

R20

IV B.TECH I SEM

REGULAR EXAMINATIONS

OCT./NOV. - 2023

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC4OE06

MECHATRONICS

R20

Time: 3 hours

(ME)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What is mechatronics? Brief on evolution of Mechatronics.	K2	01	7M
		ii) List the advantages and dis-advantages of Mechatronics.	K3	01	7M
	OR				
b	Derive mathematical modeling of spring, Damper and Mass for Mechanical Rotational systems.	K5	01	14M	
2	Unit-II				
	a	i) What are semiconductors? State its applications.	K2	02	7M
		ii) Explain in detail about the PN Junction diode.	K3	02	7M
	OR				
b	Distinguish among BJT, DIAC and MOSFET Transistor.	K3	02	14M	
3	Unit-III				
	a	i) What is hall effect ? Explain the hall effect with neat sketch.	K3	03	7M
		ii) Define Sensor and Transducer. Give the classification of Transducer.	K3	03	7M
	OR				
b	i) Explain the function of a LVDT with neat sketch. ii) Explain the functions of a thermocouple with neat sketch.	K3	03	7M	
4	Unit-IV				
	a	i) Define PLC. Sketch and explain the basic PLC structure.	K3	04	7M
		ii) Enlist the applications of PLC.	K3	04	7M
	OR				
b	What you understood by a number system? Explain in detail about types of number systems.	K3	04	14M	
5	Unit-V				
	a	Explain the application of Mechatronics in condition monitoring and automated manufacturing industries with suitable examples.	K3	05	14M
	OR				
b	Explain the application of artificial intelligence in mechatronics with suitable examples.	K3	05	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) List out different Classification of Nanostructures and explain	2	1	7M
		ii) Explain the concept of Periodicity of crystal lattices in detail	2	1	7M
	OR				
	b	i) Explain the concept of effects of nanometer length scale in detail	2	1	7M
		ii) How the nano scale dimensions affect properties? explain	2	1	7M
2	Unit-II				
	a	i) Explain the concept of Microscopic techniques in detail	4	2	7M
		ii) Explain the operation of Scanning electron microscopy in detail	4	2	7M
	OR				
	b	i) Explain the following terms in detail (a) quantum wires (b) quantum dots,	3	2	7M
		ii) Explain the concept of bulk and surface diffraction techniques in detail	3	2	7M
3	Unit-III				
	a	i) Explain the terms of lithography and etching in detail	5	3	7M
		ii) What is electro statically induced dots and wires? Explain	5	3	7M
	OR				
	b	i) Explain the operation of semiconductor nano crystals along with examples	3	3	7M
		ii) write short notes on colloidal quantum dots in detail	3	3	7M
4	Unit-IV				
	a	i) Explain the importance of, Carbon Nano tubes in present generations	1	4	7M
		ii) List out different Mechanical properties of a Carbon nano tubes.	1	4	7M
	OR				
	b	Explain the following terms in detail (i) Electronic properties (ii) Vibrational properties	2	4	14M
		Unit-V			
5	a	i) Draw and explain the Electrochemical Sensors in detail	4	5	7M
		ii) write short notes on Nano biosensors in detail	4	5	7M
	OR				
	b	i) Explain the operation of quantum cascade lasers in detail	2	5	7M
ii) Explain the following terms (a) NEMS (b) MEMS.		2	5	7M	

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R20

Sub Code: R20CC4104/R20CC4OE16 **E-COMMERCE**

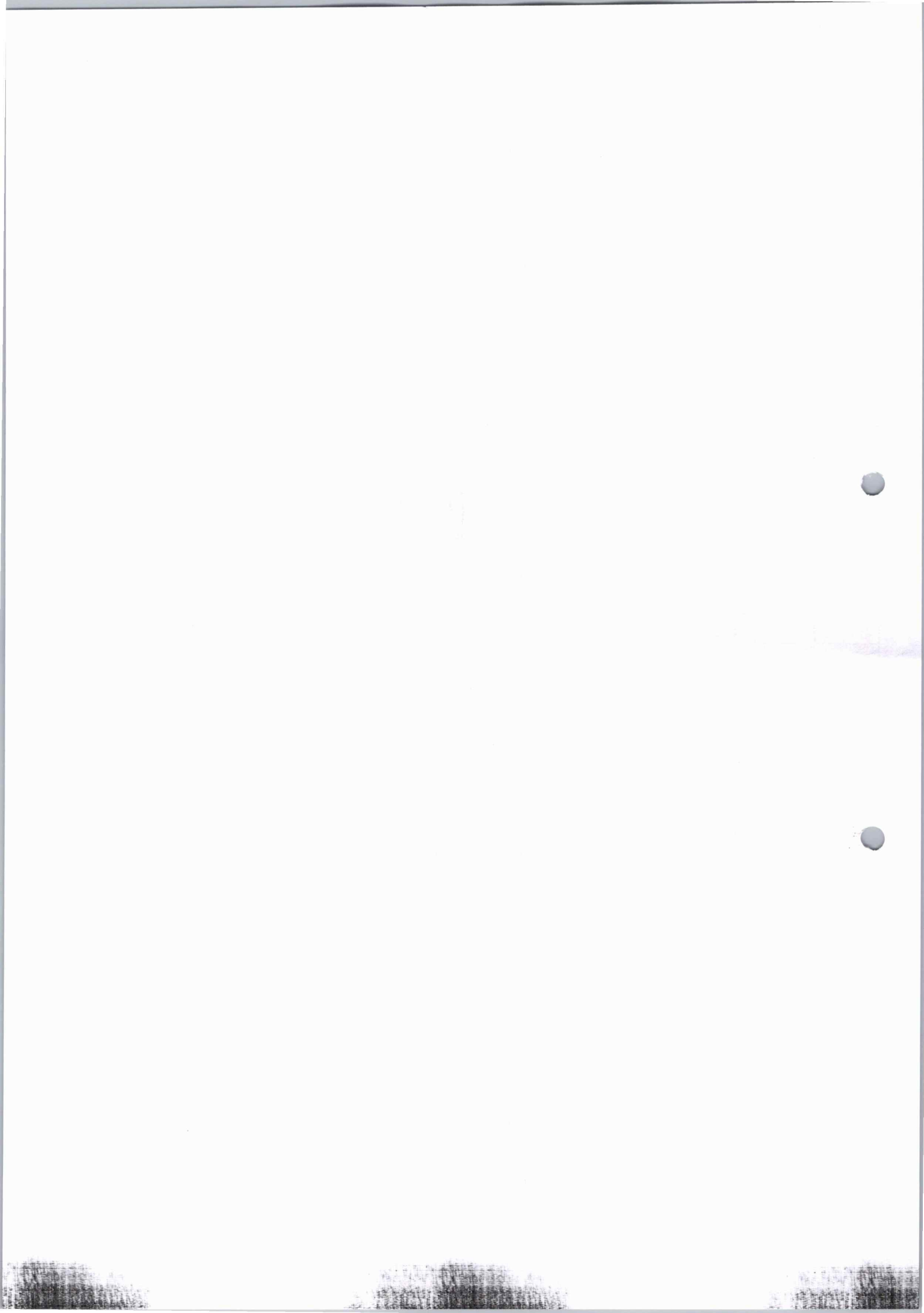
Time: 3 hours

(Common to CSE, IT & CSE (AI))

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the Generic Frame work of the E-Commerce	K2	CO1	7M
		ii) List and Briefly explain E-Commerce applications	K2	CO1	7M
	OR				
	b	i) Explain the e-commerce opportunities available for companies in India?	K2	CO2	7M
		ii) Explain the following are the various e-commerce consumer applications: a) Consumer applications and social interaction b) Needs of the customers c) Customers willingness to pay to satisfy their needs	K2	CO2	7M
2	Unit-II				
	a	i) How the payment transaction sequence is happens in the Electronic cheque system and explain its advantages	K2	CO2	7M
		ii) What is electronic fund transfer? Elaborate the security problems involved in it?	K2	CO2	7M
	OR				
	b	i) Discuss in detail about Mercantile Process models?	K2	CO2	7M
		ii) Explain the business issues that must be addressed before consumer-oriented e-commerce can become widespread	K2	CO2	7M
3	Unit-III				
	a	i) Discuss in detail about. Supply Chain Management	K3	CO3	7M
		ii) Explain the information flow between the organisations without EDI?	K3	CO3	7M
	OR				
b	i) What is work flow coordination? Describe the work-flow co-ordination in intra organisational commerce?	K3	CO3	14M	
4	Unit-IV				
	a	i) Explain Digital Document Management: Issues and Concerns	K2	CO4	7M
		ii) Explain the guidelines that each firm should follow for advertising on the Internet	K4	CO4	7M
	OR				
	b	i) What opportunities does the World Wide Web offer in reaching consumers? Discuss architectural framework of e-commerce	K4	CO4	7M
		ii) Elaborate about the four different types of Digital documents	K4	CO4	7M
5	Unit-V				
	a	i) Explain about Information filtering	K3	CO3	7M
		ii) Discuss about digital video?	K2	CO3	7M
	OR				
	ii) Explain the following a) Information search and retrieval b) Electronic directories and catalogs	K3	CO3	14M	



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC4OE08 EMBEDDED AND REAL TIME OPERATING SYSTEM

R20

Time: 3 hours

(ECE)

Max. Marks: 70

Note: Answer All **FIVE** Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M			
Unit-I							
1	a	i) Draw and explain the typical Embedded system architecture?			2	1	7M
		ii) What are the various serial communication devices used in an Embedded Hardware? Explain any one of them?			2	1	7M
	OR						
	b	i) Explain the purposes of embedded systems in detail?			2	1	7M
ii) Compare the operation of ZigBee and Wi-Fi networks			2	1	7M		
Unit-II							
2	a	i) What is the difference between general purpose kernel and real time kernel? Give example			3	2	7M
		ii) Explain the different multitasking models in operating system context			3	2	7M
	OR						
	b	i) What is task scheduling? Explain Round Robin scheduling algorithm			3	2	7M
ii) Explain about how to choose an RTOS			3	2	7M		
Unit-III							
3	a	i) Discuss about Multiprocessing and Multitasking techniques used in RTOS?			4	3	7M
		ii) What are the types of RTOS?			4	3	7M
	OR						
	b	i) Briefly explain (a) Task scheduling (b) Hardware software trade-offs			4	3	7M
ii) Explain the following terms (a) Message queue (b) Mailbox			4	3	7M		
Unit-IV							
4	a	i) what is deadlock handling and explain			1	4	7M
		ii) List out different Issues in Task communications			1	4	7M
	OR						
b	Explain the following terms in detail (a) Semaphore (b) Mutex			1	4	14M	
Unit-V							
5	a	i) Explain the operation of Parallel evolution of compilation and synthesis in details			4	5	7M
		ii) Explain the operation of Logic Synthesis in detail			4	5	7M
	OR						
b	Explain the following terms (a) Behavioral Synthesis (b) RT synthesis			3	5	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC3OE09

CLOUD COMPUTING

R20

Time: 3 hours

(AI)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What are the essential characteristics that define cloud computing?	1	1	7M
		ii) What is Cloud Computing? What are the benefits of cloud computing.	1	1	7M
	OR				
	b	i) What is the fundamental concept of cloud computing?	1	1	7M
		ii) Explain the main limitations that organizations might face when adopting cloud computing?	2	1	7M
2	Unit-II				
	a	i) What is virtualization, and why is it important in the context of modern computing?	1	1	7M
		ii) Describe the various types of hypervisors	2	1	7M
	OR				
	b	i) Differentiate the grid computing and cloud computing?	2	2	7M
		ii) Explain the concept of a cloud service in the context of cloud computing.	2	2	7M
3	Unit-III				
	a	i) Compare and contrast the IaaS, PaaS, and SaaS	3	2	14M
	OR				
	b	i) Analyse the advantages and challenges associated with a public cloud deployment.	4	2	7M
ii) Analyze the scalability and cost advantages of cloud storage		4	2	7M	
4	Unit-IV				
	a	i) Explain the concept of cloud administration in detail	2	3	7M
		ii) Explain in detail about cloud management products	2	3	7M
	OR				
	b	i) Compare and contrast between cloud providers and traditional IT service providers.	4	3	7M
		ii) Analyze the disasters in the cloud	4	3	7M
5	Unit-V				
	a	i) Illustrate the key analytics and application services offered by AWS?	2	4	7M
		ii) Explain the various applications and use cases where Azure and AWS excel.	2	4	7M
	OR				
	b	i) Explain the role of AWS in providing database services for organizations.	2	4	7M
		ii) List and explain the advantages and disadvantages of AWS?	2	4	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks*

