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IV B.TECH II SEM

ADVANCED SUPPLEMENTARY EXAMINATIONS

JULY 2023

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BCE8TH01 CONSTRUCTION TECHNOLOGY AND MANAGEMENT

Time: 3 hours

(CE)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M																	
1	Unit-I																				
	a	i) What are the objectives and functions of construction management	K2	1	6M																
		ii) Bring out the differences between bar chart and mile stone chart.	K1	1	6M																
	OR																				
	b	i) Explain in brief about the differences between PERT and CPM	K2	1	6M																
		ii) Describe various phases of project management.	K1	2	6M																
2	Unit-II																				
	a	i) Draw a PERT network for the following and find expected mean time, variance and SD of the project.	K4	2	6M																
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Activity</th> <th style="width: 50%;">Three-time estimates (days)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1-2</td> <td style="text-align: center;">6-9-18</td> </tr> <tr> <td style="text-align: center;">1-3</td> <td style="text-align: center;">5-8-17</td> </tr> <tr> <td style="text-align: center;">2-4</td> <td style="text-align: center;">4-7-22</td> </tr> <tr> <td style="text-align: center;">3-4</td> <td style="text-align: center;">4-7-16</td> </tr> <tr> <td style="text-align: center;">4-5</td> <td style="text-align: center;">4-10-22</td> </tr> <tr> <td style="text-align: center;">2-5</td> <td style="text-align: center;">4-7-10</td> </tr> <tr> <td style="text-align: center;">3-5</td> <td style="text-align: center;">2-5-8</td> </tr> </tbody> </table>					Activity	Three-time estimates (days)	1-2	6-9-18	1-3	5-8-17	2-4	4-7-22	3-4	4-7-16	4-5	4-10-22	2-5	4-7-10	3-5	2-5-8
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4-5	4-10-22																				
2-5	4-7-10																				
3-5	2-5-8																				
	ii) Explain about Project evaluation and review technique with one example?	K1	2	6M																	
OR																					
b	i) Give the factors affecting the project duration	K2	2	6M																	
	ii) How to optimize the cost through networks?	K1	2	6M																	
3	Unit-III																				
	a	i) Explain different types of contract with merits and demerits.	K2	3	12M																
	OR																				
b	ii) What is the importance of measurement book and write about Earnest Money and Security Deposit.	K2	3	12M																	

Unit-IV					
4	a	i) Distinguish between Direct cost and indirect cost	K1	4	6M
		ii) Explain about crashing for optimum cost and crashing for optimum resources.	K3	4	6M
	OR				
	b	i) Discuss in brief the resources allocation problem. What are the methods of solving the problem?	K2	4	6M
ii) What are the ABC classification materials?		K1	4	6M	
Unit-V					
5	a	i) Explain briefly about quality assurance techniques in detailed.	K3	5	6M
		ii) What do you understand by Quality Control in Construction industry? How it helps in good quality of workmanship.	K1	5	6M
	OR				
	b	i) What are the approaches to improve safety in construction?	K1	5	6M
ii) Enumerate the steps in prevention of fires in construction industries.		K2	5	6M	

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

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BCE8PE04

ENVIRONMENTAL IMPACT ASSESSMENT

Time: 3 hours

(CE)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Write the Elements of EIA.	K1	1	6M
		ii) Write about life cycle analysis.	K1	1	6M
	OR				
	b	i) Explain the limitations of EIA.	K2	1	6M
ii) What are the basic concepts of EIA?		K1	1	6M	
Unit-II					
2	a	i) Explain the network method of EIA	K2	2	6M
		ii) Explain about check list method of EIA analysis.	K2	2	6M
	OR				
	b	i) Describe the cost benefit analysis for a proposed paper factory.	K1	2	6M
ii) What is the significance of cost benefit analysis in EIA?		K1	2	6M	
Unit-III					
3	a	i) Write a detailed note on identification of activities which will have different types of impacts on soil and ground water Quantity and Quality	K1	3	6M
		ii) Write the methodology for assessment of ground water characteristics in the study area?	K1	3	6M
	OR				
	b	i) Explain about the methodology for the assessment of soil and ground water.	K2	3	6M
ii) Discuss about methodologies for identification of potential environmental impacts of typical engineering projects		K1	3	6M	
Unit-IV					
4	a	i) Describe the environmental effects on surface water.	K1	4	6M
		ii) Explain in detail about impact significance and mitigation measures.	K2	4	6M
	OR				
	b	i) Write the steps involved in the EIA assessment of air environment.	K1	4	6M
ii) What is the purpose of post Environmental Audit?		K1	4	6M	
Unit-V					
5	a	i) Explain the common causes of deforestation around the world.	K2	5	6M
		ii) Explain about the environmental impact of deforestation.	K2	5	6M
	OR				
	b	i) Differentiate between deforestation and forest degradation.	K1	5	6M
ii) Explain the advantages of Environmental Risk Assessment		K2	5	6M	

