H.T No: | | | | | | | | | | | **R18** | Course Code: A30514

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: COMPUTER NETWORKS

(Electronics & Communication Engineering)

Date: 19.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1.	Compare Circuit-switched networks with Packet-switched networks.	2 M
2.	Show the classification of various transmission media.	2 M
3.	Outline the use of Cyclic redundancy check.	2 M
4.	How do you avoid collision in WLAN? Can we use CSMA/CD in WLAN? Justify.	2 M
5.	Outline multicast routing with a diagram.	2 M
6.	Find the class of each address. a) 11000001 10000011 00011011 11111111 b) 252.5.15.111	2 M
7.	What is the minimum and maximum size of the UDP?	2 M
8.	Define Remote Procedure Call. What are its features?	2 M
9.	What is meant by anonymous FTP?	2 M
10.	What are the two main categories of DNS messages?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain the layers of the ISO/OSI protocol stack in detail? Briefly list out their functions.	10M
	OR	
11. B).	i) Explain multiplexing and its types. ii) One channel with a bit rate of 190 kbps and another with a bit rate of 180 kbps are to be multiplexed using TDM with no synchronization bits. a) What is the size of a frame in bits? b) What is the data rate?	5M 5M
12. A).	List the advantages of sliding window protocol. Illustrate the sliding window protocol with an example.	10M
	OR	
12. B).	Compare Wireless LAN, Broadband Wireless and Bluetooth.	10M
13. A).	Explain Network Address Translation with an example.	10M
	OR	
13. B).	Survey the functions of Link State routing with an example.	10M
14. A).	Explain the User Datagram Protocol features and its operations with its frame format.	10M
	OR	
14. B).	Compare the features of the two broad categories of Congestion Control mechanisms. Briefly explain all the techniques.	10M

(P.T.O..)

15. A). What is the format of an email? Explain the architecture of a mailing system. 10M

OR

15. B). How is HTTP related to WWW? Explain the overview of the architecture, client, server and cookies of WWW. 10M

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H.T No: | | | | | | | | | | | **R18** | Course Code: A30447

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: EMBEDDED SYSTEM DESIGN

(Electronics & Communication Engineering)

Date: 24.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1.	Write the difference between Embedded Systems and General computing systems.	2 M
2.	What is Operational quality attribute?	2 M
3.	What is memory shadowing?	2 M
4.	What are sensors and Actuators?	2 M
5.	What is purpose of reset circuit?	2 M
6.	What are various embedded firmware design approaches?	2 M
7.	Define Process.	2 M
8.	List the different operating systems.	2 M
9.	What is Inter process communication (IPC)?	2 M
10.	What is device driver?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain the various purposes of embedded systems in detail with illustrative examples.	10M
	OR	
11. B).	What are the different quality attributes to be considered in embedded system design?	10M
12. A).	What is PLD? Explain the role of it in embedded system design.	10M
	OR	
12. B).	Explain in detail about different onboard communication interfaces.	10M
13. A).	Describe the role of watchdog timer in embedded system with an example.	10M
	OR	
13. B).	Justify the need of brown out protection circuit in Embedded systems.	10M
14. A).	Explain the different types of Preemptive scheduling algorithms? State the merits and demerits of each.	10M
	OR	
14. B).	Explain the different multitasking models in the operating system context.	10M
15. A).	Discuss the different task communication synchronization issues encountered in inter process communication.	10M
	OR	
15. B).	Explain the Architecture of Device driver.	10M

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H.T No: | | | | | | | | | | | **R18** | **Course Code: A30445**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: MICROWAVE ANTENNAS

(Electronics & Communication Engineering)

Date: 24.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1.	Write a note on antenna bandwidth.	2 M
2.	What are the principle planes?	2 M
3.	Define effective aperture and effective length.	2 M
4.	What are the different types of apertures?	2 M
5.	Why the directivity of Binomial Array is less?	2 M
6.	Write in brief about smart antennas.	2 M
7.	List out the different shapes of microstrip patches.	2 M
8.	Give the characteristics of microstrip patch antennas.	2 M
9.	What are the advantages of using meta metals in antenna design?	2 M
10.	Give the applications of antennas using meta metals.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	What is meant by antenna coupling? Discuss about Huygens's principle?	10M
	OR	
11. B).	Explain the concept of (i) Radiation pattern (ii) Beam Efficiency (iii) Antenna temperature.	10M
12. A).	What is reflector? What are the types of reflectors? Explain the features of parabolic reflectors.	10M
	OR	
12. B).	Illustrate the working Principal of Horn Antenna.	10M
13. A).	Find the array factor and sketch the pattern of a 2-element linear array having equal amplitudes and phases and having a spacing of $d=\lambda$.	10M
	OR	
13. B).	Discuss about the antenna synthesis using Woodward Lawson method.	10M
14. A).	Discuss about the design and analysis of circular patch antenna.	10M
	OR	
14. B).	Describe the techniques to enhance the bandwidth in microwave patch antennas.	10M
15. A).	Explain active and passive meta surface absorbers.	10M
	OR	
15. B).	Discuss about the frequency selective surfaces as spatial filters.	10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30449

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: Radar Systems

(Electronics & Communication Engineering)

