Hall Ticket Number :										

R-17

Code: 7G372

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Embedded & Real Time Operating Systems

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain the memory structure of 8051	7M	CO1	L2
	b)	Write an ALP to load the accumulator, DPH and DPL using 8051	7M	CO2	L3
		OR			
2.	a)	Explain the function and operating modes of Timer in 8051	7M	CO1	L2
	b)	Write a program for 8051 microcontroller to display a message "WELCOME" on LCD. Draw the neat interface diagram?	7M	CO2	L3
		UNIT–II			
3.	a)	Explain the categories of Embedded systems based on functionality and performance requirements.	7M	CO2	L2
	b)	Draw the simplified Hardware Architecture of an Embedded system and Explain each block	7M	CO2	L2
		OR			
4.	a)	What is an embedded system? Differentiate between a general purpose computing system and embedded system.	7M	CO2	L2
	b)	Differentiate between hard real-time system and soft-real time system.	7M	CO2	L5
		UNIT–III			
5.	a)	What are the services provided by an operating system?	7M	CO3	L4
	b)	Explain the processes of generating an executable image for embedded software.	7M	CO3	L3
		OR			
6.	a)	Explain the application software and communication software.	7M	CO3	L2
	b)	Explain the boot sequence of an embedded system	7M	CO3	L2
		UNIT–IV			
7.	a)	What are needed for communication interfaces? Explain the RS232 communication parameters	7M	CO4	L2
	b)	Write short notes on IEEE 1394 Firewire	7M	CO4	L2
		OR			
8.		Briefly explain the Bluetooth Protocol architecture	14	CO2	L2
		UNIT–V			
9.		What is task scheduling? Explain the various scheduling algorithms.	14M	CO2	L2
		OR			
10.	a)	Explain how a semaphore can be used for inter-task synchronization.	7M	CO2	L2
	b)	Explain the use of message queues, mailboxes and pipes.	7M	CO2	L2

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Hall Ticket Number :										

R-17

Code: 7GA71

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Human Resource Management

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain the nature and scope of human resource management in the context of an organization.	7M	1,2	1
	b)	Discuss any three ethical issues faced by human resource professionals with an example for each of them.	7M	1,2	2
		OR			
2.	a)	Write a short notes on competitive challenges influencing HRM.	7M	1,3	3
	b)	Discuss the functions of human resource management by highlighting the operative functions and its strategic intent.	7M	1,4	3
		UNIT–II			
3.	a)	Elucidate the importance of human resource planning.	7M	1,4	3
	b)	Give different methods of collecting data for job analysis and compare any two of the methods.	7M	4,5	5
		OR			
4.	a)	Explain in detail about Human Resource Information systems and its applications in business world.	7M	3,5	4
	b)	What is job design? Present any three techniques of job design.	7M	3,4	4
		UNIT–III			
5.	a)	L&G is an IT based start-up company that opts for campus recruitment. If you are a HR specialist of L & G, what process you will you recommend for the recruitment of fresher's.	7M	4,5	6
	b)	Explain any three factors that affect the selection decision outcomes.	7M	3,4	4
		OR			
6.	a)	Narrate the process of recruitment with appropriate steps and examples.	7M	1,4	5
	b)	Develop an orientation program for the undergraduate students of any degree program.	7M	3,4	6

UNIT–IV

7.	a)	Compare the different types of training.	7M	1,3	2
	b)	What is development? What are the factors influencing executing development in an organization.	7M	2,3	6

OR

8.	a)	Explain different ways an organization can support employees in career advancement.	7M	2,5	5
	b)	How can training helps employees in career progression in the organization?	7M	3,5	5

UNIT–V

9.	a)	Elucidate the procedure for arriving at the compensation for a job role.	7M	2,3	4
	b)	Explain the grievance handling procedure with the help of organizational related grievances.	7M	3,4	5

OR

10.	a)	Distinguish between monetary and non-monetary perquisites and give three examples for each of them.	7M	4,5	4
	b)	Give the importance of collective bargaining and state reasons why maintaining cordial employee-employer relationship is needed.	7M	4,5	5