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

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BEE8PE04 PROGRAMMABLE LOGIC CONTROLLER & APPLICATIONS

Time: 3 hours

(EEE)

Max. Marks: 60

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M
Unit-I				
1	a i) Discuss the basic requirement of an input/output (I/O) interfacing module between a processor and the control inputs of a device.	K2	1	6M
	ii) Write ladder program for operation of AND, OR and NOT logic. Also draw their truth tables.	K2	1	6M
	OR			
	b i) Make a schematic of a ladder diagram for the following sequence <ul style="list-style-type: none"> • When switch (SW1) is closed, signal (X) goes ON • When Signal (X) goes ON, another switch (SW2) switch is activated to turn ON either of the switches (SW3) or (SW4) • If (SW3) is ON, output (Y) goes ON • If (SW3) is ON and (SW4) is ON, then output Y goes OFF and output Z goes ON. 	K3	1	6M
	ii) Explain the ladder diagram and flowchart for spray process system.	K3	1	6M
Unit-II				
2	a i) What is a holding register, explain it in details.	K2	2	6M
	ii) Draw and explain input group register of the PLC with suitable example.	K4	2	6M
	OR			
	b i) Explain single group input register in details.	K3	2	6M
	ii) Draw and explain output group register of the PLC with suitable example.	K3	2	6M
Unit-III				
3	a i) Explain the following Timer instructions with relevant examples: TON, TOFF, RTO.	K3	3	6M
	ii) Explain the following comparison instructions with relevant examples: EQU, LEQ, GRT.	K3	3	6M
	OR			
	b i) Explain the following counter instructions with relevant examples: CTU, CTD.	K3	3	4M
	ii) What are the different number comparison functions used in PLC. Explain at least 4 instructions with relevant examples.	K3	3	8M
Unit-IV				
4	a i) Explain JMP and LBL instructions of the PLC with suitable example.	K3	4	6M
	ii) Write short note on Matrix function in PLC. Explain how this can be useful in applications.	K3	4	6M
	OR			
	b i) Explain the JUMP instructions in PLC with suitable examples.	K3	4	6M
	ii) Differentiate between SK and MCR instructions of the PLC using suitable example.	K3	4	6M
Unit-V				
5	a i) Draw and explain block diagram of typical PID controller. Also explain how to tune it.	K4	5	6M
	ii) Write short note on analog PLC operation.	K1	5	6M
	OR			
b	Explain position indicator using PID control with example.	K4	5	12M

IV B.Tech II Semester Adv. Supple Examinations, July-2023

Sub Code: 19BME8PE04

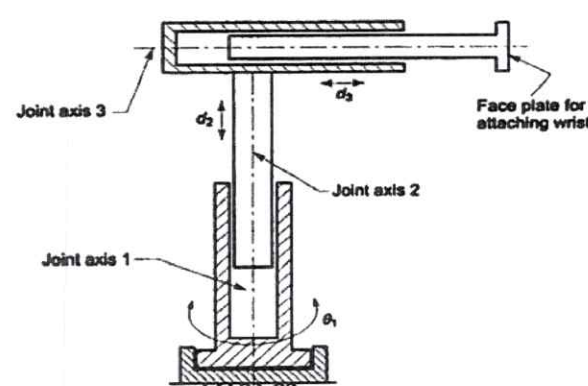
ROBOTICS AND APPLICATIONS

Time: 3 hours

(ME)

Max. Marks: 60

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Define degree of freedom? Explain four basic components of a robot system.	K2	CO1	6M
		ii) Discuss the difference between polar arm and articulated arm configurations.	K2	CO1	6M
	OR				
b	A point $P_{xyz}=[8,4,1]^T$ is attached to a frame and is subjected to the following transformations. Find the coordinates of the point relative to the reference frame at the conclusion of transformations. 1). Rotation of 90° about the Z-axis 2). Followed by rotation of 90° about Y-axis 3). Followed by translation of [2,-1, 2]	K4	CO1	12M	
2	Unit-II				
	a	i) Explain the working principle of hydraulic type of actuator with neat sketch.	K2	CO2	6M
		ii) Briefly explain the working principle of any one of velocity sensors used in robot with a neat sketch.	K2	CO2	6M
	OR				
b	i) What are sensors and explain its basic elements with neat sketch. ii) What you understand by servomotors? Explain the working of DC servomotor used in robot with neat sketch.	K1	CO2	6M	
		K1	CO2	6M	
3	Unit-III				
a	Formulate the forward kinematic model of the three degree of freedom (RPP) manipulator as shown in Figure-1 .	K5	CO3	12M	
 <p style="text-align: center;">Figure-1.</p>					
OR					

