

Hall Ticket Number :

R-17**Code: 7G17E**

IV B.Tech. I Semester Regular Examinations February 2021

Computer Networks

(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)

Marks	CO	Blooms Level
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UNIT-I

- | | | | |
|--|----|---|---|
| 1. a) Explain the structure of Telephone System | 7M | 1 | 2 |
| b) List Network hardware & software with applications. | 7M | 1 | 1 |

OR

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|---|----|---|---|
| 2. a) Differentiate between OSI & TCP/IP Model. | 7M | 1 | 2 |
| b) Interpret the various transmission medias in data communication. | 7M | 1 | 2 |

UNIT-II

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|--|----|---|---|
| 3. a) Describe IEEE Standards with applications | 6M | 2 | 2 |
| b) Discuss error detection and correction in data communication. | 8M | 2 | 2 |

OR

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|--|----|---|---|
| 4. a) Derive expression of throughput in ALOHA Protocol. | 7M | 2 | 6 |
| b) Compare controlled access protocols. | 7M | 2 | 5 |

UNIT-III

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|---|----|---|---|
| 5. a) Justify role of Internet protocols in data communication. | 7M | 3 | 5 |
| b) Categorize routing with algorithms. | 7M | 3 | 4 |

OR

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|---|----|---|---|
| 6. a) Give Comparison between Distance Vector and Link State Routing. | 7M | 3 | 5 |
| b) Show IP4 and IP6 packet headers format. | 7M | 3 | 3 |

UNIT-IV

- | | | | |
|--|----|---|---|
| 7. a) Explain function of UDP in detail. | 7M | 4 | 2 |
| b) Why do you think that there exist two protocols in transport layer whereas there exists only one in Internet layer in TCP/IP reference model? | 7M | 4 | 1 |

OR

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|---|----|---|---|
| 8. a) Differentiate TCP and UDP services? Explain the TCP datagram format. | 7M | 4 | 2 |
| b) What do you understand Tunnel Model and What Protocols fall Under The TCP/IP Internet Layer? | 7M | 4 | 1 |

UNIT-V

- | | | | |
|--|----|---|---|
| 9. a) What is the purpose of Domain Name system and electronic mail? | 7M | 5 | 3 |
| b) Explain types of services provided by ISDN | 7M | 5 | 2 |

OR

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|---|----|---|---|
| 10. a) Recommend application layer protocols in various communication system. | 7M | 5 | 5 |
| b) Describe Public Key Algorithms. | 7M | 5 | 1 |

Hall Ticket Number :

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R-17**Code: 7G374**

IV B.Tech. I Semester Regular Examinations February 2021

Digital Design Through Verilog HDL

(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)

UNIT-I

- | | Marks | CO | Blooms Level |
|---|-------|-----|--------------|
| 1. a) Write about white space characters and variables with examples | 7M | CO1 | L5 |
| b) Using example, explain about concurrent and procedural statement with syntaxes | 7M | CO1 | L1 |

OR

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|--|----|-----|----|
| 2. a) Write a gate level Verilog code for full adder. | 7M | CO1 | L1 |
| b) Explain the components of a Verilog module with block diagram | 7M | CO1 | L1 |

UNIT-II

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|---|----|-----|----|
| 3. a) Explain NMOS and PMOS switches with conditions. | 7M | CO2 | L1 |
| b) Design a Verilog module of a 4-bit bus switcher at the data flow level | 7M | CO2 | L5 |

OR

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|--|----|-----|----|
| 4. a) Explain clocked RS flip-flop Verilog module and test bench | 7M | CO2 | L1 |
| b) What is a three-state gate and explain each type of three-state gate with truth tables? | 7M | CO2 | L5 |

UNIT-III

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|--|----|-----|----|
| 5. a) Explain blocking and non-blocking statement with examples | 7M | CO3 | L1 |
| b) Write syntax for while loop and write a Verilog code for n-bit Johnson counter. | 7M | CO3 | L5 |

OR

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|--|----|-----|----|
| 6. a) Write Verilog code using case statement for any one example. | 7M | CO3 | L5 |
| b) What is the difference between a sequential block and a parallel block? Explain using an example. | 7M | CO3 | L4 |

UNIT-IV

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|--|----|-----|----|
| 7. a) Explain and specify blocks of Path Delay Modeling. | 7M | CO4 | L1 |
| b) Describe about module paths. | 7M | CO4 | L3 |