Date: 26.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1. What is the Principle of Radar? 2 M
2. Write simple Radar Equation. 2 M
3. Why isolation between Transmitter and Receiver is required in CW Radar? 2 M
4. What is the advantage of Multiple Frequency CW Radar? 2 M
5. How does MTI radar differ from CW radar? 2 M
6. Define Blind Speed. 2 M
7. What is Squint angle? 2 M
8. List out and describe the basic methods of scanning. 2 M
9. What is a B scope display? 2 M
10. Define Duplexer. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Determine the expression for modified form of Radar Range equation. 10M

OR

11. B). Describe the RADAR Cross Section of Targets. 10M

12. A). Describe the following i) isolation between transmitter and receiver 10M
ii) Applications of CW RADAR.

OR

12. B). Determine the expression for Multiple Frequency CW Radar. 10M

13. A). Explain the function of a single delay line canceller and derive an expression for the frequency response function. 10M

OR

13. B). Draw the block diagram of MTI radar using range gates and filters and explain each block. 10M

14. A). Explain the operation of Phase comparison mono pulse radar. 10M

OR

14. B). Explain the Following: 10M
(i) Sequential Lobing
(ii) Conical Scanning

15. A). Explain the following: 10M
i) Branch type duplexer ii) Balanced type duplexer

OR

15. B). Write short notes on various types of radar displays. 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30450

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: Real Time Operating Systems

(Electronics & Communication Engineering)

Date: 26.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1. Name a few significant features of UNIX. 2 M
2. Describe a link in UNIX. 2 M
3. What are the different inter process communications? 2 M
4. What are the different types of semaphores? 2 M
5. What is an event? 2 M
6. What are I/o subsystems? 2 M
7. Define Interrupt. 2 M
8. Explain the operation of timers. 2 M
9. What is Vx works? 2 M
10. List the categories and applications of android. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). What do chmod, chown, chgrp commands do? 10M

OR

11. B). Explain the file system in UNIX. 10M

12. A). Explain about Kernel 10M

OR

12. B). Explain the need for semaphore with example. 10M

13. A). Explain about services of RTOS. 10M

OR

13. B). Explain about events in RTOS. 10M

14. A). Explain in detail about ISR. 10M

OR

14. B). Explain in detail about soft timers. 10M

15. A). Explain case study of Automatic chocolate vending machine using mucos rtos. 10M

OR

15. B). What are the storage considerations in Embedded Linux? 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30451

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: LOW POWER VLSI DESIGN

(Electronics & Communication Engineering)

Date: 29.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1. Differentiate between Power and Energy. 2 M
2. What is the need for Low Power circuit design? 2 M
3. Compare between VTCMOS and MTCMOS for leakage power reduction? 2 M
4. Elaborate gate level capacitance estimation. 2 M
5. What are standard adder cells that are used for low power circuit design? 2 M
6. Demonstrate low voltage low power logic styles. 2 M
7. Elaborate the design technique for low voltage low power multiplier. 2 M
8. Classify various multipliers. 2 M
9. What are future trends and developments of ROMs? 2 M
10. Compare SRAM and DRAM. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Explain different types of power dissipation in CMOS circuits and discuss any three methods in detail? 10M

OR

11. B). Derive an expression for short circuit power dissipation in CMOS inverter. 10M

12. A). Explain the concept of MTCMOS technique with necessary schematics. 10M

OR

12. B). Compare pipelining and parallel processing approaches with suitable examples. 10M

13. A). Discuss the architecture of Carry look ahead adder and explain its working. 10M

OR

13. B). Compare carry select and ripple carry adders in terms of delay and area. 10M

14. A). Elaborate the operation of Baugh-Wooley multiplier with suitable neat sketches. 10M

OR

14. B). Explain the multiplication process of Booth multiplier. 10M

15. A). Explain briefly about techniques at architecture level used to design low power memories. 10M

OR

15. B). Discuss the importance of Self-Refresh circuit and explain any one method. 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30452

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2024

Course Name: SATELLITE COMMUNICATION

(Electronics & Communication Engineering)

Date: 29.04.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks. **10x2=20M**

1. Define Orbital Period. 2 M
2. Write short notes about orbital Perturbations. 2 M
3. What is the use of Transponder? 2 M
4. A satellite downlink at 12GHz operates with a transmitpower of 6w and an antenna gain of 48.2dB. Calculate the EIRP in dBW. 2 M
5. Identify the effects of rain. 2 M
6. Mention the advantages of TDMA over FDMA. 2 M
7. Predict the use of Terrestrial Interface in Satellite communication. 2 M
8. Summarize the features of Differential GPS. 2 M
9. Inspect the letter M in queuing model. 2 M
10. Compile the stages of operation in Packet reservation. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Describe the orbital parameters in detail. 10M

OR

11. B). Analyze the effects of non-spherical perturbations. 10M

12. A). What are the various Satellite antenna equipment in satellite system? Explain the need and function of each equipment. 10M

OR

12. B). Discuss about the parameters to be considered for link budget of a satellite communication link? 10M

13. A). Explain the Propagation effects of Satellite with appropriate diagrams. 10M

OR

13. B). Prove that C/N ratio is directly proportional to G/T ratio using system noise temperature calculation. 10M

14. A). Explain in detail transmit receive earth stations. 10M

OR

14. B). Describe the functioning of GPS with a block diagram. 10M

15. A). Explain in detail about Pure Aloha and also write its Limitations. 10M

OR

15. B). Elaborate Tree algorithm with suitable examples. 10M

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