testing in detail	4	2	10
		UNIT-5			
10.		Explain the basic concept of the COCOMO model and how it is used for estimating effort, time, or cost in software projects	5	2	10
		OR			
11.		Describe two software maintenance process models, such as the quick-fix model and the iterative enhancement model. Summarize their key features and typical use cases.	5	2	10

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3205
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		MOBLILE ADHOC NETWORKS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define MANET and list any four of its applications.	1	1	2
	b).	What are the design goals of MAC protocols in Ad Hoc networks?	1	1	2
	c).	Compare topology-based and position-based routing protocols in Ad Hoc networks.	2	2	2
	d).	Summarize the key goals considered while designing routing protocols for MANETs.	2	2	2
	e).	List any four security requirements in Ad Hoc networks.	3	1	2
	f).	What is cooperation in MANETs and why is it needed?	3	1	2
	g).	Explain any two design issues in Wireless Sensor Networks.	4	2	2
	h).	Compare energy consumption in sensing vs. communication tasks in WSNs.	4	2	2
	i).	Explain the importance of secure data aggregation in Wireless Sensor Networks.	5	2	2
	j).	Contrast TinyOS and RETOS in terms of their features and usage in WSNs.	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain the fundamental characteristics of Ad Hoc Wireless Networks.	1	2	5
	b).	Describe various challenges and design considerations in MANETs.	1	2	5
		OR			
3.	**a).**	Illustrate the classifications of MAC protocols in Ad Hoc Wireless Networks.	1	2	5
	b).	Compare Cellular Networks with Ad Hoc Wireless Networks with examples.	1	2	5
		UNIT-2			
4.	**a).**	Apply your understanding of Ad Hoc networks to identify and explain how key design issues affect the performance of routing protocols.	2	3	5
	b).	Demonstrate how different transport layer solutions handle congestion	2	3	5

		and reliability in a highly mobile Ad Hoc network.			
		OR			
5.	**a).**	Solve the problem of high end-to-end delay in MANETs by selecting an appropriate transport layer protocol. Justify your choice based on transport protocol features.	2	3	5
	b).	Compute the expected performance impact (in terms of packet loss or delay) when using TCP over a MANET and suggest a more efficient alternative.	2	3	5
		UNIT-3			
6.	**a).**	Apply suitable key management techniques to enable secure communication between nodes in a MANET. Justify your choice.	3	3	5
	b).	Use a secure routing mechanism to prevent black hole or wormhole attacks in an Ad Hoc network scenario. Explain how it works.	3	3	5
		OR			
7.	**a).**	Find a suitable Intrusion Detection System (IDS) approach that can detect misbehavior in MANETs. Explain its working in brief.	3	3	5
	b).	Demonstrate how cooperation enforcement mechanisms can reduce selfish behaviour in MANETs.	3	3	5
		UNIT-4			
8.	**a).**	Explain the architecture and functionalities of the Mica Mote used in Wireless Sensor Networks.	4	2	5
	b).	Discuss clustering and energy consumption issues in Wireless Sensor Networks.	4	2	5
		OR			
9.	**a).**	Explain the classification of WSNs with respect to MAC, routing, and transport layers.	4	2	5
	b).	Describe how energy consumption affects the performance of sensor nodes in WSNs.	4	2	5
		UNIT-5			
10.	**a).**	Explain the importance of key management principles in designing secure communication for clustered wireless sensor networks.	5	2	5
	b).	Describe the process of secure data aggregation in a wireless sensor network and mention any one simulation tool that can be used (e.g., NS-2 or TOSSIM).	5	2	5
		OR			
11.	**a).**	Interpret the requirements of a healthcare monitoring system and describe which WSN operating system (TinyOS, SOS, or RETOS) is more suitable, with justification.	5	2	5
	b).	Compare TinyOS, SOS, and RETOS based on their features relevant to	5	2	5

		wireless sensor network applications.			

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3206
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		PUBLIC BLOCKCHAIN ETHEREUM			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain Distributed systems	1	2	2
	b).	Explain CAP theorem	1	2	2
	c).	Discuss Digital Signatures	2	2	2
	d).	Explain proof of work	2	2	2
	e).	Explain The Bitcoin network	3	2	2
	f).	Discuss Online Wallets	3	2	2
	g).	Explain Zerocash	4	2	2
	h).	Explain Zerocoin	4	2	2
	i).	Discuss Smart Contract	5	2	2
	j).	Explain Precompiled contracts	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.		Explain History of blockchain and Types of blockchain	1	2	10
		OR			
3.		Explain Decentralization using blockchain and Methods of decentralization.	1	2	10
		UNIT-2			
4.		What are Cryptographic Hash Functions? Explain Hash Pointers and Data Structures.	2	2	10
		OR			
5.		What is Distributed consensus? Explain the Consensus without identity using a block chain.	2	2	10
		UNIT-3			
6.		Illustrate Bitcoin scripts and their applications.	3	3	10
		OR			
7.		Illustrate Limitations and improvements How to Store and Use Bitcoins	3	3	10