OR

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|--|----|-----|----|
| 8. a) Briefly explain combinational and sequential UDPs in Verilog | 7M | CO4 | L1 |
| b) Explain overriding parameters | 7M | CO4 | L1 |

UNIT-V

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|--|----|-----|----|
| 9. a) Draw an SM chart for dice game. Assume necessary conditions. | 7M | CO5 | L5 |
| b) Explain various blocks of SM charts. And derive the SM chart for D-FF | 7M | CO5 | L1 |

OR

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|---|-----|-----|----|
| 10. Explain architecture of Xilinx 3000 series FPGA | 14M | CO5 | L1 |
|---|-----|-----|----|

Hall Ticket Number :

R-17**Code: 7G674**

IV B.Tech. I Semester Regular Examinations February 2021

Disaster Management

(Common to All Branches)

Max. Marks: 70

Time: 3 Hours

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

		Marks	CO	Blooms Level
UNIT-I				
1.	a) Explain briefly about how hazards can become a disaster and Summarize the concept of disaster.	8M	CO1	L2
	b) Illustrate the differences between hazard and disaster.	6M	CO1	L2
OR				
2.	Explain the following terms in an uneducated person:			
	a) Disaster			
	b) Risk			
	c) Vulnerability			
	d) Hazard	14M	CO1	L1
UNIT-II				
3.	a) Illustrate the effects of the volcanoes on the environment. List out various materials comes out from volcanic eruptions.	7M	CO2	L3
	b) State epicenter and focus? Create with a neat diagram? Based on depth how many type types of earthquake are classified.	7M	CO2	L3
OR				
4.	a) Write a short note on earthquakes. List out various materials comes out from volcanic eruptions	7M	CO2	L5
	b) Demonstrate natural disaster and manmade disaster, what are the effects of disasters on environmental health facilities and services.	7M	CO2	L5
UNIT-III				
5.	a) Discuss the role and functions of a Disaster Manager, health effects of global environmental change.	7M	CO3	L3
	b) Explain urban disasters and climate change with suitable examples.	7M	CO3	L3
OR				
6.	List different disaster impacts and explain any four with the help of a case study.	14M	CO3	L2
UNIT-IV				
7.	a) What are the steps involved in risk communication?	7M	CO4	L4
	b) What are the drought control measures adopted across the globe?	7M	CO4	L4
OR				
8.	a) Illustrate various mitigation measures to be taken at the time of earthquakes.	7M	CO4	L3
	b) Elaborate the activities of panchayat raj institutions during disaster.	7M	CO4	L3
UNIT-V				
9.	a) Discuss the important steps in relief distribution.	5M	CO5	L3
	b) Sustainability, comment on this term and generally write how you can apply sustainability in your daily life with at least 5 examples.	9M	CO5	L3
OR				
10.	a) Identify the different types of rehabilitation post disaster.	6M	CO5	L5
	b) Discuss about the positive and negative impacts of construction of dams.	8M	CO5	L5

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R-17

Code: 7G372

IV B.Tech. I Semester Regular Examinations February 2021

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)

		Marks	CO	Blooms Level
UNIT-I				
1.	a) Describe the architecture of 8051 with neat diagram	7M	CO1	L2
	b) Write a program to perform multiplication of 2 numbers using 8051	7M	CO1	L3
OR				
2.	a) Draw a schematic Interfacing a stepper motor with 8051	7M	CO4	L3
	b) Write 8051 ALP for changing speed and direction of stepper motor.	7M	CO1	L3
UNIT-II				
3.	a) What are special considerations in designing embedded systems?	7M	CO2	L1
	b) List the various application areas of embedded systems and give examples for each application area.	7M	CO2	L1
OR				
4.	a) What are different categories of embedded systems? Give examples of each category	7M	CO2	L4
	b) Can mobile devices be categorized as embedded systems? Discuss.	7M	CO2	L5
UNIT-III				
5.	a) What is cross-platform development? List the tools required for cross platform development?	7M	CO3	L1
	b) Explain the hardware architecture of an embedded systems?	7M	CO3	L1
OR				
6.	a) Write a short note on			
	i. Hybrid memory devices	7M	CO3	L1
	ii. Watch dog timer/Reset circuitry			
	b) Explain the boot sequence of an embedded system	7M	CO3	L1
UNIT-IV				
7.	a) Explain about Bluetooth system specifications.	7M	CO4	L1
	b) Explain in detail about IEEE 802.11	7M	CO4	L2
OR				
8.	a) What is IrDA interface? What are its advantages and limitations	7M	CO2	L2
	b) What are advantages of USB over RS 232?	7M	CO2	L2
UNIT-V				
9.	a) Write a short note on			
	i. Mutex management function calls			
	ii. Message Queue management function calls	7M	CO2	L3
	b) Briefly explain various scheduling algorithms.	7M	CO2	L1
OR				
10.	a) What are objects of an operating system kernel?	10M	CO1	L2
	b) Differentiate preemptive and non-preemptive operating systems	4M	CO2	L2

