AR16

CODE: 16CE4037 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

GROUND IMPROVEMENT TECHNIQUES

(Civil 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)	Explain dewatering by Open Sumps and Ditches also write its advantages and disadvantages.	7M
	b)	Explain the well point method of dewatering? Mention also its advantages and disadvantages.	7M
		(OR)	
2.	a)	Explain the deep well drainage method of dewatering? Mention also its advantages and disadvantages.	7M
	b)	Explain the electro osmosis method and Ground freezing of dewatering in detail .	7M

UNIT-II

3.	a)	Explain the types and construction of vertical drains.	7M
	b)	Explain the construction of sand drains.	7M
		(OR)	
4.	a)	Explain the method of Lime Columns for Densifying Cohesive soils.	7M
	b)	Explain the Dynamic Compaction for Densifying soils with Procedure and Specifications.	7M

UNIT-III

5.	a)	Describe in detail how chemicals are used in stabilizing the soil with the help of an example.	7M
	b)	Write a detailed note on (a) Portland cement stabilization (b) Bituminous stabilization.	7M
		(OR)	
6.	a)	Write a detailed note on the various grout injection methods.	7M
	b)	Write a short note on Pre-grout tests.	7M

UNIT-IV

7.	a)	Explain the functions and applications of Geo textiles for filtration with neat sketches.	7M
	b)	Explain in detail about of Geo membranes for filtration with neat sketches.	7M
		(OR)	
8.	a)	Write in detail design principles of reinforced earth walls.	7M
	b)	Write a short note on components of reinforced earth walls.	7M

UNIT-V

9.		Explain different methods for improvement of expansive soils in detail.	14M
		(OR)	
10.		Discuss the various foundation techniques adopted in expansive soils in detail.	14M

AR16

CODE: 16EE4031 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

NON CONVENTIONAL SOURCES OF ENERGY

(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 renewable energy advantages and disadvantages over Non-Renewable Sources.	7M
	b)	Enumerate the different types of concentrating type collectors.	7M
		(OR)	
2.	a)	Explain the working of solar water heater with a neat sketch as an application of solar thermal system.	7M
	b)	Explain solar photovoltaic energy conversion system and give its application.	7M

UNIT-II

3.	a)	Describe salient features of horizontal axis and vertical axis wind turbines?	7M
	b)	Using Betz model of a wind turbine, derive the expression for power extracted from wind? What is the maximum theoretical power that can be extracted and under what condition?	7M
		(OR)	
4.	a)	Discuss advantages and disadvantages of wind energy conversion system.	7M
	b)	Compare wind energy with other forms of Non-Conventional energy sources.	7M

UNIT-III

5.	a)	Illustrate the basic principle of tidal power.	7M
	b)	List the advantages of geothermal energy over conventional energy sources and also explain its impact on Environment.	7M
		(OR)	
6.	a)	Explain the following OTEC cycle: i)Open Cycle ii) Closed Cycle	7M
	b)	With neat sketch, explain the geothermal power plant	7M

UNIT-IV

7.	a)	Define biomass. Explain in detail about its resources?	7M
	b)	Describe about various types of biogas plants.	7M
		(OR)	
8.	a)	Illustrate in detail about various forms of biomass digestion process.	7M
	b)	List the advantages and disadvantages of Bio-mass Energy.	7M

UNIT-V

9.	a)	Classify fuel cells and differentiate between Fuel Cell and Battery.	7M
	b)	Describe about Thomson effect and Peltier effect.	7M
		(OR)	
10.	a)	Explain about the MHD generators.	7M
	b)	Mention the application of fuel cells and explain anyone application.	7M

AR16

CODE: 16ME4035 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

UNCONVENTIONAL MACHINING PROCESSES

(Mechanical 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)	Explain the importance of Unconventional Machining Processes	7 M
	b)	Discuss the classification of Unconventional Machining Processes	7 M
		(OR)	
2.	a)	Write the advantages and disadvantages of USM process	8 M
	b)	Explain the various parameters influencing the MRR in USM process	6 M

UNIT-II

3.	a)	How is metal removed in abrasive jet machining process? Explain the mechanism with neat diagram	7 M
	b)	Distinguish between abrasive flow finishing and Magnetic abrasive finishing process	7 M
		(OR)	
4.	a)	Explain the Abrasive Flow Finishing process	7 M
	b)	Explain the process elements of abrasive flow finishing process	7 M