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC4OE09

CYBER SECURITY

R20

Time: 3 hours

(Common to CSE, CSE (AI))

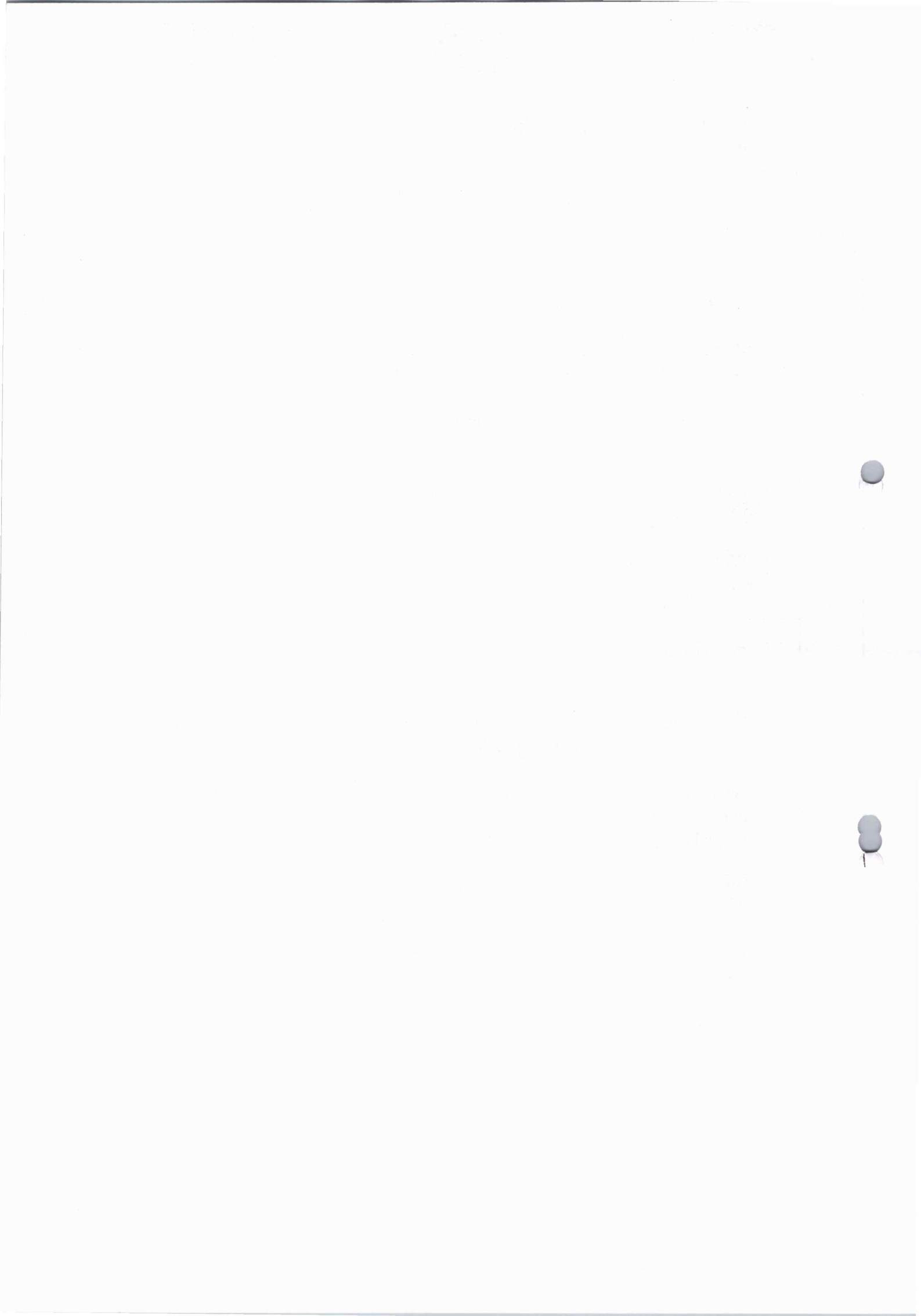
Max. Marks: 70

Note: Answer All **FIVE** Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M			
Unit-I							
1	a	i) What is Cybercrime and what are its classifications			1	1	7M
		ii) Write about how Criminals Plan the Attacks			1	1	7M
	OR						
	b	i) Discuss about the Legal Perspectives of Cybercrime			2	1	7M
ii) What are the various attacks on Vector Cloud Computing			1	1	7M		
Unit-II							
2	a	i) What are the various Security Challenges Posed by Mobile Devices			1	2	7M
		ii) Explain about the Mobile and Wireless Computing Era			2	2	7M
	OR						
	b	i) Explain about the Mobile Security Implications for Organizations			2	2	7M
ii) Write about the Security Policies and Measures in Mobile Computing Era			1	2	7M		
Unit-III							
3	a	i) Write about Proxy servers and Anonymizers in detail and how they are helpful			1	3	7M
		ii) Explain about Key loggers and Spywares			2	3	7M
	OR						
	b	i) Consider an example and explain DoS and DDoS attack			2	3	7M
ii) Explain about SQL Injection and Buffer Overflow			2	3	7M		
Unit-IV							
4	a	i) Explain the need of Cyber Law in Indian Context			2	4	7M
		ii) What is the importance of Digital Signatures and Indian IT Act			1	4	7M
	OR						
	b	i) What are the various Consequences of Not Addressing the Weakness in Information Technology Act			1	4	7M
ii) Explain about Security Blueprint and Importance of Security Education			2	4	7M		
Unit-V							
5	a	i) What is the need of Computer Forensics and its importance			1	5	7M
		ii) Explain about the Digital Forensics Life Cycle			2	5	7M
	OR						
	b	i) Write the Relevance of OSI 7 Layer Model to Computer Forensics			1	5	7M
ii) Explain about Social Networking Privacy threats in detail			2	5	7M		

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC3OE11

DIGITAL MARKETING

R20

Time: 3 hours

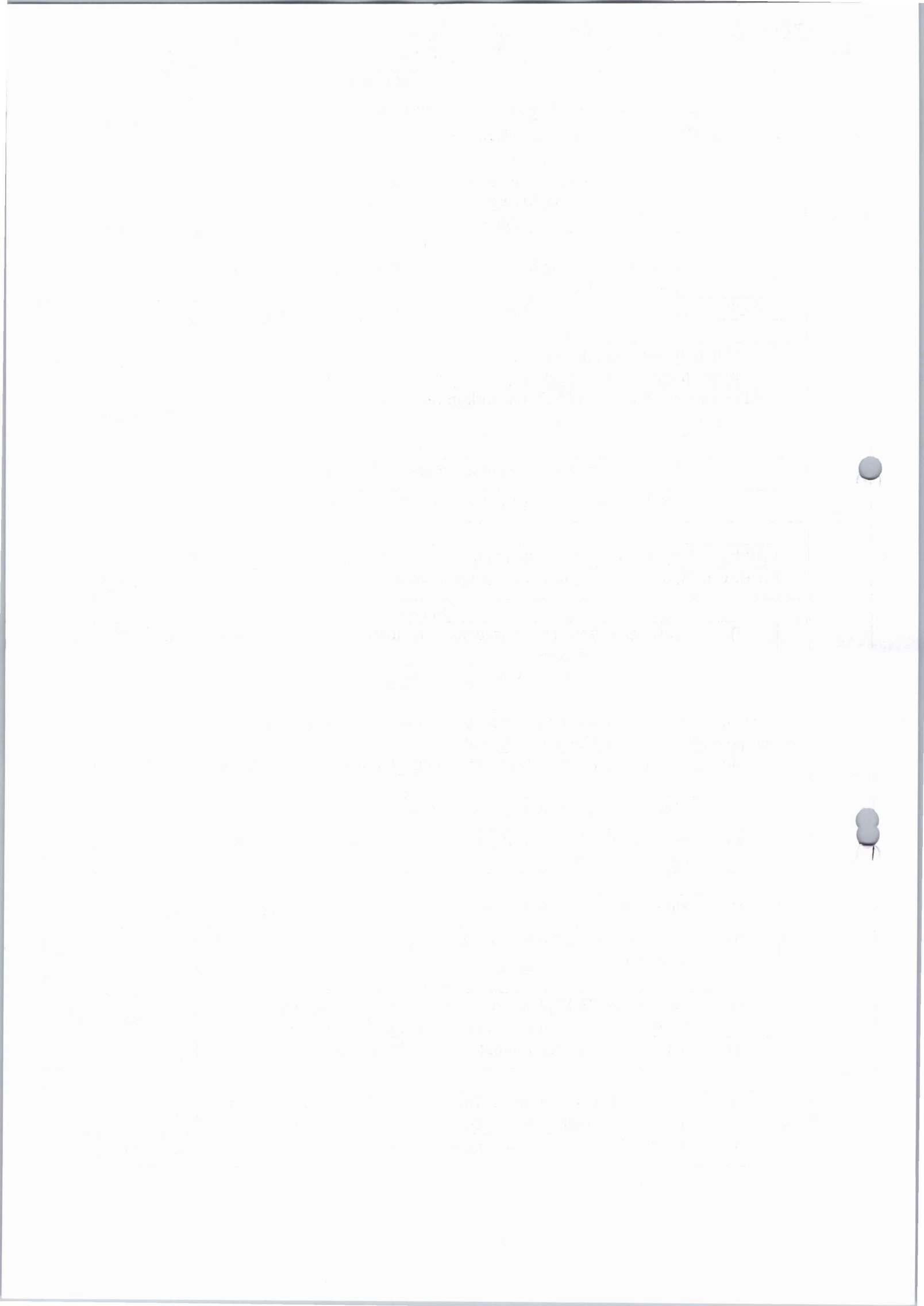
(Common to CSE, IT)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What do you mean by Digital Marketing? Classify the Digital Marketing channels	K1	CO1	7M
		ii) Differentiate between Traditional marketing vs Digital Marketing.	K3	CO1	7M
	OR				
	b	i) Identify the strengths and capabilities of the different digital and social media platforms which can help in marketing a new venture.	K3	CO1	7M
		ii) Demonstrate the P.O.E.M Framework in the context of media you would recommend to benefit from?	K3	CO1	7M
2	Unit-II				
	a	i) Discuss the concept of Digital Marketing Mix with example.	K3	CO2	7M
		ii) Explain any three payment systems in Internet Marketing	K3	CO2	7M
	OR				
	b	i) What is Display Marketing? Explain the concept of YouTube Marketing	K3	CO2	7M
		ii) How to Build a successful social media marketing strategy	K3	CO2	7M
3	Unit-III				
	a	i) How can you use Facebook for marketing your personal commercial venture?	K2	CO3	7M
		ii) How to Build a successful social media marketing strategy	K2	CO3	7M
	OR				
	b	i) Which Social media marketing platforms would you use and for which purpose (don't include digital market platforms)	K2	CO3	7M
		ii) What is the Importance of LinkedIn Marketing? Explain with an example.	K2	CO3	7M
4	Unit-IV				
	a	i) How to create a twitter marketing strategy for your brand	K3	CO4	7M
		ii) What are the Forms of Mobile Marketing? Explain the Features of Mobile marketing.	K2	CO4	7M
	OR				
	b	i) How Twitter content powers your social media marketing?	K3	CO4	7M
		ii) What are the Digital Marketing Strategies through Instagram and snapchat	K3	CO4	7M
5	Unit-V				
	a	i) What is SEO? Explain the difference between on-page and off-page SEO. Explain major on-page tools and techniques.	K3	CO5	7M
		ii) What are the different trends in the digital advertising.	K3	CO5	7M
	OR				
	b	i) How will you create a Google Search campaign for any marketer? Explain the process and key decisions to be taken.	K3	CO5	7M
		ii) What is SEM? Explain the need of SEM in Digital Advertising.	K3	CO5	7M



