AR18

CODE: 18CEE443 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular & Supplementary Examinations, March-2023

GROUND WATER DEVELOPMENT AND MANAGEMENT

(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)	Explain the ground water hydrological cycle with a neat sketch.	6M
	b)	Write short notes on specific yield and specific retention.	6M
		(OR)	
2.	a)	Describe the vertical distribution of ground water	6M
	b)	Discuss about ground water flow contours their applications.	6M

UNIT-II

3.	a)	Derive the equation to estimate the discharge from a steady state unconfined aquifer.	6M
	b)	What are the various effects of pumping? Discuss in brief.	6M
		(OR)	
4.	a)	Explain non equilibrium equation developed by 'Theis' and also explain the solution for the same.	6M
	b)	Discuss in detail about the leaky aquifers.	6M

UNIT-III

5.	a)	Discuss any two methods of surface investigation for ground water, in detail	6M
	b)	Explain important features of aerial photogrammetry in ground water Exploration.	6M
		(OR)	
6.	a)	Explain with the help of neat sketches of Electrical Resistivity method on the ground surface.	6M
	b)	Discuss in detail by means of a neat sketch, the principle involved in the exploration of geophysics by Resistivity Logging.	6M

UNIT-IV

7.	a)	Why do we recharge ground water artificially? Explain the significance	6M
	b)	Explain in detail about flooding and recharge well methods.	6M
		(OR)	
8.	a)	Explain the following methods of artificial recharge of ground water (i) Recharge mounds (ii) Induced recharge (iii) Ditch and furrow recharge	12M

UNIT-V

9.	a)	What are the implications of saline water intrusion in aquifers?	6M
	b)	How do you measure and estimate the extent of saline water intrusion in aquifers?	6M
		(OR)	
10.	a)	Enumerate the causes and effects of sea water intrusion.	6M
	b)	Derive the Ghyben-Herzberg relation to determine the depth of interface between the fresh and salt water	6M

RA / AR16

CODE: 16CE4036 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Regular/Supplementary Examinations, March-2023

GROUND WATER DEVELOPMENT AND MANAGEMENT

(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)	Define Ground water flow contours and their applications in ground water hydrology.	7M
	b)	Show the derivation of differential equation which governing ground water flow in three dimensions with a neat sketch.	7M

(OR)

2.	a)	Briefly discuss about ground water hydrologic cycle with neat sketch	7M
	b)	Briefly explain vertical distribution of ground water, zone of aeration and zone of saturation with figure.	7M

UNIT-II

3.	a)	Discuss the Dupit's equation and its assumptions.	7M
	b)	Explain Coopers's method of determining hydraulic properties of the aquifers through pumping test	7M

(OR)

4.	a)	Explain about the well Interference with a neat sketch.	7M
	b)	Explain about Leaky Aquifers.	7M

UNIT-III

5.	a)	Explain a case study on groundwater investigation by subsurface methods.	7M
	b)	Briefly discuss about ground water exploration and list its advantages.	7M

(OR)

6.	a)	Explain about the geophysical logging method.	7M
	b)	List and briefly explain the different surface and sub-surface methods of ground water exploration or investigation in present world.	7M

UNIT-IV

7.	a)	Discuss the concept and relative merits artificial recharge of groundwater.	7M
	b)	List the different methods used for artificial recharge of ground water.	7M

(OR)

8.	a)	Define conjunctive use of ground water and list out the advantages and disadvantages of conjunctive use of ground water.	7M
	b)	Explain about the indirect methods of artificial recharge with a neat sketch.	7M

UNIT-V

9.	a)	List and explain the different effects and controls measure for saline water intrusion.	7M
	b)	Explain the shape of fresh and saltwater interface with a neat sketch.	7M

(OR)

10.	a)	List and explain the different methods to reduce the saline water intrusion in ground water aquifer.	7M
	b)	Derive Ghyben-Herzberg relation between fresh and saline water with neat sketch?	7M

AR16

CODE: 16EE4031 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, March-2023

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)	Classify Non-Conventional Sources of Energy and compare them.	7M
	b)	Distinguish between Flat – plate type collectors and Concentrating collectors.	7M
		(OR)	
2.	a)	Write a short note on sizing of PV system and its storage.	7M
	b)	With a neat sketch, explain the working of solar pond electric power plant.	7M

