AR20

CODE: 20CET101 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular/Supplementary Examinations, August, 2022

SURVEYING AND GEOMATICS

(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) What are the instruments used in chain surveying? How is a chain survey executed in the field? 5M
   b) Briefly explain of how to conduct the chain surveying when an obstacle is there in the field. 5M

(OR)

2. a) Explain the following terms 5M
   (a) Representative fraction. (b) Scale of plan. (c) Graphical scale.
   b) Differentiate clearly between plane and geodetic surveying. 5M

UNIT-II

3. a) Define the terms: True and magnetic bearing, local attraction, back bearings and magnetic declination. 4M
   b) Below are the bearings observed in a traverse survey conducted with a prismatic compass at a place where local attraction was suspected 6M

Line	Fore Bearing	Back Bearing
AB	139° 25′	319° 45′
BC	154° 45′	334° 45′
CD	295° 40′	115° 20′
DA	353° 30′	175° 00′

Calculate the included angles of the closed traverse and find corrected angles.

(OR)

4. a) Give, in a tabular form, the difference between prismatic compass and surveyor's compass. 4M
   b) Determine the values of included angles in the closed compass traverse ABCD conducted in the clockwise direction, given the following fore bearings of their respective lines. Apply the check. 6M

line	F.B.
AB	40°
BC	70°
CD	210°
DA	280°

UNIT-III

5. a) What are the different types of levelling staff? State the merits and demerits. 4M

   b) The following consecutive readings were taken with a level and 3 metre levelling staff on continuously sloping ground at a common interval of 20 metres: 6M

   0.602, 1.234. 1.860, 2574. 0.238, 0.914, 1.936. 2.872, 0.568, 1.824, 2.722.

   The reduced level of the first point was 192.122. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points and also the gradient of the line joining the first and the last points.

(OR)

6. a) Describe various methods of contouring. Discuss the merits and demerits of each. 4M

   b) Describe with the help of sketches the characteristics of contours. 6M

UNIT-IV

7. a) Discuss the principle of theodolite survey and principle of tachometry.

   b) What are 'face left' and 'face right' observations? Why is it necessary to take both face observations? Why both verniers are read?

(OR)

8. a) Discuss the fundamentals of total station and GPS 5M

   b) Explain the methods of setting out a simple curve. 5M

UNIT-V

9. a) Write down the advantages of photogrammetric surveying. 5M

   b) Explain about terrestrial photogrammetry. 5M

(OR)

10. a) Discuss the perspective geometry of aerial photograph 5M

    b) Write short on flight planning and Stereoscopy 5M

UNIT-VI

11. a) Discuss the features used to identify satellite images through visual image interpretation? 5M

    b) Explain about 5 components of GIS? 5M

(OR)

12. a) Briefly explain about platforms and sensors. 5M

    b) Explain the interaction of electromagnetic radiation with the atmosphere and earth surface. 5M

AR20

CODE: 20HST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech. II Semester Regular/Supplementary Examinations, August,2022

ENGLISH

(Common to EEE & ECE. Branches)

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 the key characters of the story 'Father's Help'. 5 M

   b) Synonyms - Select the word from 'a, b, c, d' that most nearly means the word provided: 5 M

1. simulate	**2. fraud**	**3. upright**	**4. reel**	**5. generic**
a. excite	a. malcontent	a. honorable	a. whirl	a. general
b. imitate	b. argument	b. horizontal	b. fish	b. cheap
c. trick	c. imposter	c. humble	c. hit	c. fresh
d. apelike	d. clown	d. supine	d. mistake	d. elderly

(OR)

2. a) How can parents and teachers understand the children's psychology? Give examples from R.K.Narayan's story. 5M

   b) Antonyms - Select the word that is most opposite to the word provided: 5 M

1. common	**2. kindle**	**3. detain**	**4. famous**	**5. continue**
a. strange	a. smother	a. release	a. boring	a. curve
b. uneasy	b. detest	b. silence	b. poor	b. argue
c. quick	c. enemy	c. forget	c. obscure	c. carry
d. fast	d. discourage	d. prosper	d. untalented	d. pause

UNIT-II

3. a) "Every child is born, with some inherited characteristics, into a specific socio-economic and emotional environment, and trained in certain ways by figures of authority". Explain. 5 M

   b) Complete the following text with the appropriate present perfect affirmative, negative or question forms, using the information in brackets. 5 M

(1) _____ (Harika / to return) after a year of travelling. (2) _____ (she / to bring) her family many gifts, but they are more interested in her stories. (3) _____ (where / she / to be)? What fascinating sights (4) _____ (she / to see)?
"(5) _____ (I / to experience) many things," Harika says.

(OR)

4. a) Write about Dr. Kalam's friends. What did they become later? 5 M

b) Complete the Conditional Sentences (Type I) by putting the verbs into the correct form. 5 M

1. If you (send) _____ this letter now, she (receive) _____ it tomorrow.
2. If I (do) _____ this test, I (improve) _____ my English.
3. Prasad (go) _____ shopping if she (have) _____ time in the afternoon.
4. Simran (go) _____ to London next week if he (get) _____ a cheap flight.
5. If they (study/not) _____ harder, they (pass/not) _____ the exam.