	b	i) What do you mean by forward kinematics and reverse kinematics? Explain.	K1	CO3	6M
		ii) Explain in brief (Denavit-Hartenberg)DH algorithm.	K2	CO3	6M
	Unit-IV				
4	a	Differentiate between Lagrange Euler and Newton Euler Formulation.	K2	CO4	12M
	OR				
	b	Determine the equations of motion for two DOF RR- planar manipulator arm using Lagrange-Euler Formulation.	K4	CO4	12M
	Unit-V				
5	a	Explain the various considerations taken into account for material handling.	K2	CO5	12M
	OR				
	b	Explain the requirements and benefits of the robot for spot welding applications.	K2	CO5	12M

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

IV B.Tech II Semester Adv. Supple Examinations, July-2023

Sub Code: 19BEC8PE01

CELLULAR & MOBILE COMMUNICATION

Time: 3 hours

(ECE)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Discuss the limitations of conventional mobile telephone systems.	K4	1	6M
		ii) Explain the basic cellular system with neat diagram.	K2	1	6M
	OR				
	b	i) Write a short note on frequency reuse.	K4	1	6M
		ii) How to improve the Coverage and Capacity in Cellular Systems.	K2	1	6M
2	Unit-II				
	a	i) Explain how co-channel interference is measured in real time mobile radio transceivers.	K2	2	6M
		ii) What is frequency diversity and what are the different causes for it.	K1	2	6M
	OR				
	b	i) Write a short note on polarization diversity.	K4	2	6M
		ii) Explain the phase difference between direct path and the ground reflected path.	K2	2	6M
3	Unit-III				
	a	i) What are the effects of cell site components? Explain.	K1	3	6M
		ii) Discuss the effects of Antenna parameters on the cell interference.	K4	3	6M
	OR				
	b	i) Explain how umbrella pattern antennas are used as the cell site antennas.	K2	3	6M
		ii) Derive equation for minimum separation distance between cell site antennas.	K5	3	6M
4	Unit-IV				
	a	i) What are the various handoff strategies based on algorithms?	K1	4	6M
		ii) What type of handoff is used when a call initiated in one cellular system enters another system before terminating? Explain how it works.	K1	4	6M
	OR				
	b	i) Explain handoff based on signal strength and C/I ratio.	K2	4	6M
		ii) What are the differences between handoff initiation in analog cellular systems and digital cellular system?	K1	4	6M

5	Unit-V				
	a	i) Explain GSM architecture with neat sketch.	K2	5	6M
		ii) Write a short note on TDMA channels.		5	6M
	OR				
	b	i) Explain CDMA architecture with neat diagram.	K2	5	6M
		ii) Write a short note on TDMA CDMA-channels.	K4	5	6M

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

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BEC8PE06

RADAR SYSTEMS

Time: 3 hours

(ECE)

Max. Marks: 60

Note: Answer All FIVE Questions. All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
Unit-I					
1	a	i) Derive the basic radar range equation? Mention few applications of radars.	K4	1	6M
	ii)	a) What is the range of pulse repetition frequency of a radar in order to achieve a maximum unambiguous range of 40 nmi? b) How far apart in the range must two equal size targets be separated in order to be certain they are completely resolved by a pulse width of 1.5μs	K3	1	6M
	OR				
	b	i) Explain the different forms of radar range equations. Also, explain its significance. ii) A ground-based air surveillance radar operates at a frequency of 1300MHz. Its maximum range is 200 nmi for the direction of a target with a radar cross-section of 1 m ² . Its antenna is 12 m wide by 4m high, and the antenna aperture efficiency is 0.65. The receiver minimum detectable signal is 10 ⁻¹³ W. Then Determine a) Antenna effective aperture b) Antenna gain in dB. c) Average transmitter power, if the pulse width is 2μs	K2 K3	1 1	6M 6M
Unit-II					
2	a	i) A CW radar operates at a frequency of 10GHz. What is the Doppler frequency produced by a) an aeroplane flying at a speed of 250 kmph? b) a man crawling at 2.5cm/sec?	K3	2	6M
	ii)	Describe the Range and Doppler measurement of a target using FMCW radar.	K2	2	6M
	OR				
b	i) Discuss in detail about FMCW altimeter ii) List out the applications of CW radar.	K2 K2	2 2	6M 6M	
Unit-III					
3	a	i) With the help of a suitable block diagram explain the operation of pulsed radar and also write its applications	K2	3	12M
	OR				
	b	i) With reference to the block diagram, explain the operating principle of moving target indicator (MTI) radar in detail. ii) Analyze the role of delay line cancelers in MTI radars. Also, describe various N-pulse delay line cancelers with suitable diagrams.	K2 K4	3 3	6M 6M
Unit-IV					
4	a	i) Compare and contrast various Tracking Radar systems. ii) Describe the two-coordinate amplitude comparison mono pulse Tracking Radar	K4 K2	4 4	6M 6M