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC3OE14

SERVICES MARKETING

Time: 3 hours

(ME & CE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Discuss the characteristics of services	K1	Co1	7M
		ii) Explain the challenges for the service sector in India	K2	Co1	7M
	OR				
	b	i) Describe the role of service sector in the Indian economy	K3	Co1	7M
ii) How service strategy is different from physical goods strategy		K3	Co1	7M	
Unit-II					
2	a	i) Explain the role of customer relationship in marketing in service sector	K2	Co2	7M
		ii) Discuss the characteristics of relationship marketing	K1	Co2	7M
	OR				
	b	i) Describe the nature of service consumption	K3	Co2	7M
iii) Discuss the steps to improve the customer loyalty		K1	Co2	7M	
Unit-III					
3	a	i) How do you select the appropriate customer portfolio	K3	Co3	7M
		ii) Explain the strategies of positioning a service in the market	K2	Co3	7M
	OR				
	b	i) Discuss the stages in the development of New services	K1	Co3	7M
ii) Explain the pricing strategy of tourist bus operators		K2	Co3	7M	
Unit-IV					
4	a	i) How intermediaries are useful in service marketing	K3	Co4	7M
		ii) How to plan and manage service delivery	K3	Co4	7M
	OR				
	b	i) Discuss the significance of communication in service marketing	K1	Co4	7M
iii) Explain the role of electronic channels in the delivery of services		K2	Co4	7M	
Unit-V					
5	a	i) How word of Mouth communication is useful in service marketing	K3	Co5	7M
		ii) What is interactive marketing. Illustrate with 3 examples	K1	Co5	7M
	OR				
	b	i) How do you identify deficiencies in services	K3	Co5	7M
ii) Discuss the strategies relating to the consumer grievance recovery		K1	Co5	7M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CSHN06

NATURAL LANGUAGE PROCESSING

R20

Time: 3 hours

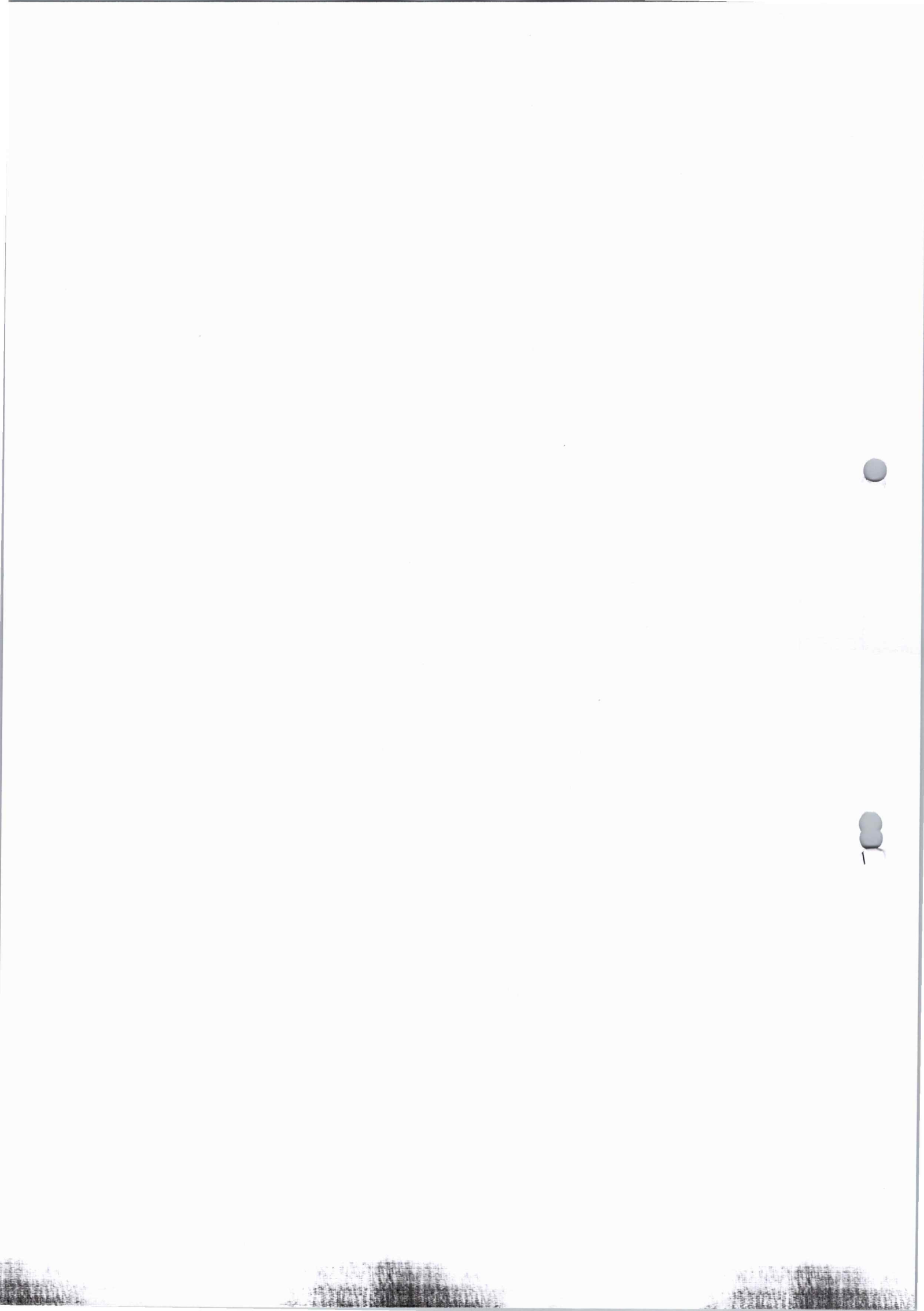
(CSE)

Max. Marks: 70

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M
Unit-I				
1	a i) What is the purpose of the Natural Language Processing (NLP)? Analyze the phases of the NLP.	K3	CO1	14M
	OR			
	b Discuss the challenges posed by linguistic ambiguity in NLP and how it impacts the development of language understanding systems.	K3	CO1	14M
Unit-II				
2	a i) Explain the concept of simple N-gram models in NLP. Define bigram and trigram models, providing examples for each.	K2	CO2	7M
	a ii) Explain the concept of smoothing in the context of NLP language models. Define Laplace (Add-One) smoothing and Lidstone smoothing, providing the mathematical formulas for each.	K2	CO2	7M
	OR			
	b i) Discuss the various methods used for evaluating language models in Natural Language Processing (NLP).	K2	CO2	7M
	b ii) Discuss the applications of Neural Language Models (NLMs) in Natural Language Processing (NLP) system development.	K2	CO2	7M
Unit-III				
3	a Compare and contrast rule-based systems and Transformation-Based Learning (TBL) in the context of Natural Language Processing (NLP). Discuss the advantages and disadvantages of each approach.	K2	CO2	14M
	OR			
	b Explain the process of Part-of-Speech (POS) tagging using Hidden Markov Models (HMM) in Natural Language Processing.	K2	CO2	14M
Unit-IV				
4	a Compare and contrast Top-Down and Bottom-Up parsing techniques in Natural Language Processing. Explain the process of parsing for both methods using an example grammar and a sample sentence.	K2	CO4	14M
	OR			
	b Explain the concept of Probabilistic Context-Free Grammar (PCFG) with an example.	K2	CO4	14M
Unit-V				
5	a Analyzing the Role of SVD (Singular Value Decomposition) and Latent Semantic Analysis (LSA) in Natural Language Processing.	K3	CO4	14M
	OR			
	b Analyze the Embeddings from Prediction techniques, Skip-gram and CBOW, in the context of Natural Language Processing (NLP).	K3	CO4	14M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CEHN06

ADVANCED ENVIRONMENTAL ENGINEERING

Time: 3 hours

(CE)

Max. Marks: 70

R20

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	Discuss the Principles of Environmental Management in detail.	KL2	CO1	14M
	OR				
b	Explain the Policy and Legal Aspects of Environmental Management in Indian context.	KL2	CO1	14M	
2	Unit-II				
	a	Explain the necessity of Environmental impact Assessment.	KL3	CO2	14M
	OR				
b	Describe Environmental Clearance Procedure in India.	KL3	CO2	14M	
3	Unit-III				
	a	Define Environmental auditing and mention the Elements of Audit Process.	KL2	CO3	14M
	OR				
b	How do we prepare and do the environmental audit for any industrial project.	KL2	CO3	14M	
4	Unit-IV				
	a	Explain the Stages in Life Cycle Assessment (LCA) of a Product in detail.	KL4	CO4	14M
	OR				
b	Discuss the Sustainable approach towards Environment Management in brief.	KL4	CO4	14M	
5	Unit-V				
	a	Explain about the implementation of environmental management system standards?	KL2	CO5	14M
	OR				
b	Write the applications of the cleaner development mechanism?	KL2	CO5	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CCMN38

DEVOPS

(EEE & ECE)

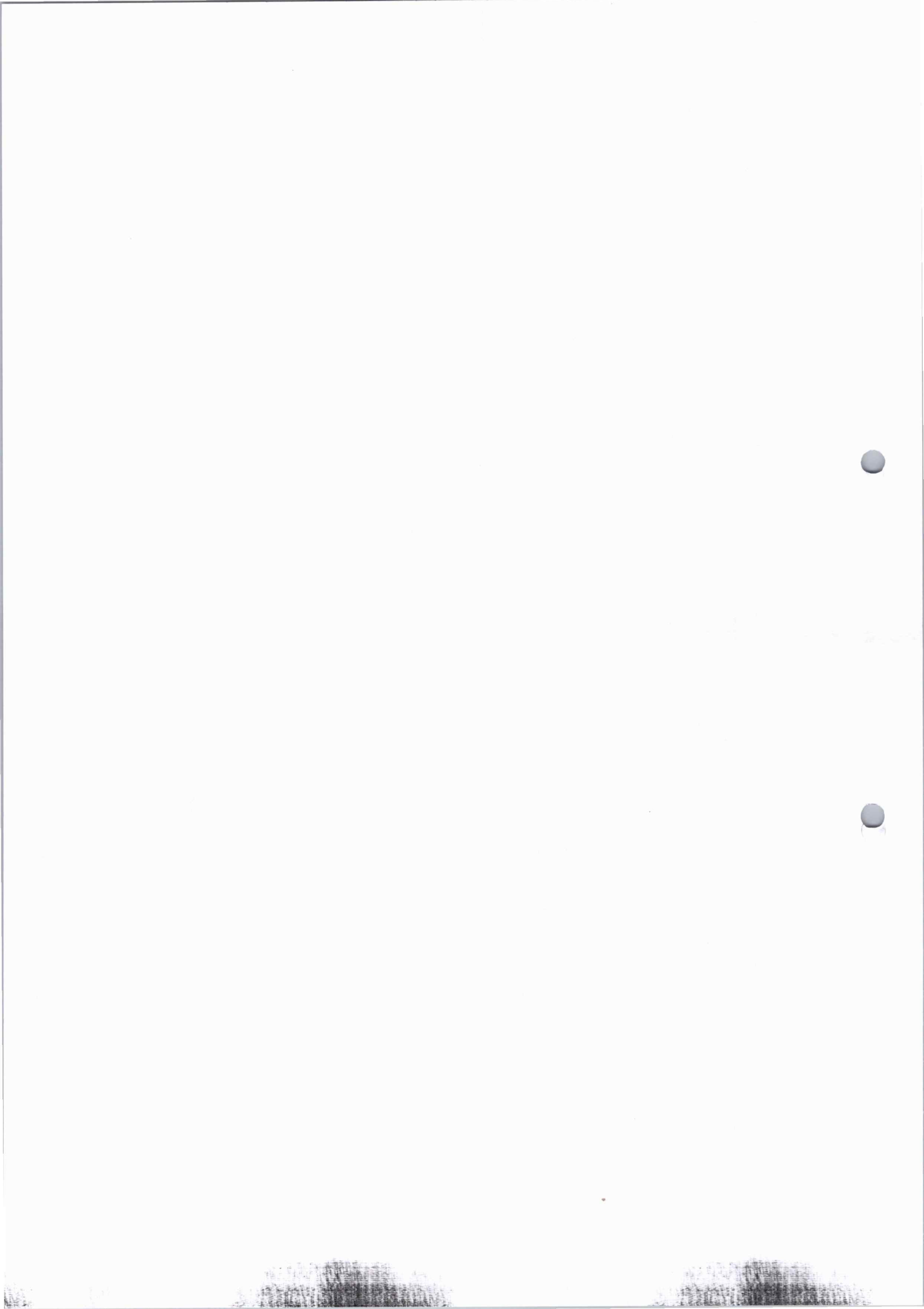
Max. Marks: 70

R20

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the concept of file based source control system and how it is different from distributed control system	K2	1	7M
		ii) Illustrate the need of cloud in Devops	K2	1	7M
	OR				
	b	i) Describe how DEvops helps in overcoming Challenges faced in traditional approach.	K2	1	7M
		ii) Explain Devops Engineers duty with regards to agile development.	K2	1	7M
2	Unit-II				
	a	i) Explain the workflow of Devops and DevSecops with the help of diagram	K2	2	7M
		ii) What is the role of version control systems in DevOps	K2	2	7M
	OR				
	b	i) Identify the steps to deploy the files in Bitbucket via Git.	K2	2	7M
		ii) What are the benefits of using containerization in DevOps deployments	K2	2	7M
3	Unit-III				
	a	i) How does microservices architecture align with DevOps principles	K6	3	7M
		ii) How does DevOps support the iterative and incremental nature of Agile development?	K6	3	7M
	OR				
	b	i) What is the significance of monitoring and logging metrics in CI/CD?	K6	3	7M
		ii) What are the challenges and benefits of DevOps for IT and operations personnel	K6	3	7M
4	Unit-IV				
	a	i) What is Continuous Integration (CI) in software development, and why is it important?		4	7M
		ii) What are some best practices for ensuring security in a CI/CD pipeline	K5	4	7M
	OR				
	b	i) What role does version control play in achieving successful CI/CD implementation?	K5	4	7M
		ii) What is the significance of monitoring and logging metrics in CI/CD?	K5	4	7M
5	Unit-V				
	a	i) What role do surveys, interviews, and direct observations play in a DevOps maturity assessment?	K2	5	7M
		ii) What challenges or obstacles might organizations encounter when trying to enhance their DevOps maturity	K2	5	7M
	OR				
	b	i) What is the purpose of conducting a DevOps maturity assessment within an organization	K2	5	7M
		ii) why do you require continuous monitoring in DevOps	K2	5	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20CCMN41