UNIT-II

3.	a)	Discuss in detail the operation and control of a wind turbine. How the variations of wind velocity and its directions are taken care?	7M
	b)	Explain how the wind energy systems (WECS) are classified? Discuss in brief?	7M
		(OR)	
4.	a)	Give the detailed classification of wind turbines and explain the working of horizontal axis wind turbine with a neat sketch?	7M
	b)	Using Betz model of a wind turbine, derive the expression for power extracted from wind?	7M

UNIT-III

5.	a)	State the basic principle of tidal energy production and write major components of tidal power plant.	7M
	b)	Describe principle of geo-thermal energy? What are the limitations of harnessing geo-thermal energy?	7M
		(OR)	
6.	a)	Discuss the theory and working principle of ocean thermal energy conversion (OTEC) system.	7M
	b)	Mention the applications of OTEC systems.	7M

UNIT-IV

7.	a)	Explain the principles of Biomass conversion?	7M
	b)	Explain briefly about the principle of KVIC with neat sketches and write its advantages.	7M
		(OR)	
8.	a)	Explain the factors affecting bio digestion.	7M
	b)	What are the different factors which affect the size of the bio gas plants?	7M

UNIT-V

9.	a)	Classify the fuel cells? Describe the principle of working of fuel cell.	7M
	b)	Briefly Explain about Joule's effect, Seebeck effect.	7M
		(OR)	
10.	a)	Explain in detail about practical MHD generator?	7M
	b)	Describe the advantages of MHD systems.	7M

AR16

CODE: 16EC4037 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, March, 2023

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)	List and define three main characteristics of embedded system that distinguish such systems from other computing systems	7M
	b)	Explain how to optimize a custom single purpose processor design?	7M
		(OR)	
2.	a)	Explain about software development process of an embedded system	7M
	b)	Describe why general purpose processor could cost less than a single purpose processor you design yourself?	7M

UNIT-II

3.	a)	Explain about concurrent process model	7M
	b)	Explain how to create and terminate a process	7M
		(OR)	
4.	a)	Explain how Communication takes place among processes	7M
	b)	Write short notes on real time systems	7M

UNIT-III

5.	a)	With neat figure explain the RS232 interface	7M
	b)	Explain about Ethernet	7M
		(OR)	
6.	a)	Explain about IEEE1394 Firewire	7M
	b)	Explain about Bluetooth	7M

UNIT-IV

7.	a)	Write architecture of a kernel	7M
	b)	What is mutex? Write its significance	7M
		(OR)	
8.	a)	Explain about event registers and pipes	7M
	b)	Explain about mail box and message queues	7M

UNIT-V

9.	a)	Write any open source embedded operating systems and explain their features	7M
	b)	What are the differences in operating systems	7M
		(OR)	
10.	a)	List various mobile/handheld operating systems and explain their features	7M
	b)	Explain about Timers and memory management	7M

AR16

CODE: 16CS4036 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, March-2023

MOBILE AD HOC AND SENSOR NETWORKS

(Computer Science and 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)	List and explain the applications of MANETs.	7M
	b)	Differentiate between cellular and adhoc wireless networks.	7M
		(OR)	
2.	a)	Briefly explain the security threats in adhoc wireless networks.	7M
	b)	What are the major issues to be considered for a successful ad hoc wireless Internet?	7M

UNIT-II

3.	a)	List the design goals of a MAC protocol for ad hoc wireless networks.	7M
	b)	Explain about floor acquisition multiple access protocols.	7M
		(OR)	
4.	a)	Explain in detail about hidden and exposed terminal problems.	7M
	b)	Explain distributed packet reservation multiple access protocol.	7M

UNIT-III

5.		Explain in detail about DSDV routing protocol.	14M
		(OR)	
6.		Explain in detail about DSR routing protocol.	14M

UNIT-IV

7.	a)	List the reasons that sensor networks pose certain design challenges.	7M
	b)	Explain the clustered architecture of sensor networks.	7M
		(OR)	
8.	a)	Give the applications of sensor networks.	7M
	b)	Compare wireless sensor networks with Adhoc wireless networks.	7M

UNIT-V

9.	a)	Explain about location discovery of sensors.	7M
	b)	Write short notes on security in sensor networks.	7M
		(OR)	
10.		Discuss in detail on quality of sensor networks.	14M