****END****

Hall Ticket Number :										

R-17

Code: 7G371

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Optical Fiber Communication

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Discuss the Historical developments of Optical communications	7M		
	b)	Draw a basic block diagram of Optical communication system and compare this with the general communication system	7M		
		OR			
2.		Describe the mode analysis for optical propagation through fibers with significant illustration and expressions.	14M		
		UNIT–II			
3.	a)	Justify how lasing occurs in Lasers with the help of population inversion and optical feedback.	7M		
	b)	Derive the expression for internal quantum efficiency and the internal power generated in the LED.	7M		
		OR			
4.	a)	Construct the Fabry-Perot resonator cavity laser diode with necessary diagram also Derive the threshold condition for lasing.	7M		
	b)	Determine the expression for Laser diode rate equation.	7M		
		UNIT–III			
5.	a)	Explain the physical principles of photodetectors	7M		
	b)	Explain the principle behind the operation of an avalanche photo diode.	7M		
		OR			
6.	a)	Explain the different factors that determine the response time of photo detector.	7M		
	b)	An InGaAs pin photo diode has the following parameters at a wavelength of 1300 nm. ID=4nA, η=0.90, RL=1000 Ω and the surface leakage current is negligible. The incident optical power is 300nW and the receiver bandwidth is 20MHz. Find the various noise terms of the receiver.	7M		
		UNIT–IV			
7.	a)	Write a short note on Fiber Bend Losses	7M		
	b)	Describe chromatic dispersion mechanism in optical fibers	7M		
		OR			
8.		Compare the different types of lensing schemes used to improve the coupling efficiency and also derive the expression for it.	14M		
		UNIT–V			
9.	a)	Classify the important features of high speed light wave links.	7M		
	b)	Show the basic performance parameters of the WDM system.	7M		
		OR			
10.	a)	Write about rise time, optical power required to establish secure link with necessary equation.	7M		
	b)	Express the factors considered in point to point link system.	7M		

END

Hall Ticket Number :										

R-17

Code: 7G375

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Satellite Communications

(Electronics & Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain in detail about orbital perturbations	8M		
	b)	Briefly discuss in detail about the origin of satellite communications	6M		
		OR			
2.	a)	State Kepler's laws and discuss their importance in satellite communications	8M		
	b)	A satellite in an elliptical orbit around the earth has an apogee of 39 152 km and a perigee of 500 km. What is the orbital period of this satellite? Give your answer in hours. Note: Assume the average radius of the earth is 6378.137 km and Kepler's constant has the value 3.986 004 418 $\times$ 105 km^3/s^2.	6M		
		UNIT–II			
3.	a)	Explain in detail about AOCS	10M		
	b)	A large GEO satellite requires a total of 12 kW to operate its communication systems and 1.5 kW for housekeeping purposes. The solar cells on the satellite are mounted on two large sails that rotate to face the sun at all times. The efficiency of the solar cells is 36% at BOL and 33% at EOL. Using an average incident solar flux density of 1.36 kW/m^2. Calculate the area of each solar sail to meet the power requirements at the end of the satellite's life. How much power is generated at BOL? The solar arrays are 2.0m wide. How long are they?	4M		
		OR			
4.	a)	Discuss in detail about satellite antennas	8M		
	b)	Explain in detail about the power systems in satellite	6M		
		UNIT–III			
5.	a)	A satellite at a distance of 40 000 km from a point on the earth's surface radiates a power of 10W from an antenna with a gain of 17 dB in the direction of the observer. Find the flux density at the receiving point, and the power received by an earth station antenna at this point with an effective area of $10m^2$.	6M		
	b)	Explain the basic transmission theory and derive the expression for the power received	8M		
		OR			
6.		Explain in detail about system noise temperature and G/T ratio by considering earth station receivers	14M		
		UNIT–IV			
7.	a)	Explain the delay and throughput considerations.	7M		
	b)	Explain operational NGSO constellation designs.	7M		
		OR			
8.		Explain the antenna subsystems in detail with amplifiers	14M		
		UNIT–V			
9.		Explain in detail about GPS position location principles with neat diagrams	14M		
		OR			
10.	a)	Explain briefly about radio and satellite navigation	6M		
	b)	Explain the steps involved in signal acquisition process and how satellite GPS signal search is done?	8M		