FUNDAMENTALS OF DEEP LEARNING

Time: 3 hours

(ME)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What are the applications of machine learning? When it is used.	K2	CO1	7M
		ii) Explain different types of super vector machines (SVMs).	K2	CO1	7M
	OR				
	b	i) What are the different training methods of artificial neural network?	K2	CO1	7M
		ii) Explain stochastic gradient descent.	K2	CO1	7M
2	Unit-II				
	a	i) What is deep learning? Explain its uses, application and history.	K3	CO2	7M
		ii) What is the difference between deep and shallow networks? Explain it.	K3	CO2	7M
	OR				
	b	i) Draw and explain the architecture of a convolutional neural network.	K3	CO2	7M
		ii) What is semi-supervised learning? List out the applications of semi-supervised learning.	K3	CO2	7M
3	Unit-III				
	a	i) What are the advantages and disadvantages of PCA?	K2	CO2	7M
		ii) Explain auto-encoder architecture and visual geometry group.	K2	CO2	7M
	OR				
	b	i) Explain linear discriminant analysis.	K2	CO3	7M
		ii) Explain manifold learning algorithms.	K2	CO3	7M
4	Unit-IVCO3				
	a	i) Explain optimization in deep learning.	K4	CO4	7M
		ii) Explain convex optimization.	K4	CO4	7M
	OR				
	b	i) Explain the Neuroscientific Basis for Convolutional Networks.	K4	CO4	7M
		ii) Explain spatial transform network.	K4	CO4	7M
5	Unit-V				
	a	i) What is LSTM? Explain the structure of LSTM.	K5	CO5	7M
		ii) Explain Recurrent and Recursive Nets Unfolding Computational Graphs?	K5	CO5	7M
	OR				
	b	i) Explain about recurrent neural network?	K5	CO5	7M
		ii) Explain computational and artificial neuro-science.	K5	CO5	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CSHN05

COMPUTER VISION

R20

Time: 3 hours

(IT & AI)

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) What are the different sources of light and how do they affect the image formation process?	K2	CO1	7M
		ii) Discuss the challenges of modeling inter-reflections and global shading models.	K2	CO1	7M
	OR				
	b	i) What is the Fourier transform and how is it used in image processing?	K2	CO1	7M
ii) Explain the sampling theorem and aliasing.		K2	CO1	7M	
Unit-II					
2	a	i) What is edge detection and why is it important in computer vision?	K3	CO2	7M
		ii) What is texture and how is it represented in images?	K3	CO2	7M
	OR				
	b	i) What is image denoising and why is it important?	K3	CO2	7M
ii) What is binocular fusion and how does it relate to stereopsis?		K3	CO2	7M	
Unit-III					
3	i) Discuss the advantages and disadvantages of image segmentation by clustering pixels.		K3	CO3	14M
	OR				
	b	i) What is graph-theoretic clustering? How can it be used for image segmentation?	K3	CO3	7M
		ii) Explain how to fit lines and curves to images. How can this be used for image segmentation?	K3	CO3	7M
Unit-IV					
4	a	i) Discuss some applications of fitting and segmentation using probabilistic methods.	K4	CO4	7M
		ii) What is the EM algorithm? How is it used for fitting and segmentation?	K4	CO4	7M
	OR				
	b	i) What are the initial assumptions of model-based vision?	K4	CO4	7M
ii) How can model selection be used to choose the best fit for a given data set?		K4	CO4	7M	
Unit-V					
5	a	i) Discuss some of the challenges of registration in medical imaging systems.	K4	CO5	7M
		ii) What are some of the simple relations between objects and images that can be used to create geometric templates?	K4	CO5	7M
	OR				
	b	i) What is range data? How is it used in object recognition?	K4	CO5	7M
ii) How can curved surfaces be aligned?		K4	CO5	7M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC4102

HUMAN COMPUTER INTERACTION

R20

Time: 3 hours

(Common to CSE, IT CSE (AI))

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M
Unit-I				
1	a i) Discuss the impact of inefficient screen design on processing time with an example	1	CO1	14M
	OR			
	b i) Define Design? List and explain the golden rules of design.	1	CO1	14M
Unit-II				
2	a i) Write about various implications in screen design.	2	CO2	7M
	ii) Explain the key concepts involved in understand the business junctions.	2	CO2	7M
	OR			
	b i) What are the typical psychological responses in poor design? Explain.	2	CO2	7M
	ii) List the psychological and physical characteristics as human considerations in design.	2	CO2	7M
Unit-III				
3	a Explain in detail about the important human characteristics in design.	3	CO3	14M
	OR			
	b Explain the human interaction speed with their metrics.	3	CO3	14M
Unit-IV				
4	a i) Why screen design and explain its goals?	4	CO4	7M
	ii) list out the different types of statistical graphs.	4	CO4	7M
	OR			
	b i) How to order the screen data and its content? Justify.	4	CO4	7M
	ii) What are the necessary qualities needed for visually pleasing composition? Discuss.	4	CO4	7M
Unit-V				
5	a i) List the characteristics of window.	5	CO5	7M
	ii) Discuss about ListBox.	5	CO5	7M
	OR			
	b Identify the characteristics and capabilities of device-based control and explain each of them with suitable example.	5	CO5	14M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20CC4106 NATURAL LANGUAGE PROCESSING

Time: 3 hours

(IT)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Define NLP and Explain NLP Phases	K2	CO1	7M
		ii) What are the key challenges and difficulties associated with NLP, with a specific focus on addressing the issue of ambiguity in language understanding?	K2	CO1	7M
	OR				
	b	i) Could you please explain the fundamental concepts of parts-of-speech and the formal grammar of the English language within the context of NLP?	K2	CO1	7M
ii) Give explanation of spelling errors in the context of NLP and how the Noisy Channel Model is used to address them?		K2	CO1	7M	
Unit-II					
2	a	i) Explain simple N-gram models with example	K2	CO2	7M
		ii) Define smoothing and explain basic smoothing techniques	K2	CO2	7M
	OR				
	b	i) What is the purpose of the neural language model and explain with one application.	K2	CO2	7M
ii) Explain the evaluating language model.		K2	CO2	7M	
Unit-III					
3	a	i) Explain parts-of-speech tagging.	K2	CO3	7M
		ii) Explain rule-based and TBL	K2	CO3	7M
	OR				
	b	i) Describe POS Tagging using the Neural Model	K2	CO3	7M
ii) Explain POS Tagging using HMM.		K2	CO3	7M	
Unit-IV					
4	a	i) Define parsing. Compare the top-down and bottom-up parsing.	K4	CO4	7M
		ii) Define the CFG and give an example.	K4	CO4	7M
	OR				
	b	i) Explain syntactic parsing	K4	CO4	7M
ii) Define the parsing tree and give one example.		K4	CO4	7M	
Unit-V					
5	a	i) Explain Semantics Vector Semantics; Words and Vector	K4	CO4	7M
		ii) Explain Latent Semantic Analysis	K4	CO4	7M
	OR				
	b	i) Explain Embeddings from prediction	K2	CO5	7M
ii) Explain the Concept of Word Sense		K2	CO5	7M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CC4117

ENTREPRENEURSHIP AND INNOVATION

Time: 3 hours

(Common to All Branches)

Max. Marks: 70

R20

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the difference between entrepreneur and entrepreneurship	2	1	7M
		ii) Discuss various types of entrepreneurs	2	1	7M
	OR				
	b	i) List out the responsibilities of an entrepreneurs	1	1	7M
		ii) Define commercial banks Explain its functions in detail	2	1	7M
2	Unit-II				
	a	i) Define creativity. Mention the characteristics of creativity with example	1	2	7M
		ii) Explain the process of creativity	2	2	7M
	OR				
	b	i) Discuss the stages of innovation	2	2	7M
		ii) Differentiate creativity and innovation	2	2	7M
3	Unit-III				
	a	i) Elaborate how training programs are essential for Entrepreneurship development programs	2	3	7M
		ii) Enumerate the process of training programs	2	3	7M
	OR				
	b	i) List out the phases and evolution of EDPs	2	3	7M
		ii) Mention the significance of Entrepreneurship in India	2	3	7M
4	Unit-IV				
	a	i) Define project. Explain the characteristics of a project	2	4	7M
		ii) Describe the process of idea generation	2	4	7M
	OR				
	b	i) Explain phases of project life cycle	2	4	7M
		ii) Differentiate PBP and ARR in project acceptance	2	4	7M
5	Unit-V				
	a	i) Elaborate MSME. Explain the policies of MSME	2	5	7M
		ii) Discuss the internal growth strategies.	2	5	7M
	OR				
	b	i) Define Merger. Mention the possibilities of merging	1	5	7M
		ii) Explain the remedies for sickness organisations	2	5	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20CE4102

WATERSHED MANAGEMENT

Time: 3 hours

(CE)