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R-17

Code: 7GA71

IV B.Tech. I Semester Regular Examinations February 2021

Human Resource Management

(Common to All Branches)

Max. Marks: 70

Time: 3 Hours

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

	Marks	CO	Blooms Level
UNIT-I			
1. a) Define the nature and scope of Human Resource Management	7M	1, 2	1
b) What are the different functions of HRM	7M	1, 2	4
OR			
2. a) What is HRM? Explain about Competitive Challenges influencing HRM.	7M	1, 2	4
b) Differentiate Personnel Management and HRM	7M	1, 2	5
UNIT-II			
3. a) Define HRP. Explain HRP need and importance in an organization.	7M	6, 7, 8	1
b) Explain about different Barriers to HRP.	7M	6, 7, 8	2
OR			
4. a) Define job analysis. Explain the different methods of JE and its process	7M	6, 7, 8	1
b) Define Job Design and its importance in an organization.	7M	6, 7, 8	1
UNIT-III			
5. a) If you are the HR Manager, what type of recruiting methods is using to recruit for Manufacturing and for services industry?	7M	1, 4,	2
b) Define process of recruitment.	7M	1, 4,	1
OR			
6. a) What is recruitment? List out the process of recruitment.	7M	1, 4,	4
b) "A well-thought-out orientation program is essential for all new employees, whether they have experience or not". Explain why you agree or disagree with the above statement.	7M	1, 4,	2
UNIT-IV			
7. a) List and briefly explain about Training Methods	7M	4, 5	1
b) What is the need of training an employee in an organization?	7M	4, 5	4
OR			
8. a) Is an employee should train. If yes list out the advantages and disadvantages of training.	7M	4, 5	4
b) Define different career stages.	7M	4, 5	1
UNIT-V			
9. a) Define what Employee Compensation is and list out the factors influencing Employee Compensation.	7M	3, 4, 5	1
b) Explain the need of IR with respect to HRM	7M	3, 4, 5	2
OR			
10. a) Describe the pros and cons of any four Performance Appraisal tools.	7M	3, 4, 5	2
b) Explain different methods of Performance Appraisal.	7M	3, 4, 5	2

Hall Ticket Number :

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Code: 7G371

IV B.Tech. I Semester Regular Examinations February 2021

Optical Fiber Communication

(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)

UNIT-I

- | | Marks | CO | Blooms Level |
|--|-------|-----|--------------|
| 1. a) Model the structure and Refractive index profile of Step index fiber. | 7M | CO1 | L3 |
| b) Determine the Critical angle, NA and Acceptance angle of the fiber at the Core Refractive index profile 1.50 and Cladding refractive index profile 1.48 | 7M | CO1 | L3 |

OR

- | | | | |
|--|----|-----|----|
| 2. a) Outline the Optical fiber communication system and discuss | 8M | CO1 | L4 |
| b) Compare Meridional rays and Skew rays. | 6M | CO1 | L5 |

UNIT-II

- | | | | |
|--|----|-----|----|
| 3. a) Derive the relationship between Internal quantum efficiency and Internal power | 8M | CO3 | L2 |
| b) Distinguish between LED and LASER diodes. | 6M | CO3 | L3 |

OR

- | | | | |
|--|----|-----|----|
| 4. a) An InGaAsP LED emitting at a peak wavelength of 1310 nm has radiative and non-radiative recombination times of 30 and 100 ns respectively. At the drive current is 40 mA, find Internal quantum efficiency and Power generated in the device | 7M | CO2 | L3 |
| b) Describe the operation of Edge emitting LED with diagram. | 7M | CO3 | L2 |

UNIT-III

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|--|----|-----|----|
| 5. a) Interpret the operation of Avalanche photodiode with photodiode structure. | 7M | CO4 | L2 |
| b) Illustrate Quantum efficiency, Responsivity, Carrier multiplication of photodiode | 7M | CO4 | L3 |