		OR			
b	i) Analyze the sequential lobing mechanism in conical scan radars.	K4	4	6M	
	ii) Explain the methods for reducing multipath effects at low angles.	K2	4	6M	
Unit-V					
5	a	i) List and explain the important antenna parameters to consider in RADAR design.	K2	5	6M
		ii) Derive the space factor for the n-element array antenna.	K4	5	6M
OR					
b	i) Discuss about Parabolic Reflector Antenna.	K2	5	6M	
	ii) Explain about the architecture for Phased Arrays.	K2	5	6M	

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

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BCS8PE03

E-COMMERCE

Time: 3 hours

(CSE)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What is e-commerce? Discuss functions of e-commerce?	K2	CO1	6M
		ii) List and Briefly explain E-Commerce applications	K2	CO1	6M
	OR				
	b	i) Explain the e-commerce opportunities available for companies in India?	K2	CO2	6M
		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	6M
2	Unit-II				
	a	i) How the payment transaction sequence is happens in the Electronic cheque system and explain its advantages	K2	CO2	6M
		ii) What is electronic fund transfer? elaborate the security problems involved in it?	K2	CO2	6M
	OR				
	b	i) Discuss in detail about Mercantile Process models?	K2	CO2	6M
		ii) Explain the business issues that must be addressed before consumer-oriented e-commerce can become widespread	K2	CO2	6M
3	Unit-III				
	a	i) Discuss in detail about. Supply Chain Management	K3	CO3	6M
		ii) Explain the information flow between the organisations without EDI?	K3	CO3	6M
	OR				
	b	i) What is work flow coordination? Describe the work-flow co-ordination in intra organisational commerce?	K3	CO3	6M
		ii) Suggest some tips to launch a perfect online store.	K3	CO3	6M
4	Unit-IV				
	a	i) Explain Digital Document Management: Issues and Concerns	K2	CO4	6M
		ii) Explain the guidelines that each firm should follow for advertising on the Internet	K4	CO4	6M
	OR				
	b	i) What opportunities does the World Wide Web offer in reaching consumers? Discuss architectural framework of e-commerce	K4	CO4	6M
		ii) Elaborate about the four different types of Digital documents	K4	CO4	6M
5	Unit-V				
	a	i) Explain about End-user Retrieval Phase and Publisher Indexing Phase	K3	CO3	6M
		ii) Discuss applications of digital video?	K2	CO3	6M

OR					
	i)	Elaborate on the applications and uses of video conferencing in business	K3	CO3	6M
	b	ii) Explain the following three different paradigms of information search and resource discovery: a) Information search and retrieval b) Electronic directories and catalogs c) Information filtering	K3	CO3	6M

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

IV B.Tech II Semester Adv. Supple. Examinations, July-2023

Sub Code: 19BCI8PE08

INTERNET OF THINGS

Time: 3 hours

(CSE)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) What is an Internet of Things (IoT)? List different characteristic of IoT.	K2	1	6M
		ii) Explain different Enabling technologies in IoT.	K4	1	6M
	OR				
	b	i) Illustrate Logical design of IoT with neat diagrams.	K3	1	6M
		ii) What are different IoT protocols? Explain in detail.	K2	1	6M
2	Unit-II				
	a	i) What is the purpose and requirement specification in IoT? Explain in detail.	K4	2	6M
		ii) Explain about device & component integration in IoT design.	K4	2	6M
	OR				
	b	i) Explain Information Model Specification.	K4	2	6M
		ii) Analyze Operational View specification in IoT Design Methodology.	K3	2	6M
3	Unit-III				
	a	i) Explain different Sensors and Actuators in IoT.	K2	3	6M
		ii) What is Micro Controllers in Arduino? Build prototyping embedded device with Arduino.	K4	3	6M
	OR				
	b	i) Explain various Extension Boards in Raspberry Pi.	K3	3	6M
		ii) Construct prototyping embedded device With Raspberry Pi.	K3	3	6M
4	Unit-IV				
	a	i) Explain various Cloud Storage Models in detail.	K2	4	6M
		ii) List different Communication APIs used for cloud storage and discuss in detail.	K3	4	6M
	OR				
	b	i) What is WAMP? Describe how WAMP is useful in IoT.	K4	4	6M
		ii) Differentiate Xively Cloud with AutoBahn for IoT.	K3	4	6M
5	Unit-V				
	a	i) What effect will the internet of things have in Smart City applications? Explain with any one example of smart device.	K4	5	6M
		ii) Explain IoT Design for Smart Traffic issues in smart cities.	K4	5	6M
	OR				
	b	i) Explain IoT Design for Agricultural Applications.	K2	5	6M
		ii) Write note on: a) Smart homes b) Smart HealthCare	K2	5	6M