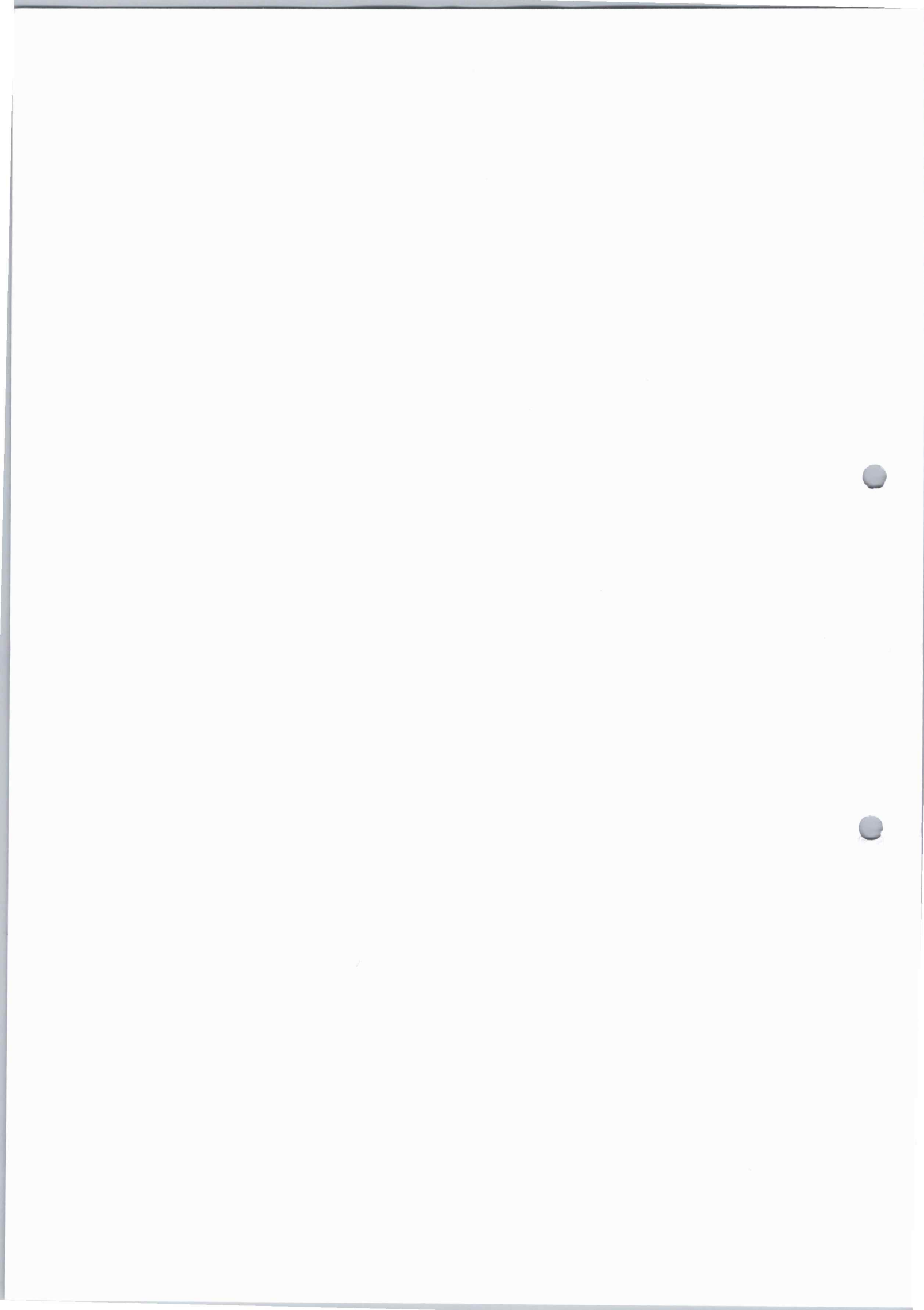
Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the Concept of watershed development in brief.	K2	1	7M
		ii) What are the objectives of watershed development?	K2	1	7M
	OR				
	b	i) Explain the need of watershed management in Indian context.	K2	1	7M
		ii) Why does Integrated and multidisciplinary approach is required for watershed management.	K2	1	7M
2	Unit-II				
	a	Explain in detail Physiographic characteristics and Climatic characteristics of watershed	K2	2	14M
	OR				
	b	Give a brief explanation on hydrology and socio-economic characteristics of Watershed.	K2	2	14M
3	Unit-III				
	a	i) list the types and causes of erosion.	K2	3	7M
		ii) Write a note on Universal soil loss equation.	K2	3	7M
	OR				
	b	i) Discuss ploughing, furrowing, trenching as control measures of erosion.	K2	3	7M
		ii) Explain in detail the Contour techniques to control Erosion	K2	3	7M
4	Unit-IV				
	a	Explain the different techniques of water harvesting.	K2	4	14M
	OR				
b	Describe the role of check dam, farm ponds and percolation tanks in Rain Water Harvesting.	K2	4	14M	
5	Unit-V				
	a	Explain the Land use and Land capability classification in detail.	K2	5	14M
	OR				
b	Explain reclamation procedure for alkaline and salt affected soils?	K2	5	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20CE4104
PRESTRESSED CONCRETE

Time: 3 hours

(CE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M
Unit-I				
1	a i) Explain any two methods of prestressing system.	K1	CO1	10M
	ii) Why is the high strength of concrete and high grade of steel required for prestressed concrete?	K1	CO1	4M
	OR			
	b i) Explain load balancing concept in brief	K1	CO1	7M
	ii) A prestressed concrete beam is of size 500 mm × 900 mm. The beam is simply supported on a span of 8 m. It is subjected to a central concentrated load of 1500 kN. The beam carries a dead load of 10 kN/m. A bent tendon is provided at an eccentricity of 100 mm below the centroidal axis and 50 mm below the centroidal axis at the ends. Compute the extreme stresses at midspan of the beam	K2	CO1	7M
Unit-II				
2	a A prestressed concrete pile 250 mm square, contains 60 pre-tensioned wires, each of 3mm diameter, uniformly distributed over the section. The wires are initially tensioned on the prestressing bed with a total force of 500 kN. Calculate the final stress in concrete and the percentage loss of stress in steel after all losses, given the following data : $E_s = 210 \text{ kN/mm}^2$ & $E_c = 32 \text{ kN/mm}^2$ Shortening due to creep = $30 \times 10^{-6} \text{ mm/mm}$ per N/mm^2 of stress Total shrinkage = 200×10^{-6} per unit length Relaxation of steel stress = 5 per cent of initial stress Prestressing force, $P = 400 \text{ kN}$	K2	CO2	14M
	b Explain different types of losses of Pre-stress in pre-tensioned and post tensioned members in detail.	K2	CO2	14M
OR				
Unit-III				
3	a i) A post-tensioned prestressed concrete Tee beam having a flange width of 1200 mm and flange thickness of 200 mm thickness of web being 300mm is prestressed by 2000 mm^2 of high tensile steel located at an effective depth of 1600mm. if $f_{ck} = 40 \text{ N/mm}^2$ and $f_p = 1600 \text{ N/mm}^2$, estimate the ultimate flexural strength of the unbounded tee section assuming span/depth ratio as 20 and $f_{pe} = 1000 \text{ N/mm}^2$.	K3	CO3	7M
	ii) Explain with sketches the IS:1343 code method of computing the moment of resistance of rectangular section.	K2	CO3	7M
	OR			
b i) A post-tensioned bridge girder with unbounded tendons is of box section of overall dimensions 1200 mm wide by 1800 mm deep with wall thickness of 150 mm. The high-tensile steel has an area of 4000 mm^2 and is located at an effective depth of 1600 mm. The effective pre-stress in steel after all losses is 1000 N/mm^2 and the effective span of the girder is 24 m. If the $f_{ck} = 40 \text{ N/mm}^2$ and $f_p = 1600 \text{ N/mm}^2$, estimate the ultimate flexural strength of the section.	K3	CO3	7M	

		ii) Explain the Different types of flexure failures modes in PSC beams	K2	CO3	7M
4	Unit-IV				
	a	i) Briefly explain the importance of creep of concrete in long –term deflections of prestressed members.	K2	CO4	6M
		ii) A concrete beam having a rectangular section 125 × 250 mm is prestressed by a parabolic cable with an initial prestressing force of 220 kN. The cable has an eccentricity of 50 mm at the centre and concentric at the supports. If the span of the beam is 10 m and subjected to a live load of 2.2 kN/m. Calculate the short term deflection at midspan. Assume $E_c = 38 \text{ kN/mm}^2$, creep coefficient = 2, loss of prestress = 20%	K3	CO4	8M
	OR				
	b	i) A concrete beam having a rectangular section 100 × 300 mm is prestressed by a parabolic cable with an initial prestressing force of 240 kN. The cable has an eccentricity of 50mm at the centre and concentric at the supports. If the span of the beam is 12m and subjected to a live load of 5 kN/m. Calculate the short term deflection at midspan. Assume $E_c = 38 \text{ kN/mm}^2$, creep coefficient = 2, loss of prestress = 20%. Estimate the long-term deflection	K4	CO4	10M
ii) List the factors influencing the short term and long term deflections of prestressed concrete members.		K4	CO4	4M	
5	Unit-V				
	a	i) Explain the various modes of failure encountered in prestressed concrete beams subjected to bending moment, shear and torsion.	K2	CO5	7M
		ii) What are the different ways of improving the shear resistance of structural concrete members by prestressing techniques?	K3	CO5	7M
	OR				
b	i) What are the codal recommendations regarding the design of reinforcements in prestressed sections subjected to moment shear and torsion?	K2	CO5	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20CE4107

ESTIMATION COSTING AND VALUATION

R20

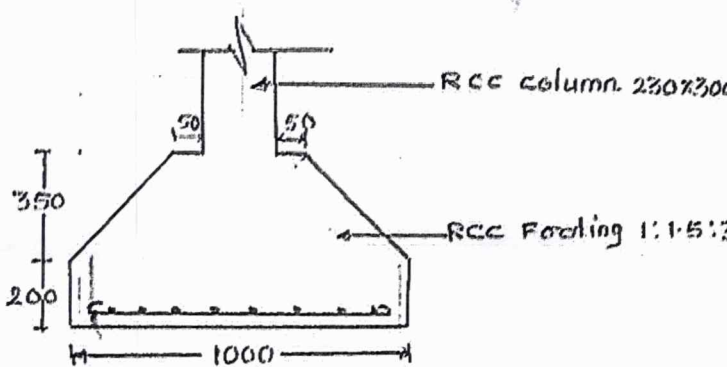
Time: 3 hours

(CE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M			
Unit-I							
1	a	i) Discuss the considerations of detailed estimate of structures. And explain the main items of work in estimating a building?					
		K1	1	7M			
		ii) Explain Centre line method in detail.					
		K2	1	7M			
OR							
b	i) Explain the role and responsibility of estimator.			K1	1	7M	
	ii) Describe the procedure of preparing approximate estimate for road project.			K2	1	7M	
Unit-II							
2	a			Fig no. 1 shows details of RCC column and footing. Work out the quantity of steel in footing on the basis of % steel.			
				K3	2	14M	
	OR						
	b	i) Prepare the analysis of rate of R.C.C. work 1:1.5:3 for 5 columns of size 250mm x 350 mm. Assume the required data.			K4	2	7M
ii) Describe in detail about rate analysis for canal work.			K2	2	7M		
Unit-III							
3	a	i) Briefly discuss the specifications for second class Brickwork?			K3	3	7M
		ii) Explain the process of estimating the pitching of slopes in road construction and its importance in ensuring road stability.			K2	3	7M
	OR						
	b	i) Discuss the methods used for estimating earthwork in road construction from longitudinal sections.			K2	3	7M
ii) Describe the detailed specifications for R.C.C (Reinforced Concrete Cement) in road construction and their importance.			K3	3	7M		
Unit-IV							
4	a	i) Define task or out-turn work in the context of analysis of rates. And explain its significance in construction projects.			K1	4	7M
		ii) Discuss the key considerations and factors involved in preparing an analysis of rates for RCC (Reinforced Concrete Cement) works.			K2	4	7M

OR						
	b	i) Explain the factors that affect the analysis of rates for CC (Cement Concrete) flooring.	K2	4	7M	
		ii) Describe the elements and steps involved in creating an analysis of rates for plastering in construction projects.	K2	4	7M	
Unit-V						
5	a	i) Discuss the various methods of property valuation commonly used in real estate, such as the cost approach, sales comparison approach, and income approach.	K3	5	7M	
		ii) Explain the concept of depreciation in property valuation and the different methods used to estimate it, including straight-line depreciation and declining balance depreciation.	K2	5	7M	
	OR					
	b	i) Define gross income and net income in the context of property valuation and explain their relevance in determining property value.	K2	5	7M	
ii) Explain the concept of a mortgage and its role in real estate financing, including the types of mortgages and the rights and responsibilities of borrowers and lenders.		K3	5	7M		

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20EE4104

FLEXIBLE AC TRANSMISSION SYSTEMS

R20

Time: 3 hours

(EEE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Explain the Dynamic stability consideration of a transmission line interconnection?			
		K2	1	7M	
		ii) What are the benefits from FACTS controllers?			
		K2	1	7M	
OR					
b	i) Explain the requirements and characteristics of high power devices in FACTS?				
	K2	1	7M		
b	ii) What are the Basic types of FACTS controllers?				
	K1	1	7M		
Unit-II					
2	a	i) Derive the expression for fundamental harmonic voltages of a single phase bridge converter?			
		K3	2	7M	
		ii) Draw the circuit and explain the three phase full wave bridge converter?			
		K3	2	7M	
OR					
b	i) Explain the basic concept of voltage source converter?				
	K2	2	7M		
b	ii) Discuss the three phase current source converter?				
	K2	2	7M		
Unit-III					
3	a	i) Illustrate the mid point voltage regulation for line segment by using shunt compensation?			
		K3	3	7M	
		ii) Explain the objectives of shunt compensation?			
		K2	3	7M	
OR					
b	Explain the i) Improvement of transient stability with shunt compensation				
	K2	3	14M		
Unit-IV					
4	a	Explain the following i) Thyristor switched capacitor ii) thyristor controlled reactor?			
		K2	4	14M	
OR					
b	Briefly explain the static VAR compensator and static compensator?				
	K2	4	14M		
Unit-V					
5	a	Explain the i) Thyristor switched series capacitor ii) Thyristor controlled series capacitor?			
		K2	5	14M	
	OR				
	b	i) What are the basic concept of series capacitive compensation?			
K1		5	7M		
b	ii) Explain the basic operating principles of unified power flow controller?				
	K2	5	7M		

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20EE4109

POWER SYSTEM OPERATION AND CONTROL

R20

Time: 3 hours

(EEE)

