AR18

CODE: 18CEE431 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, May,2022

REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM

(Civil Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Which portions of the electromagnetic spectrum are of particular interest in Remote Sensing? Explain.	6M
	b)	Explain about EMR's interaction with earth's surface.	6M
		(OR)	
2.	a)	Write short notes on types of scattering	6M
	b)	Explain briefly about the process of Remote Sensing with a neat supporting diagram.	6M

UNIT-II

3.	a)	What are the bands and their uses of Landsat ETM?	6M
	b)	Explain in detail about the airbore remote sensing and space bore remote sensing.	6M
		(OR)	
4.	a)	Discuss the following (i) Band interleaved by pixel (ii) Band interleaved by line	6M
	b)	Explain the following: i) Spatial resolution, ii) Spectral resolution, iii) Radiometric resolution iv) Temporal resolution	6M

UNIT-III

5.	a)	Give comparison between visual interpretation and image classification.	6M
	b)	Discuss the process for carrying out visual interpretation.	6M
		(OR)	
6.	a)	What is image rectification? Explain.	6M
	b)	What is supervised classification? What are the basic steps and stages involved in a typical supervised classification?	6M

UNIT-IV

7.	a)	Explain in detail the significance of Four M's of GIS with the help of a schematic representation.	6M
	b)	Discuss in brief various applications of GIS in civil engineering.	6M
		(OR)	
8.	a)	What do you understand by spatial data and how are they integrated to make a GIS?	6M
	b)	Explain The Advantages And Disadvantages Of Non Spatial Data?, What are the types of non-spatial data?.	6M

UNIT-V

9.	a)	Explain arithmetic operations, logical operations and conditional expression of spatial data analysis.	6M
	b)	Discuss overlay using a decision table.	6M
		(OR)	
10.	a)	Discuss the use of Remote Sensing and GIS in forestry applications.	6M
	b)	What is the role of Remote Sensing and GIS in geology?	6M

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CODE: 18EET417 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, May,2022

ELECTRICAL DISTRIBUTION SYSTEMS

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) State and explain different categories of load. 4M
   b) The annual peak load input to a primary feeder is 2 MW. The total copper loss at the time of peak load is 0.1 MW. The total annual energy supplied to the sending end of the feeder is 5.61 x 10^6 KWh. Determine (i) the annual loss factor (ii) the total annual copper loss energy and its value at Rs. 1.50 per KWh. 8M

(OR)

2. a) State the significance of load factor and diversity factor. 6M
   b) Compare radial and loop type primary feeders. 6M

UNIT-II

3. a) Give a detailed analysis of hexagonal shaped distribution substation area. 6M
   b) Explain the various factors to be considered to decide the ideal location of substation. 6M

(OR)

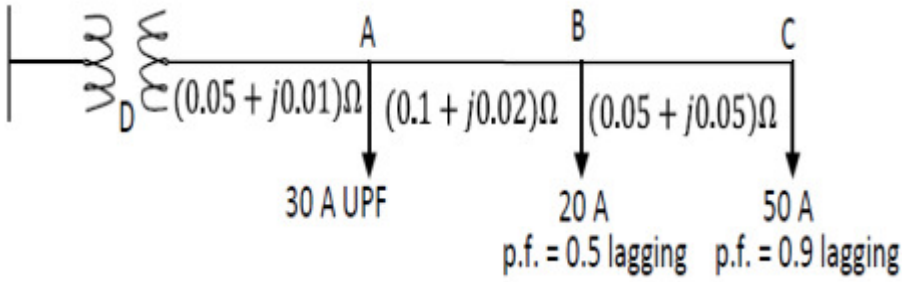
4. a) Compare four and six feeder pattern of substations. 6M
   b) Derive the percentage voltage drop of a substation service area with 'n' number of primary feeders. 6M

UNIT-III

5. a) Describe the significance of voltage drop and power loss calculations in distribution feeders. 4M
   b) A single phase 50 Hz ac distributor AB 300m long is fed from one end and is loaded as under: 8M
   (i) 100A at 0.707 pf lag 200m fed from one end A
   (ii) 200A at 0.8 pf lag 300m fed from one end A The total resistance and reactance of the distributor is 0.2 ohms and 0.1 ohm per kilo meter. Calculate the total voltage drop in the distributor AB.