OR

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|---|----|-----|----|
| 6. a) Differentiate between the photo diode parameters 'Quantum limit' and 'Dark current' | 8M | CO3 | L2 |
| b) Identify major differences between PiN photodiode and Avalanche photo diode. | 6M | CO3 | L1 |

UNIT-IV

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|---|----|-----|----|
| 7. a) Summarize Micro and Macro bending losses of optical fiber | 7M | CO2 | L2 |
| b) Explain the material dispersion parameter of optical fiber | 7M | CO2 | L2 |

OR

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|---|----|-----|----|
| 8. a) List the attenuation mechanisms of Optical fiber in Optical fiber communication | 7M | CO2 | L1 |
| b) A multi mode graded index fiber exhibits total Pulse broadening of 0.1 μ s over a distance of 15 Km. Estimate Maximum possible BW, Pulse dispersion per unit length, Band width–Length product | 7M | CO4 | L3 |

UNIT-V

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|---|----|-----|----|
| 9. a) Illustrate operational principles of WDM | 7M | CO4 | L3 |
| b) Prepare the parameter requirements of a Simple point-to-point link | 7M | CO3 | L4 |

OR

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|--|----|-----|----|
| 10. a) Interpret the Power budget parameters with Power loss model of Point-point link | 7M | CO3 | L2 |
| b) With the help of block diagram explain Optical analog receiver | 7M | CO3 | L2 |

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Code: 7G375

IV B.Tech. I Semester Regular Examinations February 2021

Satellite Communications

(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)

Marks	CO	Blooms Level
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UNIT-I

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|--|-----|-----|----|
| 1. a) What is Kepler's three laws of planetary motion? Give the mathematical formulation of Kepler's third law of planetary motion | 4M | CO1 | L3 |
| b) Draw a basic block diagram of satellite communication system and explain each block | 10M | CO1 | L2 |

OR

- | | | | |
|--|-----|-----|----|
| 2. a) What is the difference between geosynchronous satellite and a geostationary satellite orbit? | 4M | CO1 | L1 |
| b) Describe look angle determination | 10M | CO1 | L4 |

UNIT-II

- | | | | |
|---|----|-----|----|
| 3. a) Explain the Attitude and Orbital Control System with the help of neat labelled diagram. | 7M | CO1 | L2 |
| b) Explain the working of telemetry, tracking, command and monitoring in satellite subsystem | 7M | CO1 | L3 |

OR

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|--|----|-----|----|
| 4. a) Draw the block diagram of typical frequency translation transponder of satellite system and explain its operation. | 7M | CO1 | L1 |
| b) Write notes on:
(i) Reliability (ii) Mean time before failure (iii) Effective failure rate | 7M | CO1 | L1 |

UNIT-III

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|--|----|-----|----|
| 5. a) What is basic transmission theory? A satellite at a distance of 40000km from a point on the earth's surface radiates a power of 10W from an antenna with a gain of 17dB in the direction of the observer. Find the flux density at the receiving point and the power received by an antenna at this point with an effective area of 10m ² . | 8M | CO2 | L3 |
| b) Discuss about the noise temperature. | 6M | CO2 | L2 |

OR

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|---|----|-----|----|
| 6. a) What is the significance of TDMA frame structure? | 7M | CO2 | L2 |
| b) Derive the equation for the power received by an earth station from a satellite transmitter. | 7M | CO2 | L1 |

UNIT-IV

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|--|-----|-----|----|
| 7. a) What is the radiation effect in satellite orbit? | 4M | CO3 | L2 |
| b) Draw the simplified diagram of large earth station transmitter and receiver and explain each block in detail. | 10M | CO3 | L1 |

OR

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|--|----|-----|----|
| 8. a) What are the different types of antenna mounts? | 7M | CO3 | L2 |
| b) Explain the operational NGSO constellation designs. | 7M | CO3 | L1 |

UNIT-V

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|---|----|-----|----|
| 9. a) Demonstrate GPS position location principles. | 7M | CO3 | L5 |
| b) What is the technique used to increase the accuracy of GPS measurements? | 7M | CO3 | L6 |

OR

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|--|----|-----|----|
| 10. a) Write short notes on GPS Receiver Operation. | 7M | CO3 | L1 |
| b) Draw the general arrangement of position location with GPS and explain about GPS in detail. | 7M | CO3 | L2 |