		UNIT-4			
8.		Illustrate Energy consumption and ecology for Bitcoin Mining	4	3	10
		OR			
9.		Illustrate How to De-anonymize Bitcoin.	4	3	10
		UNIT-5			
10.		Illustrate the importance of Smart Contracts and Ricardian contracts	5	3	10
		OR			
11.		Explain the Elements of the Ethereum blockchain.	5	2	10

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3207
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		SECURITY ASSESSMENT AND RISK ANALYSIS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define the principle of secure software.	1	1	2
	b).	What is a trusted computing base?	1	2	2
	c).	List two differences between high-level and detailed design.	2	1	2
	d).	What are trust models in software design?	2	2	2
	e).	List any two known software vulnerabilities.	3	1	2
	f).	What is architectural risk analysis?	3	2	2
	g).	Differentiate between symmetric and asymmetric cryptography.	4	2	2
	h).	What is the role of Kerberos in authentication?	4	2	2
	i).	Define e-commerce security.	5	1	2
	j).	Write two security issues in e-service deployment.	5	1	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain the principles of secure software and the concept of trusted computing base.	1	2	5
	b).	Illustrate the process of threat modeling and how it maps to design specifications.	1	2	5
		OR			
3.	**a).**	Describe the lifecycle of secure software deployment and management.	1	2	5
	b).	Demonstrate how threat models support secure software implementation.	1	2	5
		UNIT-2			
4.	**a).**	Explain how high-level design can handle software security.	2	2	5
	b).	Apply design patterns and quality assurance strategies for vulnerability detection	2	3	5
		OR			
5.	**a).**	Discuss the need for security design at multiple levels of abstraction.	2	2	5

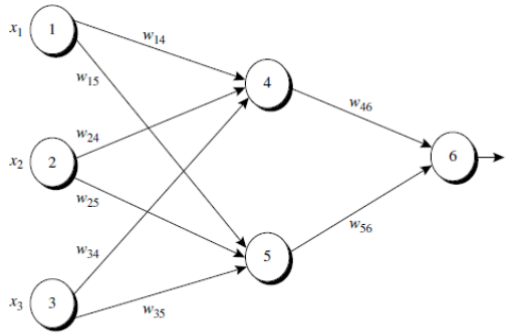
	b).	Demonstrate security architecture and design review process with examples.	2	3	5
		UNIT-3			
6.	**a).**	Explain the Software Assurance Model and its application in risk management.	3	2	5
	b).	Apply architectural risk analysis techniques to identify software threats.	3	3	5
		OR			
7.	**a).**	Discuss various security testing techniques including Penn testing.	3	2	5
	b).	Demonstrate risk-based testing strategies for security assurance.	3	3	5
		UNIT-4			
8.	**a).**	Explain different authentication schemes and their use in enterprise security.	4	2	5
	b).	Apply public key infrastructure (PKI) in securing communication for web applications.	4	3	5
		OR			
9.	**a).**	Discuss symmetric and asymmetric encryption with suitable examples.	4	2	5
	b).	Demonstrate the role of firewalls and VPNs in securing enterprise networks.	4	3	5
		UNIT-5			
10.	**a).**	Explain the major security issues in e-business and internet-based systems.	5	2	5
	b).	Apply suitable development frameworks to secure e-commerce systems.	5	3	5
		OR			
11.	**a).**	Describe information system vulnerabilities during development and deployment.	5	2	5
	b).	Demonstrate a layered security framework for protecting e-service applications.	5	3	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3209
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		MACHINE LEARNING			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Define Reinforcement Learning	1	1	2
	b).	Explain about Eigen values using example.	1	2	2
	c).	Illustrate about various proximity measures.	2	2	2
	d).	Define Regression.	2	1	2
	e).	Explain about Bias Variance Trade-off.	3	2	2
	f).	Define Multi-Class Classification.	3	1	2
	g).	Illustrate various linear discriminant models.	4	2	2
	h).	Define Perceptron.	4	1	2
	i).	Define Agglomerative Clustering.	5	1	2
	j).	Define Divisive Clustering.	5	1	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain the stages in Machine Learning	1	2	5
	b).	Illustrate the types of data using examples	1	3	5
		OR			
3.	**a).**	Explain filter method in feature selection	1	2	5
	b).	Apply PCA on the following dataset Feature Example1 Example2 Example3 Example4 A 4 8 13 7 B 11 4 5 14	1	3	5
		UNIT-2			
4.	**a).**	Explain about Non-Metric Similarity Functions.	2	2	5
	b).	Apply K-Nearest Neighbor Classifier to following dataset.	2	3	5