(OR)

6. a) Consider a three phase, 3 wire, 440 V secondary system with balanced loads at A, B and C shown in figure. 12M



Determine:
(i) Total voltage drop.
(ii) Real power / phase for each load.
(iii) Reactive power / phase for each load.
(iv) The kVA output and load p.f. of the distribution transformer

UNIT-IV

7. a) Explain the principle of operation of (i) line sectionalizers (ii) fuse 6M
   b) Discuss fuse to fuse coordination. 6M

(OR)

8. a) Mention the objectives of distribution system protection? 6M
   b) Discuss about coordination procedure between two circuit breakers. 6M

UNIT-V

9. a) A single-phase motor connected to a 230V, 50 Hz supply takes 25 A at p.f. of 0.7 lag. A capacitor is shunted across the motor terminals to improve the p.f to 0.9 lag. Determine the capacitance of the capacitor to be used. 8M
   b) Explain line drop compensation for voltage control in distribution system. 4M

(OR)

10. a) Describe the effect of series capacitor on voltage control for distribution systems with necessary diagrams 6M
    b) Describe the operation of AVR/ AVB with neat diagrams. 6M

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AR18

CODE: 18MEE431 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, May,2022

REFRIGERATION AND AIR CONDITIONING

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Derive an equation of COP for Bell-Coleman Air-refrigerator show different processes on P-V and T-S Diagram 8M
   b) Explain four points the difference between simple air craft refrigeration system and boot-strap air refrigeration system 4M

(OR)

2. An air refrigerator working on Bell-Coleman cycle takes air into the compressor at 1 bar and 268 K. It is compressed in a compressor to 5 bar and cooled to 298 K at the same pressure. It is further expanded in the expander to 1 bar and discharged to take the cooling load. The isentropic efficiencies of the compressor and expander are 85% and 90% respectively. Determine : (i) Refrigeration capacity of the system if the air circulated is 40 kg/ min; (ii) Power required for the compressor; and (iii) C.O.P of the system. 12M

UNIT-II

3. a) Explain the effect of evaporator pressure and condenser pressure on the performance of vapour compression refrigeration system using P-h diagram. 8M
   b) Explain the effect of sub cooling on COP. 4M

(OR)

4. a) Under what circumstances super heating of refrigerant vapour before compression is objectionable? 6M
   b) Explain the working of Vapour compression refrigeration system with the help of a neat sketch. 6M

UNIT-III

5. a) Derive maximum COP of vapour absorption refrigeration system. 6M
   b) Briefly explain with constructional features and working of Practical vapour absorption refrigeration system. 6M

(OR)

6. a) Describe with neat sketch Li-Br and water system. What are its limitations? 6M
   b) Explain 3 fluid vapour absorption refrigeration system with a neat sketch. 6M

UNIT-IV

7. a) Explain the principle and operation of thermo-electric refrigerator with neat sketches 6M
   b) Compare the working of different components of thermo-electric refrigeration system with the working of different components of vapour compression system. 6M

(OR)

8. a) Explain pulse tube refrigeration specify its advantages disadvantages and applications. 6M
   b) Explain the working principle of vortex tube and explain that the energy exchange Phenomenon in vortex tube is not a violation of second law of thermodynamics. 6M

UNIT-V

9. a) Explain sensible cooling and sensible Heating. 4M
   b) A small office hall of 25 person's capacity is provided with summer air conditioning system with the following data: 8M
   Outside conditions = 340 C DBT and 280 C WBT
   Inside conditions = 240 C DBT and 50 % RH
   Volume of air supplied = 0.4 m3/min/person
   Sensible heat load in room = 125600 kJ/h
   Latent heat load in the room = 42000 kJ/h.
   Find the sensible heat factor of the plant.