UNIT-III

5.	a)	List the advantages and disadvantages of ECM process	7 M
	b)	Explain the process of metal removal in Electro Chemical Grinding	7 M
		(OR)	
6.	a)	Describe the parameters and applications of chemical machining process	8 M
	b)	Briefly discuss the economics of ECM process	6 M

UNIT-IV

7.	a)	Explain the Electro discharge machining process with a neat sketch	7 M
	b)	Discuss the applications of Wire EDM process	7 M
		(OR)	
8.	a)	Explain the functions and characteristics of dielectric fluid used in EDM process	8 M
	b)	Comment about the nature of spark eroded surfaces	6 M

UNIT-V

9.	a)	Describe about various process parameters effecting electron beam machining process	7 M
	b)	State the mechanism of metal removal, merits and demerits of laser beam machining process	7 M
		(OR)	
10.	a)	Explain about plasma arc machining process with a neat sketch	8 M
	b)	Compare the plasma arc cutting with oxy-acetylene cutting process based on the process, merits and demerits	6 M

AR16

CODE: 16EC4037 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

EMBEDDED & REAL TIME OPERATING SYSTEMS

(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)	Explain in detail about performance design metrics.	7M
	b)	Explain design technology compilation and synthesis.	7M
		(OR)	
2.	a)	Explain the common characteristics of Embedded Systems.	7M
	b)	Discuss optimizing custom single purpose processors.	7M

UNIT-II

3.	a)	Differentiate Models Vs Languages.	6M
	b)	Explain Finite State Machine with data path model.	8M
		(OR)	
4.	a)	Discuss the communication among processes.	7M
	b)	Explain in detail data flow models.	7M

UNIT-III

5.	a)	Explain RS422 / RS485 communication interface.	7M
	b)	Discuss in detail about Bluetooth Technology.	7M
		(OR)	
6.	a)	Explain IEEE 1394 Fire wire.	7M
	b)	Discuss in detail about USB Communication.	7M

UNIT-IV

7.	a)	Discuss about Tasks and Task Schedulers.	7M
	b)	Explain mail boxes and Event registers.	7M
		(OR)	
8.	a)	Explain about Mutex.	7M
	b)	Write short notes on Message queues.	7M

UNIT-V

9.	a)	Discuss the memory management in Real Time operating systems.	7M
	b)	Explain Real time Linux.	7M
		(OR)	
10.	a)	Discuss in detail Hand held operating systems.	7M
	b)	Explain Embedded Linux.	7M

AR16

CODE: 16CS4036 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, November-2021

MOBILE ADHOC AND SENSOR NETWORKS

(Common to CSE & IT)

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 characteristics of MANETs.	7M
	b)	Explain in detail Ad Hoc Wireless Networks.	7M
		(OR)	
2.	a)	Discuss the Applications of Cellular Networks.	7M
	b)	Write short notes on Ad Hoc Wireless Internet.	7M

UNIT-II

3.	a)	Explain the design goals of a MAC Protocol for Ad Hoc Wireless Networks.	7M
	b)	Explain FAMA Contention – Based Protocol.	7M
		(OR)	
4.	a)	Explain D-PRMA Contention – Based Protocol with Reservation Mechanisms.	7M
	b)	Explain DWOP - Contention – Based MAC Protocol with Scheduling Mechanisms	7M

UNIT-III

5.	a)	Discuss the issues in designing a Routing Protocol for Ad Hoc Wireless Networks.	7M
	b)	Explain WRP Table –Driven Routing Protocol.	7M
		(OR)	
6.	a)	Explain DSR On- Demand Routing Protocol.	7M
	b)	Explain CEDAR Hybrid routing Protocol.	7M

UNIT-IV

7.	a)	Compare Wireless Sensor Networks with Ad Hoc Wireless Networks.	7M
	b)	Discuss briefly about the challenges in designing a Sensor Network.	7M
		(OR)	
8.	a)	Explain the Layered architecture of Wireless Sensor Network.	7M
	b)	Discuss various applications of Sensor Networks.	7M

UNIT-V

9.	a)	Discuss briefly about various MAC Protocols for Sensor Networks.	7M
	b)	Write short notes on Sensor Network localization.	7M
		(OR)	
10.		Explain Hybrid TDMA/FDMA based MAC Protocol.	14M