Max. Marks: 70

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M																	
1	Unit-I																				
	a	i) Give iteration algorithm for solving economic scheduling problem, without transmission loss.	2	1	7M																
		ii) Derive coordination equation for economic dispatch including losses, in the power system. Give steps for economic dispatch calculation, neglecting losses.	2	1	7M																
	OR																				
	b	Consider the following three units: $I_{c1} = 7.92 + 0.003124 PG_1$ $I_{c2} = 7.85 + 0.00388 PG_2$ $I_{c3} = 7.97 + 0.00964 PG_3$ $P_D = 850 MW$ $PG_1 = 392.2 MW, PG_2 = 334.6 MW, PG_3 = 122.2 MW$ Determine the optimum schedule if the load is increased to 900 MW by using Participation Factor method.	3	1	14M																
2	Unit-II																				
	a	i) What is priority list method of unit commitment? Distinguish between economic dispatch and unit commitment.	2	2	7M																
		ii) Explain the dynamic programming solution for unit commitment with flowchart.	2	2	7M																
	OR																				
	b	Give out the priority list of unit commitment using full load average production cost for the given data: Heat rate of unit 1 $H_1 = 510 + 7.2PG_1 + 0.00142 PG_1^2$ MW/hr Heat rate of unit 2 $H_2 = 310 + 7.85PG_2 + 0.00194PG_2^2$ MW/hr Heat rate of unit 3 $H_3 = 78 + 7.97PG_3 + 0.00482PG_3^2$ MW/hr. <table style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th>Unit</th> <th>Min(MW)</th> <th>Max(MW)</th> <th>Fuel cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>150</td> <td>600</td> <td>1.1</td> </tr> <tr> <td>2</td> <td>100</td> <td>400</td> <td>1.0</td> </tr> <tr> <td>3</td> <td>50</td> <td>200</td> <td>1.2</td> </tr> </tbody> </table>	Unit	Min(MW)	Max(MW)	Fuel cost	1	150	600	1.1	2	100	400	1.0	3	50	200	1.2	3	2	14M
Unit	Min(MW)	Max(MW)	Fuel cost																		
1	150	600	1.1																		
2	100	400	1.0																		
3	50	200	1.2																		
3	Unit-III																				
	a	i) The data pertaining to a single area power system with linear load frequency characteristic are as follows. Rated Capacity = 2000 MW. System Load = 1000 MW Inertia Constant = 5 sec, Speed regulation = 0.03 pu, Load damping factor = 1 pu, Normal Frequency = 50Hz. Governor Time constant a sec and Turbine time constant = 0 sec. For a sudden change in load of 20 MW, determine the steady state frequency deviation and the change in generation in MW and reduction in original load in MW.	3	3	14M																
	OR																				
	b	i) Derive the transfer function of an uncontrolled load frequency control of a single area system and derive the expression for static error following a step load change.	3	3	7M																

		ii) Explain the proportional plus integral control for load frequency control for a single area system.	2	3	7M																
	Unit-IV																				
4	a	A two-area power system connected by a tie-line has the following parameters:	3	4	14M																
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Parameters/Area</th> <th style="width: 35%;">Area 1</th> <th style="width: 35%;">Area 2</th> </tr> </thead> <tbody> <tr> <td>Turbine output Power (MW)</td> <td style="text-align: center;">4000</td> <td style="text-align: center;">2000</td> </tr> <tr> <td>Nominal Frequency (Hz)</td> <td style="text-align: center;">50</td> <td style="text-align: center;">50</td> </tr> <tr> <td>Speed regulation</td> <td style="text-align: center;">4%</td> <td style="text-align: center;">5%</td> </tr> <tr> <td>Power system Gain (kp)</td> <td style="text-align: center;">50</td> <td style="text-align: center;">125</td> </tr> <tr> <td>Governor Time Constant</td> <td style="text-align: center;">0.2</td> <td style="text-align: center;">0.1</td> </tr> <tr> <td>Turbine Time Constant</td> <td style="text-align: center;">0.3</td> <td style="text-align: center;">0.25</td> </tr> </tbody> </table>				Parameters/Area	Area 1	Area 2	Turbine output Power (MW)	4000	2000	Nominal Frequency (Hz)	50	50	Speed regulation	4%	5%	Power system Gain (kp)	50	125	Governor Time Constant
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Turbine Time Constant	0.3	0.25																			
	OR																				
	b	i) Two interconnected Area-1 and Area-2 have the capacity of 2,000 and 500 MW, respectively. The incremental regulation and damping torque coefficient for each area on its own base are 0.2 p.u. and 0.8 p.u., respectively. Find the steady-state change in system frequency from a nominal frequency of 50 Hz and the change in steady state tie-line power following a 750 MW change in the load of Area-1.	3	4	14M																
	Unit-V																				
5	a	i) Explain the injection of reactive power by switched capacitors to maintain the acceptable voltage profile and to minimize the transmission loss in a power system.	3	5	7M																
		ii) Explain the methods of voltage control in a transmission system by transformer tap setting and booster transformer.	3	5	7M																
	OR																				
	b	i) Explain the following methods of voltage control (a) Tap changing transformers (b) Shunt reactors (c) Synchronous phase modifiers (d) Shunt capacitors (e) series capacitors.	3	5	14M																

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20EE4111

SWITCHGEAR AND PROTECTION

R20

Time: 3 hours

(EEE)

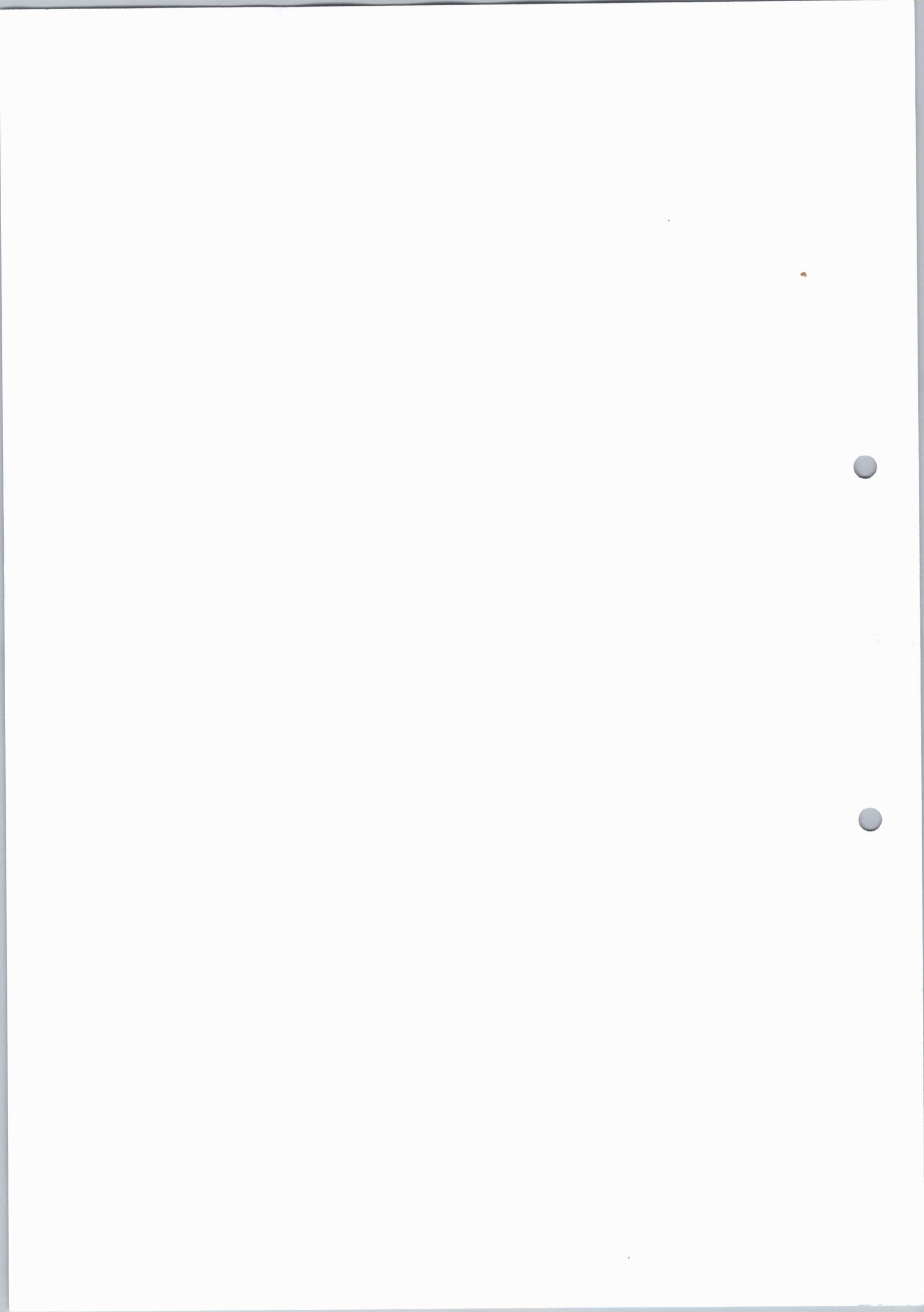
Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the term active recovery voltage, Restricting voltage and RRRV. Derive an expression for restriking voltage in terms of system capacitance and Inductance?	K3	1	7M
		ii) Explain the construction principle and working of an SF ₆ circuit breaker with a neat sketch?	K1	1	7M
	OR				
b	A Circuit breaker is rated at 1500A, 1000 MVA, 33 KV, 3 sec, three phase oil circuit breaker. Determine i) Rated normal current ii) Breaking capacity iii) Rated symmetrical breaking current iv) Rated making capacity v) Short time rating and vi) Rated service	K2	1	14M	
2	Unit-II				
	a	i) Explain the working principle of Induction type electromagnetic relays?	K2	2	7M
		ii) Explain the construction and operation of an over current relay?	K2	2	7M
	OR				
b	i) Explain the principle of working of Distance relays, Describe with neat sketches the following type of relays i) Impedance relay ii) Reactance relay iii) Mho relay	K1	2	14M	
3	Unit-III				
	a	i) What is the need for the transformer protection?	K1	3	7M
		ii) What are the rotor faults in the alternator? For such faults give their causes and suggest protective measures?	K1	3	7M
	OR				
b	i) Explain in detail about Buchholz relay with a neat sketch?	K2	3	7M	
	ii) What are the abnormal conditions in a large alternator against which the protection is necessary? Discuss them briefly?	K2	3	7M	
4	Unit-IV				
	a	i) What is the need for protection of Bus bars?	K1	4	7M
		ii) Explain the working principle of carrier current protection?	K2	4	7M
OR					
b	Discuss the i) Translay relay protection of bus bars ii) Differential protection	K2	4	14M	
5	Unit-V				
	a	What are the components of static relays? Explain	K2	5	14M
	OR				
b	i) Explain the principle operation of static distance relay?	K2	5	7M	
	ii) Discussed the Micro processor based digital relays?	K2	5	7M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20ME4102

DIGITAL MANUFACTURING

Time: 3 hours

(ME)

Max. Marks: 70

R20

Note: Answer All FIVE Questions.
All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Differentiate between conventional manufacturing and smart manufacturing process.	K2	CO1	7M
		ii) Discuss about the advantages and disadvantages of smart manufacturing.	K2	CO1	7M
	OR				
	b	i) What is industry 4.0 and explain how does it work?	K2	CO1	7M
	ii) Discuss about Augmented reality with an example.	K3	CO1	7M	
Unit-II					
2	a	i) What are major challenges for IoT technologies in industrial markets?	K2	CO2	7M
		ii) How does Agile manufacturing benefits the custom manufacturing?	K3	CO2	7M
	OR				
	b	i) Implementation of smart factory concept is advisable. Justify.	K3	CO2	7M
	ii) Differentiate between Lean Manufacturing and Agile Manufacturing.	K2	CO2	7M	
Unit-III					
3	a	i) Explain about the elements of a smart communication system and list out its benefits.	K2	CO3	14M
	OR				
	b	i) With a neat sketch explain 5C architecture of a Cyber Physical System.	K3	CO3	7M
		ii) Classify the Communication Technologies for Smart Manufacturing Systems	K4	CO3	7M
Unit-IV					
4	a	What is smart manufacturing platform? Explain about the basic elements of smart manufacturing system.	K2	CO4	14M
	OR				
	b	i) What Are the Codes Used in CNC Programming for developing a rectangular contour on a milling machine .	K4	CO4	7M
		ii) Define the terms tool length compensation and cutter radius compensation.	K1	CO4	7M
Unit-V					
5	a	Explain how Intelligent Decision Making helps in improving decisions during uncertainty Production.	K3	CO5	[14M]
	OR				
	b	i) How does globalization effect the manufacturing industry.	K3	CO5	7M
	ii) Discuss the measures to be taken to improve the productivity?	K3	CO5	7M	

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20ME4107

FINITE ELEMENT METHOD

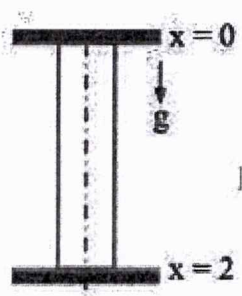
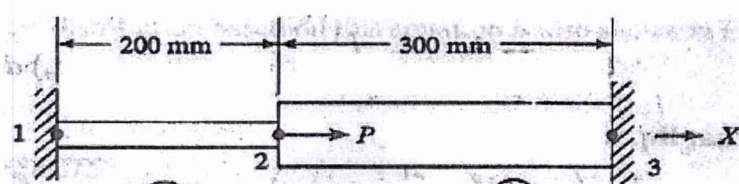
Time: 3 hours

(ME)

Max. Marks: 70

Note: Answer All FIVE Questions.