(OR)

10. a) Explain the difference between comfort air-conditioning and industrial air-conditioning 4M
   b) Following data is available for an air conditioning system comprising of filter, cooling coil, fan and distribution system using only fresh air for the purpose of maintaining comfort conditions in summer. RSH = 11.63 KW, RLH = 2.33 KW. Outside design condition: 28°C DBT, 20°C WBT. Inside design condition: 21°C DBT, 50% RH. Temperature of air entering the room = 11°C. Calculate RSHF and cooling load. 8M

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AR18

CODE: 18ECE431 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, May,2022

WIRELESS COMMUNICATION SYSTEMS

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1	a)	Describe cordless telephone system with necessary diagram.	6M
	b)	Illustrate how a telephone call is made from mobile to mobile with the help of timing diagram.	6M
		(OR)	
2	a)	Explain the operation of basic cellular system.	6M
	b)	Describe the Evolution of mobile radio communication.	6M

UNIT-II

3	a)	Bring out the differences between TDMA and FDMA multiple access schemes.	6M
	b)	Define Packet Radio and explain the principle of Pure ALOHA.	6M
		(OR)	
4	a)	Describe about CDMA multiple access scheme.	6M
	b)	Differentiate Pure ALOHA and Slotted ALOHA.	6M

UNIT-III

5	a)	Describe various upgrade paths for 2G technologies.	6M
	b)	Illustrate the applications and limitations of 4G technology.	6M
		(OR)	
6	a)	Describe the evolution of 4G technology.	6M
	b)	Describe various 3G Air interface technologies	6M

UNIT-IV

7	a)	Describe about IEEE 802.11 architecture.	6M
	b)	Compare HiperLAN and PAN wireless standards.	6M
		(OR)	
8	a)	Compare various IEEE 802.11 a, b, g and n WLAN standards.	6M
	b)	Discuss about Wireless Local Loop Architecture.	6M

UNIT-V

9		Illustrate the architecture of IEEE 802.15.4 in context with ZigBee.	12M
		(OR)	
10	a)	Describe the three types of network configurations used in Bluetooth devices.	8M
	b)	Discuss about RFID technology.	4M

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CODE: 18CSE442 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B. Tech I Semester Supplementary Examinations, May,2022

INTERNET OF THINGS

(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. How does IoT work and what does makes them smart device? Illustrate the generic block diagram of an IoT device and explain it briefly. 12M

(OR)

2. Describe how the IoT technology can be implemented in smart appliances and smoke/gas detection systems. 12M

UNIT-II

3. a) What are the advantages of SDN in IoT? Which communication model of IoT is used in SDN? 6M
   b) List out the key elements of NFV architecture 6M

(OR)

4. a) List out the Limitations of SNMP. 6M
   b) Describe how NFV can be used for virtualizing IoT device? 6M

UNIT-III

5. a) What is a module in python? Explain with an example 6M
   b) Explain Benefits of python programming language in IoT. 6M

(OR)

6. a) Explain the role of IoT is used in weather monitoring system. 6M
   b) Explain the characteristics of Python programming language. 6M

UNIT-IV

7. a) Design automatic street light control system using WSN Based on vehicle movement and atmospheric Condition. 6M
   b) Write a python program for smart parking. 6M

(OR)

8. a) Design a weather monitoring IoT system using Web Socket based. 6M
   b) Explain Raspberry Pi? How to run Raspberry pi in headless mode? 6M

UNIT-V

9. Explain how IoT technology can used in the following application areas: 12M
   a. Smart Agriculture
   b. Smart Parking
   c. Emergency response
   d. Smart roads in smart cities

(OR)

10. Explain Hadoop mapreduce with an example. 12M

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AR16

CODE: 16EE4025 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester supplementary Examinations, May,2022

HIGH VOLTAGE ENGINEERING

(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Discuss the different numerical methods available for estimation of electric field distribution in dielectric media.	14

(OR)