		<table><tr><th>BRIGHTNESS</th><th>SATURATION</th><th>CLASS</th></tr><tr><td>40</td><td>20</td><td>Red</td></tr><tr><td>50</td><td>50</td><td>Blue</td></tr><tr><td>60</td><td>90</td><td>Blue</td></tr><tr><td>10</td><td>25</td><td>Red</td></tr><tr><td>70</td><td>70</td><td>Blue</td></tr><tr><td>60</td><td>10</td><td>Red</td></tr><tr><td>25</td><td>80</td><td>Blue</td></tr></table> Now identify to which class label the given test sample belongs to considering K=3 nearest neighbors (Brightness=20, Saturation=35, Class=?).			
		OR			
5.	**a).**	Explain Radius Distance Nearest Neighbor Algorithm with an example	2	3	5
	b).	Illustrate KNN Regression with an example	2	2	5
		UNIT-3			
6.	**a).**	Apply Information gain metric to generate decision tree for the following dataset <table><tr><th>RID</th><th>age</th><th>income</th><th>student</th><th>credit_rating</th><th>Class: buys_computer</th></tr><tr><td>1</td><td>youth</td><td>high</td><td>no</td><td>fair</td><td>no</td></tr><tr><td>2</td><td>youth</td><td>high</td><td>no</td><td>excellent</td><td>no</td></tr><tr><td>3</td><td>middle_aged</td><td>high</td><td>no</td><td>fair</td><td>yes</td></tr><tr><td>4</td><td>senior</td><td>medium</td><td>no</td><td>fair</td><td>yes</td></tr><tr><td>5</td><td>senior</td><td>low</td><td>yes</td><td>fair</td><td>yes</td></tr><tr><td>6</td><td>senior</td><td>low</td><td>yes</td><td>excellent</td><td>no</td></tr><tr><td>7</td><td>middle_aged</td><td>low</td><td>yes</td><td>excellent</td><td>yes</td></tr><tr><td>8</td><td>youth</td><td>medium</td><td>no</td><td>fair</td><td>no</td></tr><tr><td>9</td><td>youth</td><td>low</td><td>yes</td><td>fair</td><td>yes</td></tr><tr><td>10</td><td>senior</td><td>medium</td><td>yes</td><td>fair</td><td>yes</td></tr><tr><td>11</td><td>youth</td><td>medium</td><td>yes</td><td>excellent</td><td>yes</td></tr><tr><td>12</td><td>middle_aged</td><td>medium</td><td>no</td><td>excellent</td><td>yes</td></tr><tr><td>13</td><td>middle_aged</td><td>high</td><td>yes</td><td>fair</td><td>yes</td></tr><tr><td>14</td><td>senior</td><td>medium</td><td>no</td><td>excellent</td><td>no</td></tr></table>	3	3	10
		OR			
7.	**a).**	Consider the following training data and classify the pattern using Naive Bayes Classifier. <table><tr><th>Pattern</th><th>Feature1</th><th>Feature2</th><th>Feature3</th><th>Class</th></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>C0</td></tr><tr><td>2</td><td>1</td><td>0</td><td>1</td><td>C1</td></tr><tr><td>3</td><td>1</td><td>0</td><td>0</td><td>C0</td></tr><tr><td>4</td><td>1</td><td>1</td><td>1</td><td>C1</td></tr><tr><td>5</td><td>0</td><td>1</td><td>1</td><td>C1</td></tr><tr><td>6</td><td>0</td><td>1</td><td>1</td><td>C0</td></tr><tr><td>7</td><td>1</td><td>0</td><td>1</td><td>?</td></tr></table>	3	3	10
		UNIT-4			
8.	**a).**	Explain Perceptron Learning algorithm	4	2	5

	b).	Illustrate Support Vector Machines with kernel trick.	4	2	5
		OR			
9.	**a).**	Explain about Linear Regression	4	2	5
	b).	Apply backpropagation algorithm on following MLP and data. Show the weights values after single epoch. 	4	3	5

x_1	x_2	x_3	w_{14}	w_{15}	w_{24}	w_{25}	w_{34}	w_{35}	w_{46}	w_{56}	θ_4	θ_5	θ_6
1	0	1	0.2	−0.3	0.4	0.1	−0.5	0.2	−0.3	−0.2	−0.4	0.2	0.1