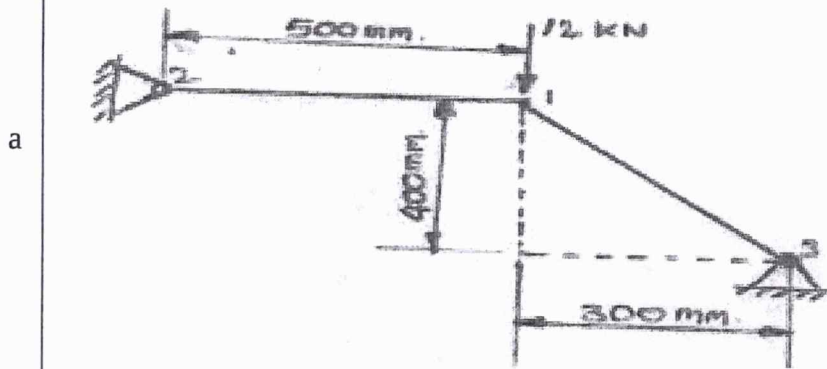
All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M		
Unit-I						
1	a) i) Describe the standard procedure to be followed for understanding the finite element method step by step with suitable example.	K3	CO1	7M		
	ii) Explain the strain stress relations based on generalized Hooke's law and derive the elasticity matrix for 3-D field problems.	K3	CO1	7M		
OR						
b	Discuss in detail about the concepts of FEM formulation .How is that FEM emerged as powerful tool. Discuss in detail about applications of finite element method.	K3	CO1	14M		
Unit-II						
2	a) Derive an equation for finding out the potential energy by Rayleigh –Ritz method. Using Rayleigh – Ritz method, find the displacement of the midpoint of the rod shown in Figure. Assume $E = 1$, $A = 1$, $\rho g = 1$ by using linear and quadratic shape functions concept.	K4	CO2	14M		
						
OR						
b	An axial load $P=300 \times 10^3 \text{N}$ is applied at 20°C to the rod as shown in Figure below. The temperature is the raised to 60°C . a) Assemble the K and F matrices. b) Determine the nodal displacements and stresses.	K4	CO2	14M		
						
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;"> ① Aluminum $E_1 = 70 \times 10^9 \text{ N/m}^2$ $A_1 = 900 \text{ mm}^2$ $\alpha_1 = 23 \times 10^{-6} \text{ per } ^\circ \text{C}$ </td> <td style="width: 50%; text-align: center;"> ② Steel $E_2 = 200 \times 10^9 \text{ N/m}^2$ $A_2 = 1200 \text{ mm}^2$ $\alpha_2 = 11.7 \times 10^{-6} \text{ per } ^\circ \text{C}$ </td> </tr> </table>					① Aluminum $E_1 = 70 \times 10^9 \text{ N/m}^2$ $A_1 = 900 \text{ mm}^2$ $\alpha_1 = 23 \times 10^{-6} \text{ per } ^\circ \text{C}$	② Steel $E_2 = 200 \times 10^9 \text{ N/m}^2$ $A_2 = 1200 \text{ mm}^2$ $\alpha_2 = 11.7 \times 10^{-6} \text{ per } ^\circ \text{C}$
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Unit-III

For the two bar truss shown in figure, **determine** the displacement at node 1 and stresses in element 2, Take $E=70\text{GPa}$, $A= 200\text{mm}^2$

K4 CO3 14M

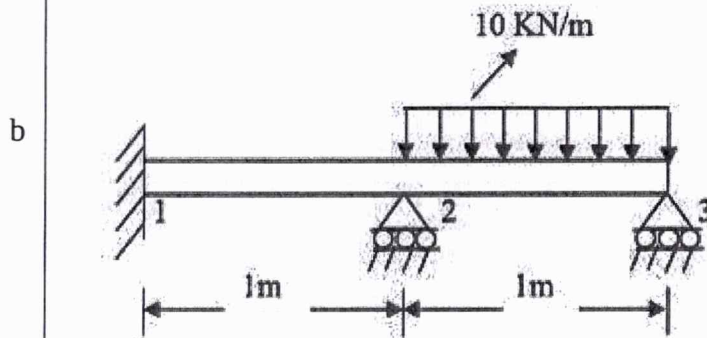


3

OR

i) For a beam and loading shown in figure, **determine** the slopes at 2 and 3 and the vertical deflection at the midpoint of the distributed load.

K4 CO3 14M



b

4

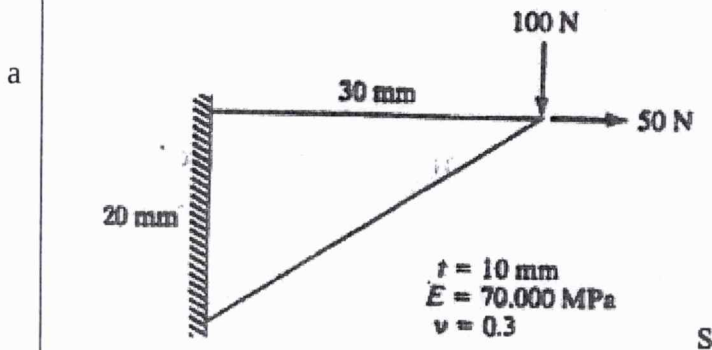
Unit-IV

i) Determine the shape functions for quadratic element.

K3 CO4 7M

ii) For the configuration shown in Figure. **Determine** the deflection at the point of load application using a one-element model. If a mesh of several triangular elements is used, comment on the stress values in the elements close to the tip.

K4 CO4



a

7M

OR					
	b	Analyze about the constant strain triangular element and discuss about the shape functions with neat sketches	K3	CO4	14M
	Unit-V				
5	a	<p>i) Find the temperature distribution in the one-dimensional fin shown in Figure below using two finite elements.</p> <p style="text-align: center;">$T_{\infty} = 40^{\circ}\text{C}$ $h = 5 \frac{\text{watts}}{\text{cm}^2 \cdot ^{\circ}\text{K}}$</p> <p style="text-align: center;">140°C $L = 5 \text{ cm}$ End surface A</p> <p style="text-align: center;">$k = 70 \frac{\text{watts}}{\text{cm} \cdot ^{\circ}\text{K}}$ 1 cm radius</p>	K4	CO5	7M
	b	<p>ii) What are different thermal applications of finite element analysis. Compare the structural analysis with thermal analysis.</p>	K2	CO5	7M
	OR				
	b	<p>Determine natural frequencies and corresponding mode shapes for the figure. Take $L_1=1\text{m}$, $L_2=2\text{m}$, $A_1=2\text{m}^2$, $A_2=1\text{m}^2$, $\rho = 7850 \text{ kg/m}^3$, $E = 200\text{Gpa}$</p> <p style="text-align: center;">A_1 A_2</p> <p style="text-align: center;">L_1 L_2</p>	K4	CO5	14M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20ME4116

ELECTRIC AND HYBRID VEHICLES

Time: 3 hours

(ME)

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Discuss the history of hybrid electric vehicles.	K2	CO1	7M
		ii) Draw a general lay out of a EV and discuss the transmission characteristics.	K2	CO1	7M
	OR				
	b	i) Explain rolling resistance and aerodynamic drag in vehicles	K3	CO1	7M
		ii) Explain about vehicle transmission characteristics.	K3	CO1	7M
2	Unit-II				
	a	i) Explain about social and economic importance of EV and HEV.	K3	CO2	7M
		ii) Under what condition a pure EV can be chosen as a better option compared to hybrid vehicles considering the impact on climate change?	K4	CO2	7M
	OR				
	b	i) Discuss the possible power converter topologies that can be used in induction motor drive for EV/HEV.	K3	CO2	7M
		ii) With a neat sketch, explain the configuration of Series hybrid electric drive train.	K3	CO2	7M
3	Unit-III				
	a	Draw six different configurations of drive trains in electric vehicles. Briefly explain each configuration.	K2	CO3	14M
		OR			
	b	Enlist the different power flow architectures of hybrid electric drive train and explain the series hybrid electric drive train	K2	CO3	14M
Unit-IV					
4	a	Explain fuel cell and flywheel as energy source elements in electric and hybrid electric vehicle	K3	CO4	14M
		OR			
	b	i) What are factors affecting the performance of batteries used in EVs.	K2	CO4	7M
		ii) What are different modes of charging batteries? Compare them in detail	K2	CO4	7M
5	Unit-V				
	a	Compare the performance of ICE vehicles with electric hybrid vehicles.	K2	CO5	14M
		OR			
b	Discuss the issues of energy management strategies	K2	CO5	14M	

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks



NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20EC4102

CELLULAR AND MOBILE COMMUNICATION

Time: 3 hours

(ECE)

Max. Marks: 70

R20

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Mention the limitations of conventional mobile telephone systems.	K1	1	2M
		ii) Define coherence time, system capacity.	K1	1	3M
		iii) Explain briefly different ways of improving coverage and capacity in cellular systems.	K4	1	7M
		iv) Write short note on Hexagonal shaped cells.	K3	1	2M
	OR				
	b	i) Explain the need for cell splitting. Also explain two kinds of cell splitting techniques.	K4	1	7M
		ii) What is Grade of service?	K1	1	2M
		iii) Define Frequency Reuse Ratio.	K1	1	3M
		iv) Define cell sectoring.	K1	1	2M
2	Unit-II				
	a	i) Define cross Talk.	K1	2	2M
		ii) What is the phase difference between direct and reflected paths?	K1	2	3M
		iii) In detail illustrate the different types of non-cochannel interferences in a cellular environment.	K2	2	7M
		iv) What is space diversity?	K1	2	2M
	OR				
	b	i) Explain the effect of the human made structure on cell coverage.	K4	2	8M
		ii) Mention the effect on coverage and interference of mobile link by decrease in transmitted power level.	K1	2	3M
		iii) What is constant standard deviation? -	K1	2	3M
	3	Unit-III			
a		i) List the antennas used for space diversity.	K3	3	2M
		ii) State the factors on which the minimum separation of cell site antennas depends.	K1	3	3M
		iii) What is meant by frequency management?	K1	3	2M
		iv) Differentiate between fixed and non-fixed channel assignment in detail.	K4	3	7M
OR					
b		i) What is channel sharing? Explain.	K1	3	4M
		ii) Explain the advantages of cell sectorization over cell splitting.	K4	3	4M
		iii) Explain Umbrella antenna patterns in detail.	K4	3	6M
4		Unit-IV			
	a	i) Define inter-system handoff.	K1	4	3M
		ii) Discuss about handoff initiation.	K2	4	2M
		iii) Give the general formula for finding dropped call rate in noise limited system and interference limited system.	K1	4	4M
		iv) Write about forced handoff mechanism in detail.	K3	4	5M

	b	i) What is mobile assisted handoff? Explain.	K1	4	7M	
	b	ii) What are the advantages of delaying handoff? With neat sketch explain two level delaying handoff.	K1	4	7M	
Unit-V						
5	a	i) Explain in detail the Code Division Multiple Access technique.	K4	5	7M	
		ii) Write a short note on TDMA structure frame length and frame offset.	K3	5	7M	
	OR					
	b	i) Explain Architecture of GSM.	K4	5	7M	
ii) List the differences between TDMA and CDMA.		K3	5	7M		