2.	a)	Explain about the Charge Simulation Method for solving the field problems and estimation of potential distribution?	14

UNIT-II

3.	a)	Derive the condition for Townsend's breakdown and also state the limitations of it	7
	b)	Explain the cavitation and bubble theory in commercial liquids.	7

(OR)

4.	a)	Explain about the conduction and breakdown in pure liquids	7
	b)	Briefly discuss the intrinsic and electronic breakdown in solid insulating materials.	7

UNIT-III

5.	a)	Describe with a neat sketch, the working of a van de Graff generator. What are the factors that limit the maximum voltage obtained?	7
	b)	A Cockcroft-Walton type voltage multiplier has eight stages with capacitances, all equal to 0.05 μF. The supply transformer secondary voltage is 125 kV at a frequency of 150 Hz. If the load current to be supplied is 5 mA, find (a) the percentage ripple, (b) the regulation, and (c) the optimum number of stages for minimum regulation or voltage drop.	7

(OR)

6.		What are the methods used for measurement of High DC voltage. Explain any two of them briefly.	14

UNIT-IV

7.		What are the different tests done on high voltage circuit breakers? Explain the procedure of each test.	14

(OR)

8.	a)	A Schering-bridge was used to determine the dielectric constant and loss factor ofa 1 mm thick Bakelite sheet at 50 Hz using a parallel-plate electrode configuration. The electrode effective area is 100 cm^2. At balance, the bridge arms are AB: test object, BC: std, capacitor = 100pf.CD: variable capacitor in parallel with resistor 50 nF and 1000/π ohms. DA: variable resistance 62.0 Ω.Determine the dielectric constant K and loss factor tan δ.	7
	b)	What are the different tests conducted on Insulators. Explain in detail?	7

UNIT-V

9.		Explain briefly about principle of operation, construction and working of Electro static Precipitator?	14

(OR)

10.		Mention the applications of the following (i)Electro static coating, (ii) Electro static separator	14

AR16

CODE: 16EC4030 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester supplementary Examinations, May,2022

SATELLITE COMMUNICATIONS

(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Give a brief history of satellite communications	7M
	b)	Explain about different satellite systems.	7M
		(OR)	
2.	a)	Explain about satellite frequency band designation and associated application.	7M
	b)	Mention about advantages and disadvantages of satellite communications	7M

UNIT-II

3.	a)	Draw the geocentric equatorial system and explain the process of locating the satellite with respect to earth	7M
	b)	A satellite is in an elliptical orbit with a perigee of 1800 km and an apogee of 5300 km. Using the mean earth radius of 1357.89km, find the period of the orbit and the eccentricity of the orbit	7M
		(OR)	
4.	a)	What are two approaches used for equipment reliability in the event of failure of communication capacity of the satellite? Explain	7M
	b)	What are look angles? How do you determine? Explain with the help of neat diagrams	7M

UNIT-III

5.	a)	What are different antennas used on satellites? Explain with the help of typical satellite antenna patterns and coverage zones	7M
	b)	What is reliability? explain and derive expression for average failure rate	7M
		(OR)	
6.		Explain the working of telemetry, tracking, Command and monitoring sub system of a spacecraft.	14M

UNIT-IV

7.	a)	Discuss various modulation techniques used with satellite links	7M
	b)	A satellite at a distance of 40,000 km from a point on the earth's surface radiates a power of 10 W 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 antenna at this point with an effective area of 10 m2.	7M
		(OR)	
8.	a)	Describe the satellite switched TDMA technique in detail.	7M
	b)	Explain the design procedure of satellite communication link.	7M

UNIT-V

9.	a)	Discuss about the primary power test methods used in satellite earth stations?	7M
	b)	Discuss the following NGSO (Non Geo Stationary Orbit) Constellation designs: i. Globalstar ii. Teledesic	7M
		(OR)	
10.	a)	Explain about earth station transmitter in detail.	7M
	b)	Explain the general aspects of coverage and frequency considerations of low earth orbit.	7M