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

IV B.Tech II Semester Adv Supple. Examinations, July-2023

Sub Code: 19BCI8PE01

DEEP LEARNING

Max. Marks: 60

Time: 3 hours

(IT)

Note: Answer All **FIVE** Questions. All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) List the problems that can be solved with machine learning.	1	1	6M
		ii) What is bias? Explain the differences between inductive bias and estimation bias	1	1	6M
	OR				
	b	i) Explain the relationship between the maximum likelihood hypothesis and the least squared error hypothesis.	2	1	6M
		ii) Discuss the impact of over fitting in a typical application of decision tree learning.	2	1	6M
2	Unit-II				
	a	i) Explain in-detail about the concept of gradient based learning.	2	2	6M
		ii) Write in-detail about multitask learning.	1	2	6M
	OR				
	b	i) Explain about noise robustness in-detail.	2	2	6M
		ii) Discuss in-detail about parameter Norm Penalties.	2	2	6M
3	Unit-III				
	a	i) List and explain Challenges of Neural Network optimization.	1	3	6M
		ii) Write an early stopping meta-algorithm for determining the best amount of time to train.	1	3	6M
	OR				
	b	i) Write about Neural Network Optimization in-detail.	1	3	6M
		ii) Discuss in-detail about Adaptive Learning Rates of algorithms.	2	3	6M
4	Unit-IV				
	a	i) Explain in-detail about the Neuro scientific features.	2	4	6M
		i) Draw and explain the architecture of Convolutional network.	2	4	6M
	OR				
	b	i) Explain how Convolution and Pooling as an Infinitely Strong Prior.	2	4	6M
		ii) List and explain the Random Features of Convolutional network.	2	4	6M
5	Unit-V				
	a	i) Discuss in-detail about Recurrent Neural Networks.	2	5	6M
		ii) Explain the importance of Explicit Memory.	2	5	6M
	OR				
	b	i) Write the process of Optimization for Long-Term Dependencies.	1	5	6M
		ii) Explain about Recursive Neural Networks in-detail.	2	5	6M

IV B.Tech II Semester Adv Supple. Examinations, July-2023

Sub Code: 19BIT8PE05 MOBILE ADHOC AND SENSOR NETWORKS

Time: 3 hours

(IT)

Max. Marks: 60

Note: Answer All FIVE Questions.

All Questions Carry Equal Marks (5 X 12 = 60M)

Q.No	Questions	KL	CO	M	
1	Unit-I				
	a	i) Explain how to find the route from source to destination by using DSR protocol.	2	1	6M
		ii) Explain the major challenges to be addressed by Ad hoc networks	2	1	6M
	OR				
	b	i) Explain the position based routing protocols in detail?	2	1	6M
		ii) Write about different ways to manage routing in MANETS?	1	1	6M
2	Unit-II				
	a	i) Explain why traditional TCP cannot be used in wireless adhoc networks.	2	2	6M
		ii) Explain the header format of TCP	2	2	6M
	OR				
b	i) Explain the solutions of TCP over adhoc	2	2	12M	
3	Unit-III				
	a	i) Explain the functional block diagram of sensor node .	2	3	6M
		ii) Explain how to find the Multiple Paths in WSNs .	2	3	6M
	OR				
	b	i) Describe about the hierarchical Power Aware routing in WSNs .	2	3	6M
		ii) What are the advantages of WSN over wired ones	2	3	6M
4	Unit-IV				
	a	i) Explain about the STEM protocol	2	3	6M
		ii) Explain about the Directed diffusion	2	3	6M
	OR				
	b	i) Explain the Low-Energy Adaptive Clustering Hierarchy Algorithm (LEACH)	2	3	6M
		ii) Explain about the SMAC in WSN	2	3	6M
5	Unit-V				
	a	Explain the protocol stack in detail	2	4	12M
	OR				
b	Explain the comparison of heterogeneous architectures	2	4	12M	