IV B.Tech I Semester Regular Examinations, October-2023

Sub Code: R20EC4106

RADAR SYSTEMS

Time: 3 hours

(ECE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Derive the radar range equation?	2	1	7M
		ii) Draw the Radar Block Diagram and Operation	2	1	7M
	OR				
	b	i) Explain the effect of noise on detection of signals?	2	1	7M
		ii) Explain the function of simple radar system?	2	1	7M
2	Unit-II				
	a	i) How FMCW technique is required in radar system? Explain, how can identify the target direction	3	2	10M
		ii) what is Doppler Effect?	3	2	4M
	OR				
b	With suitable diagrams, explain the constructional difference of CW radar and simple pulse Doppler radar?	1	2	14M	
3	Unit-III				
	a	i) Explain the limitations of MTI performance?	4	3	7M
		ii) Explain the function and necessity of non coherent MTI radar?	4	3	7M
	OR				
	b	i) Explain the working principle and function of each block in power amplifier transmitter in MTI Radar?	5	3	7M
ii) What is an A-scope display? How it generate butterfly effect in MTI Radar system?		5	3	7M	
4	Unit-IV				
	a	i) Explain the function of low-angle tracking system?	3	4	7M
		ii) Explain the working of each block in mono pulse two-angle co-ordinate system?	3	4	7M
	OR				
	b	i) Define one-dimensional and two- dimensional aperture illumination?	2	4	7M
ii) Write a notes on (a) AGC system (b) Boxcar generator		2	4	7M	
5	Unit-V				
	a	Explain the constructional details of constrained feed in planar array for scanning in one and two dimensional?	4	5	14M
	OR				
	b	i) Explain the concept of Response Characteristics of Matched Filter Receiver	5	5	7M
ii) Write notes on frequency scan arrays?		5	5	7M	

IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20EC4111

EDGE COMPUTING

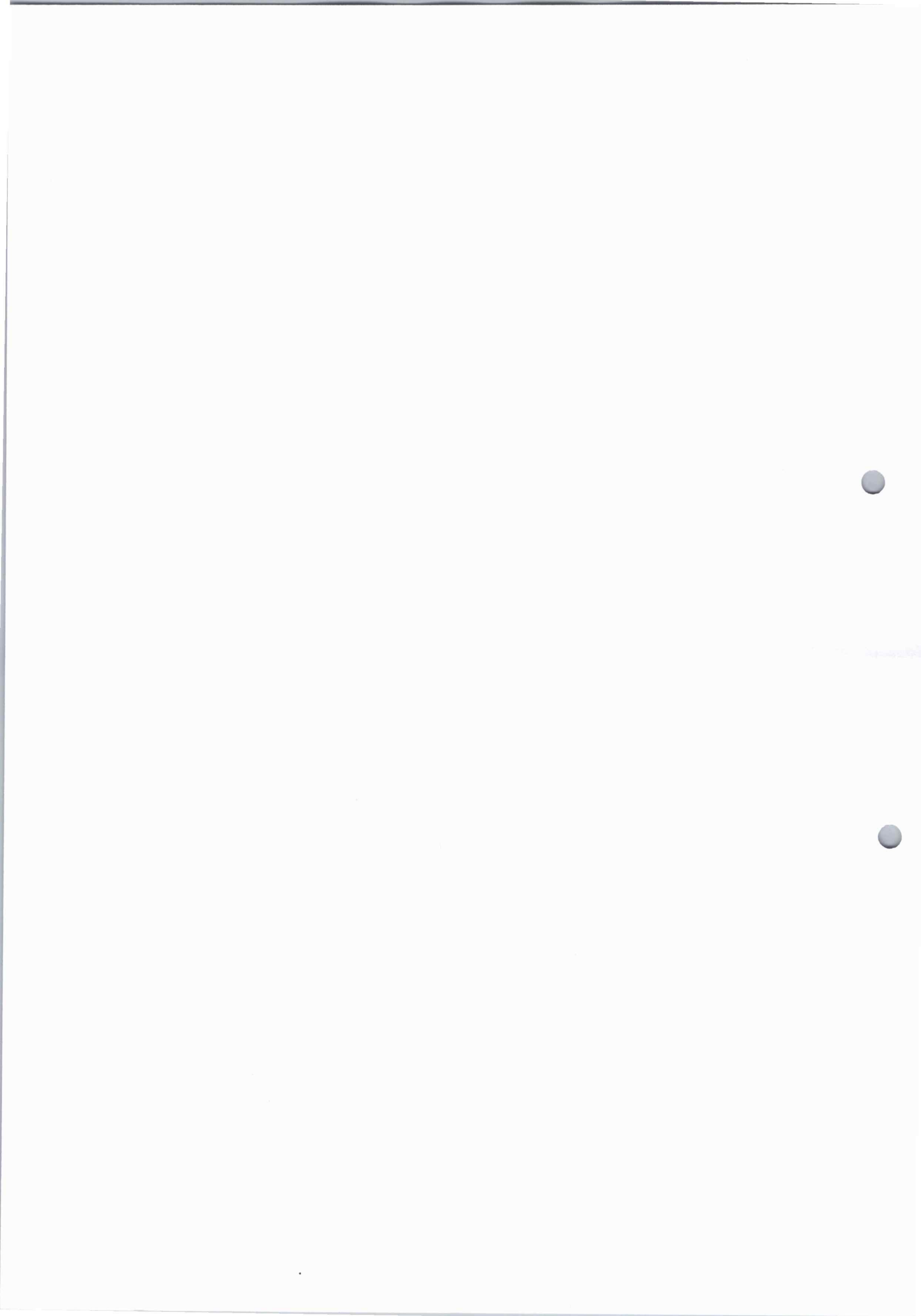
Time: 3 hours

(ECE)

Max. Marks: 70

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the operation of Edge computing hardware architecture along with diagram	K2	1	7M
		ii) List out different Communication Models of Edge computing	K2	1	7M
	OR				
	b	i) Explain the operation of Fog Computing in detail	K2	1	7M
		ii) Write short notes on Edge computing Purpose	K2	1	7M
2	Unit-II				
	a	i) Explain the Beckstroms's laws in detail	K1	2	7M
		ii) explain the case study of Telemedicine palliative care in detail	K1	2	7M
	OR				
	b	i) List out few comparisons of IoT and SCADA Technologies in detail	K1	2	7M
		ii) write short notes on machine-to-machine technology in detail	K1	2	7M
3	Unit-III				
	a	i) List out major devices used in Raspberry-Pi Board and explain	K4	3	7M
		ii) List out different Configuring modes of RaspberryPi	K4	3	7M
	OR				
	b	i) Draw and explain the operation of Interfacing DHT Sensor with Raspberry-Pi	K4	3	7M
		ii) List out different applications of Raspberry-Pi	K4	3	7M
4	Unit-IV				
	a	i) Explain the different MQTT data types in detail	K5	4	7M
		ii) Draw and explain the MQTT communication formats	K5	4	7M
	OR				
	b	i) Draw the MQTT Architecture and explain its operation	K3	4	7M
		ii) Explain the concept of MQTT packet structure in detail	K3	4	7M
5	Unit-V				
	a	i) List out different Features of RaspberryPi, explain	K2	5	7M
		ii) Explain any one Commercial IoT edge detection along with example	K2	5	7M
	OR				
b	Explain about Industrial Edge Computing use cases in detail	K5	5	14M	



IV B.Tech I Semester Regular. Examinations, October-2023

Sub Code: R20CS4108

MOBILE AD HOC AND SENSOR NETWORKS

Time: 3 hours

(CSE)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain the applications and challenges of MANET	2	1	7M
		ii) Compare and Contrast proactive , reactive and hybrid routing protocols	3	1	7M
	OR				
	b	i) Explain the DSR protocol with example	2	1	10M
		ii) Discuss about greedy packet forwarding routing approach	2	1	4M
2	Unit-II				
	a	i) Explain the TCP header with neat sketch	2	2	7M
		ii) Explain the Effects of Partitions on TCP	2	2	7M
	OR				
	b	i) Explain the mobility related solutions for TCP over ad hoc networks	2	2	7M
		ii) Discuss the fairness related solutions for TCP over ad hoc networks	2	2	7M
3	Unit-III				
	a	i) Explain the design issues of WSN	2	3	7M
		ii) Explain any TWO applications of WSN	2	3	7M
	OR				
	b	i) Explain the different types of regular placement sensors	2	3	7M
		ii) Discuss about heterogeneous sensors	2	3	7M
4	Unit-IV				
	a	i) Explain the S-MAC protocol with neat sketch	2	3	7M
		ii) Discuss about EAR protocol in detail	2	3	7M
	OR				
	b	i) Compare and Contrast flat and hierarchical routing approach	3	3	7M
		ii) Explain the APTEEN protocol in detail	2	3	7M
5	Unit-V				
	a	i) Explain the Possible Communication Scenarios in heterogeneous environment	2	4	14M
	OR				
	b	i) Explain the different integrated architectures in detail	2	4	14M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B.Tech I Semester Regular Examinations, October-2023

R20

Sub Code: R20IT4107

BLOCK CHAIN TECHNOLOGIES

Time: 3 hours

(IT)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Write the history of Bitcoin	2	1	7M
		ii) Write in detail about how Blockchain works with an example	2	1	7M
	OR				
	b	i) Explain the birth of Blockchain	2	1	7M
		ii) How to Build Trust with Blockchain	2	1	7M
2	Unit-II				
	a	i) write in detail about the Transaction Lifecycle	4	2	7M
		ii) Consider an example to explain how a blockchain is suitable for business	4	2	7M
	OR				
	b	i) What is shared Ledger and how it is important in Blockchain	4	2	7M
		ii) Define Consensus algorithm and Explain the difference between Proof of Work and Proof of Stake	4	2	7M
3	Unit-III				
	a	i) Consider an example and explain about Market Friction and Information Frictions	2	3	7M
		ii) Explain in detail about Merkle Trees and Simplified Payment Verification	2	3	7M
	OR				
	b	i) Explain about reducing the information frictions	2	3	7M
		ii) Explain how to move towards Friction Free Business Networks	2	4	7M
4	Unit-IV				
	a	i) How Blockchain is secure for financial transactions with necessary example	4	4	7M
		ii) Explain the importance of Blockchain in Supply chain management	4	6	7M
	OR				
	b	i) Explain about Cross border transactions using blockchain	4	5	7M
		ii) Consider Medical records example and explain how blockchain will be applied to this casestudy	4	6	7M
5	Unit-V				
	a	i) Explain about Hyper Ledger with an usecase	3	5	7M
		ii) What are the various security issues that arise in Blockchain	3	5	7M
	OR				
	b	i) Explain about Hyper ledger architecture and its vision	3	5	7M
		ii) Explain about the Network attacks to destroy bitcoin	4	6	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

IV B. Tech I Semester Regular Examinations, October-2023

Sub Code: R20AI4107

ARTIFICIAL NEURAL NETWORKS

R20

Time: 3 hours

CSE (AI)

Max. Marks: 70

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 14 = 70M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) List the important learning laws in ANN. Discuss briefly Hebbian learning.	K2	CO1	7M
		ii) Compare and contrast biological neuron with artificial neuron.	K2	CO1	7M
	OR				
	b	i) Differentiate memory-based learning with competitive learning.	K2	CO1	7M
		ii) Describe various functional aspects of artificial neuron model with respect to activation functions	K2	CO1	7M
2	Unit-II				
	a	i) Explain about linear adaptive filtering in ANN.	K2	CO2	7M
		ii) Explain about linear least square filters in neural network.	K2	CO2	7M
	OR				
	b	i) Explain about Network Pruning Techniques?	K2	CO2	7M
		ii) What kind of operations can be implemented with perceptron? Show that it cannot implement Exclusive OR function.	K2	CO2	7M
3	Unit-III				
	a	i) Illustrate the working principles of supervised learning with an example.	K2	CO3	7M
		ii) Distinguish between Supervisory Learning and Un supervisory Learning in ANN.	K2	CO3	7M
	OR				
	b	i) How to determine the number hidden neurons in single hidden layer feed-forward neural network? Explain with an example.	K2	CO3	7M
		ii) Mention and explain the merits and demerits of Back propagation network.	K2	CO3	7M
4	Unit-IV				
	a	i) What are the important phases of SOM? Explain them in detail.	K2	CO4	7M
		ii) Can a neural network be simulated on a computer? Justify your answer.	K2	CO4	7M
	OR				
	b	i) What is Learning Vector Quantization? Explain its working.	K2	CO4	7M
		ii) Discuss basic features of mapping models?	K2	CO4	7M
5	Unit-V				
	a	i) Explain attractor network properties in detail.	K2	CO4	7M
		ii) Distinguish between online learning and off-line learning.	K2	CO4	7M
	OR				
	b	i) What is Hopfield Memory? Explain briefly.	K2	CO4	7M
		ii) Discuss briefly the working concepts of Boltzmann Machine.	K2	CO4	7M

KL: Blooms Taxonomy Knowledge Level CO: Course Outcome M: Marks