		UNIT-5			
10.	**a).**	Explain Agglomerative Clustering method	5	2	5
	b).	Apply K-Means Clustering with two iterations to form clusters by taking the initial cluster centers as points P1 and P4 on the following dataset to partition into two clusters. P1(1,1), P2(2,2), P3(3,4), P4(5,7), P5(3,5), P6(4,5), P7(4,6).	5	3	5
		OR			
11.	**a).**	Apply Fuzzy C-Means Clustering on the following dataset. Let number of clusters C=2 and M=2.	5	3	5

	X1	X2	X3	X4
C1	1	1	0	0
C2	0	0	1	1

Datapoints	F1	F2
X1	1	1
X2	2	2
X3	4	3
X4	5	3

	b).	Illustrate Partitional Clustering method	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3210
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R23**
III B.Tech. II Semester MODEL QUESTION PAPER					
SOFTWARE PROJECT MANAGEMENT					
(For CIC)					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer Question No.1 compulsorily					
Answer **ONE Question** from **EACH UNIT**					
Assume suitable data if necessary					
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain the peer inspections	1	2	2
	b).	Summarize Software Economics	1	2	2
	c).	Describe inception	2	2	2
	d).	Demonstrate the artifact sets	2	3	2
	e).	Summarize Iteration workflows	3	2	2
	f).	Find the planning guidelines in Iterative Process Planning	3	3	2
	g).	Explain Process Automation	4	2	2
	h).	Describe core Metrics of SPM	4	2	2
	i).	Describe Agile Methodology	5	2	2
	j).	Explain orchestration in devops	5	2	2
					5 x 10 =50Marks
		UNIT-1			
2.	**a).**	Compare principles of conventional and modern software Engineering	1	2	5
	b).	Explain about Evolution of Software Economics	1	2	5
		OR			
3.	**a).**	Describe The waterfall model	1	2	5
	b).	summarize Improving Software processes	1	2	5
		UNIT-2			
4.	**a).**	Explain Engineering and production stages in SDLC	2	2	5
	b).	summarize Engineering artifacts	2	2	5
		OR			
5.	**a).**	Describe Elaboration, construction phases in SDLC	2	2	5
	b).	Explain programmatic artifacts	2	2	5
		UNIT-3			
6.	**a).**	Demonstrate Software process workflows	3	3	5

	b).	Describe Pragmatic planning	3	2	5
		OR			
7.	**a).**	Demonstrate Periodic status assessments	3	3	5
	b).	Compare Management and technical perspectives in software architectures	3	2	5
		UNIT-4			
8.	**a).**	Describe Automation Building blocks	4	2	5
	b).	Explain pragmatic Software Metrics	4	2	5
		OR			
9.	**a).**	Compare The seven core Metrics	4	2	5
	b).	Explain evolution of Organizations	4	2	5
		UNIT-5			
10.	**a).**	Describe Patterns for Adopting Scrum	5	2	5
	b).	Demonstrate Tool stack implementation	5	3	5
		OR			
11.	**a).**	Demonstrate Architecture of DevOps	5	3	5
	b).	Describe DevOps delivery pipeline	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3211
		SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)			**R23**
		III B.Tech. II Semester MODEL QUESTION PAPER			
		DEVOPS			
		(For CIC)			
Time: 3 Hrs.					**Max. Marks: 70 M**
		Answer Question No.1 compulsorily			
		Answer **ONE Question** from **EACH UNIT**			
		Assume suitable data if necessary			
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain how DevOps principles improve software delivery.	1	2	2
	b).	Describe the concept of bottlenecks in a DevOps workflow.	1	2	2
	c).	Illustrate the function of Jenkins in CI pipelines.	2	3	2
	d).	Apply Git branching strategies in a team development scenario.	2	3	2
	e).	Demonstrate the use of Docker Compose in multi-container applications.	3	3	2
	f).	Compare declarative and scripted pipelines in Jenkins.	3	4	2
	g).	Analyze how Selenium supports test automation in DevOps.	4	4	2
	h).	Describe the advantages of containerization in continuous delivery.	4	2	2
	i).	Apply the concept of Infrastructure as Code (IaC) in DevOps.	5	3	2
	j).	Analyze the role of Ansible in automating deployments.	5	4	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Explain the key differences between Agile and DevOps methodologies.	1	2	5
	b).	Analyze the stages of the DevOps lifecycle with suitable examples.	1	4	5
		OR			
3.	**a).**	Apply value stream mapping to identify bottlenecks in software delivery.	1	3	5
	b).	Evaluate the benefits of integrating DevOps tools like Git, Jenkins, and Docker.	1	5	5
		UNIT-2			
4.	**a).**	Use Git commands to demonstrate version control in a collaborative project.	2	3	5
	b).	Analyze the impact of test automation using Selenium in DevOps practices.	2	4	5
		OR			
5.	**a).**	Illustrate a real-time Git branching and merging scenario.	2	3	5
	b).	Evaluate the role of SonarQube in maintaining code quality.	2	5	5