END

Hall Ticket Number :										

R-17

Code: 7G17E

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Computer Networks

(Electronics & Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer *any five* full questions by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.		Perform a comparative study between the ISO-OSI model and TCP/IP reference model.	14M	1	L4
		OR			
2.	a)	Compare connection oriented and connection less service	7M	1	L2
	b)	Write a Short Note on guided transmission	7M	1	L2
		UNIT–II			
3.	a)	How frames are generated in data link layer? Explain.	7M	2	L2
	b)	For P = 110011 and M = 1100011, find CRC	7M	2	L3
		OR			
4.		Discus the following:			
		a) Multiple access protocols	7M		
		b) IEEE 802.X Standard Ethernet	7M	2	L1
		UNIT–III			
5.	a)	Explain the importance of Network layer design issues with suitable examples	7M	3	L4
	b)	Give the salient features of IP Version 6. Explain about Header format and extension header format	7M	3	L1
		OR			
6.		Explain Shortest Path and Distance Vector Routing Algorithms	14M	3	L4
		UNIT–IV			
7.		Clarify the real transport protocol of UDP and how will you calculate checksum in UDP Its header format and operations	14M	4	L3
		OR			
8.		Discuss about the following a) Three way handshake protocol b) Two army problem.	14M	4	L3
		UNIT–V			
9.		What is the role of the local name server and the authoritative name server in DNS? What is the resource records maintained in each of them?	14M	5	L4
		OR			
10.		In what way Public-Key Algorithm is achieved? Justify with suitable examples	14M	5	L5

****END****

Hall Ticket Number :										

R-17

Code: 7G674

IV B.Tech. I Semester Regular & Supplementary Examinations January 2022

Disaster Management

(Common to All Branches)

Max. Marks: 70 Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Define Disaster and Hazard. Write a detailed note on Natural disaster.	7M	CO1	L1
	b)	Explain the difference between hazard and vulnerability with examples.	7M	CO1	L2
		OR			
2.	a)	How can we mitigate on the disasters in the environment?	7M	CO1	L1
	b)	How does capacity influence disaster? Explain with example.	7M	CO1	L1
		UNIT–II			
3.	a)	How Earthquake is measured and what are all the damages caused by Tsunami.	7M	CO2	L1
	b)	Explain the necessary steps to be avoid dangerous epidemics after a flood disaster?	7M	CO2	L2
		OR			
4.	a)	List the activities that trigger human-induced disasters.	7M	CO2	L1
	b)	Describe the Bhopal Gas Tragedy	7M	CO2	L2
		UNIT–III			
5.	a)	Explain in detail about the impacts of disaster on environment.	7M	CO3	L2
	b)	Explain in detail about Recent Trends in Disaster Management.	7M	CO3	L2
		OR			
6.	a)	How does climate change affect disasters?	7M	CO3	L1
	b)	Explain in detail about urban disaster.	7M	CO3	L2
		UNIT–IV			
7.	a)	Discuss the important steps in relief distribution. Examine the problem areas during recovery phase of disaster management.	7M	CO4	L3
	b)	Discuss key stages of Disaster Cycle.	7M	CO4	L3
		OR			
8.	a)	Explain the role and functions of a disaster manager.	7M	CO4	L2
	b)	Discuss the principles of community based disaster management.	7M	CO4	L3
		UNIT–V			
9.	a)	Describe the role of sustainable development in disaster management.	7M	CO5	L2
	b)	Explain the need of quick reconstruction technologies in disaster management.	7M	CO5	L2
		OR			
10.	a)	Explain the factors to be considered while planning the rebuilding works after a major disaster due to flood.	7M	CO5	L2
	b)	Describe the role of land use planning and development regulations in disaster management.	7M	CO5	L2

END