		UNIT-3			
6.	**a).**	Apply Jenkins pipeline syntax to automate a build and test process.	3	3	5
	b).	Justify the importance of Jenkins-Docker integration in CI.	3	5	5
		OR			
7.	**a).**	Develop a Jenkins job to trigger build on Git commit.	3	3	5
	b).	Analyze Jenkins architecture with master-slave configuration.	3	4	5
		UNIT-4			
8.	**a).**	Use Docker Compose to deploy a multi-container application.	4	3	5
	b).	Evaluate container testing tools used in the CI/CD workflow.	4	5	5
		OR			
9.	**a).**	Apply DockerHub for storing and deploying container images.	4	3	5
	b).	Analyze the difference between continuous delivery and deployment.	4	4	5
		UNIT-5			
10.	**a).**	Analyze how Ansible playbooks automate infrastructure setup.	5	4	5
	b).	Evaluate Kubernetes features that support scalable deployments.	5	5	5
		OR			
11.	**a).**	Compare Kubernetes with OpenShift in the context of CI/CD.	5	4	5
	b).	Justify the use of Ansible Vault for secure configuration management.	5	5	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks

					Course Code: B23CI3212
SAGI RAMA KRISHNAM RAJU ENGINEERING COLLEGE (A)					**R23**
III B.Tech. II Semester MODEL QUESTION PAPER					
NATURAL LANGUAGE PROCESSING					
(For CIC)					
Time: 3 Hrs.					**Max. Marks: 70 M**
Answer Question No.1 compulsorily					
Answer **ONE Question** from **EACH UNIT**					
Assume suitable data if necessary					
					10 x 2 = 20 Marks
			CO	**KL**	**M**
1.	**a).**	Explain the challenges of NLP	1	2	2
	b).	Summarize Tokenization	1	2	2
	c).	Describe Smoothing	2	2	2
	d).	Find the Issues in PoS tagging	2	3	2
	e).	Summarize Treebanks	3	2	2
	f).	Demonstrate Ambiguity in Syntactic Analysis in NLP	3	3	2
	g).	Explain Word Senses	4	2	2
	h).	Describe Thematic Roles	4	2	2
	i).	Describe PropBank	5	2	2
	j).	Compare Brown Corpus and British National Corpus	5	2	2
					5 x 10 = 50 Marks
		UNIT-1			
2.	**a).**	Compare Grammar-based LM and Statistical LM	1	2	5
	b).	Explain about Detecting and Correcting Spelling Errors	1	2	5
		OR			
3.	**a).**	Describe Transducers for lexicon and rules	1	2	5
	b).	summarize Finite-State Automata	1	2	5
		UNIT-2			
4.	**a).**	Explain Hidden Markov and Maximum Entropy models	2	2	5
	b).	summarize Interpolation and Backoff	2	2	5
		OR			
5.	**a).**	Describe Part-of-Speech	2	2	5
	b).	Explain Stochastic and Transformation-based tagging	2	2	5
		UNIT-3			
6.	**a).**	Demonstrate Syntactic Parsing	3	3	5

	b).	Describe Probabilistic CYK	3	2	5
		OR			
7.	**a).**	Demonstrate Dynamic Programming parsing	3	3	5
	b).	Describe Unification of feature structures	3	2	5
		UNIT-4			
8.	**a).**	Compare First-Order Logic, Description Logics	4	2	5
	b).	Explain Bootstrapping methods	4	2	5
		OR			
9.	**a).**	Compare Dictionary & Thesaurus	4	2	5
	b).	Explain Syntax-Driven Semantic analysis	4	2	5
		UNIT-5			
10.	**a).**	Describe Discourse segmentation	5	2	5
	b).	Demonstrate Porter Stemmer	5	3	5
		OR			
11.	**a).**	Demonstrate Lemmatizer	5	3	5
	b).	Describe Brill's Tagger	5	2	5

CO-COURSE OUTCOME **KL-KNOWLEDGE LEVEL** **M-MARKS**

NOTE : Questions can be given as A,B splits or as a single Question for 10 marks