UNIT-III

5. a) What does the poem 'The Road Not Taken' is all about? Explain. 5 M

b) Change the given sentences into Simple Sentences: 5 M

1. You must work hard or you will not pass the exam.
2. The doctor admitted that he was helpless.
3. No one likes a man who tells lies.
4. I shall look after her as she stays here.
5. The more you earn, the more you should save.

(OR)

6. a) Interpret the following lines from Robert Frost's poem: 5 M

"I shall be telling this with a sigh
Somewhere ages and ages hence;
Two roads diverged in a wood, and I —
I took the one less travelled by,
And that has made all the difference."

b) Change the following expressions to reported speech. 5 M

1. Swathi asked me," Where have you been?"
2. Sneha said to me, "Close your eyes!"
3. Ram said, "Please, can I have some more food?"
4. The park security guard said, "Don't walk on the grass!"
5. Rudra said, "I own two cars."

UNIT-IV

7. a) "… it is clear that the decline of a language must ultimately have political and economic causes". Explain the statement. 5 M

b) Read and punctuate the given paragraph. 5 M

When mice are kept at high population densities / their behaviour changes in a number of ways / / aggressive activity within populations of mice rises as density increases. Cannibalism of young also goes up, and so does aberrant sexual activity. Communal nesting, frequent in natural mouse populations, increases abnormally. In one example, 58 mice one to three days old / from several litters) were found in one nest, most unusual communal living / none survived because most of the mothers deserted them immediately after birth.

(OR)

8. a) Explain the significance of English language in politics. 5 M

b) Fill in blanks with appropriate prepositions: 5 M

1. Sita paid for lunch _____ advance, so we don't need to pay now.
2. His uncle went to the wrong house _____ mistake!
3. Every student should make sure that he's/she's _____ time for the class!
4. I love eating out in London. _____ instance, one of my favourite restaurants has amazing Indian food.
5. I think the dog is _____ danger on that high roof.

UNIT-V

9. a) **'**Mother's Day' is all about the real status of women in the family – Explain**.** 5 M
   b) Write an email to the Chief Editor, The Times of India and request him or her to publish an article on the most demanded skills to be employable in the 21st Century. 5 M

(OR)

10. a) Explain the change of personalities in J.B.Priestly's play. 5 M
    b) Write a letter to your District Education Officer, reporting him/her about the poor condition of some of the Govt. schools in your district. 5 M

UNIT-VI

11. a) Discuss some of the most beneficial outcomes of the Chipko Movement. 5 M
    b) Write an essay in about 250-300 words on 'Gender Equality'. 5 M

(OR)

12. a) 'The Chipko Movement as a women's movement'- Explain. 5 M
    b) Read the given a magazine article about a young mother whose house was burgled and answer the questions. 5 M

Lisa Tyler was weary after a long, hard day at the pottery factory where she works. But as she approached her home in the English city of Stoke-on-Trent, her heart lightened; soon she would be having a nice cup of tea, putting her feet up and watching Friends, her favourite TV series. But first, she needed to change out of her work clothes and pick up her three-year-old son from his grandmother's house nearby.

As Lisa walked up her garden path, she noticed a light flashing on and off in an upstairs bedroom. A shiver went down her back. What if it was a burglar? Quietly, she crept round to the back of the house to see if there was any sign of a break-in. Sure enough, a window was open and someone's coat was hanging on the gatepost!

Well, 26-year-old Lisa didn't fancy coming face to face with a burglar, so she ran to a neighbour's house and rang the police. But as she sat waiting for the police to arrive, Lisa's curiosity got the better of her and she decided to go back and see what was going on. That's when she saw a leg coming out of the downstairs front window. It was a man climbing out. Lisa gasped in shock. The burglar was carrying her portable television!

At this point, **Lisa saw red**. She didn't have many possessions and she'd saved long and hard to buy that set. Besides, nobody was going to stop her watching Friends.

"Oh, no you don't, she muttered under her breath, as the fury swelled inside

her. Without even stopping to think, she tore across the garden and started shouting at the burglar. „Give me my TV - drop it now! "she screamed.

Ignoring her, the man fled across the garden. So Lisa threw herself at him and successfully rugby tackled him to the ground. The burglar struggled to escape, but Lisa hung on like the best kind of guard dog despite being punched and kicked. As she looked up, she realised that she recognised the burglar's face. She was so surprised that she lost her grip and burglar got away, leaving the TV behind in the garden.

By the time the police and her father arrived, Lisa was in tears. "I can't believe you were so foolish, Lisa,' scolded her father. You could have been killed.
I know, but at least he didn't get my TV," she replied.
Lisa later remembered the name of the burglar, who had been in the same year as her at school. He was later caught and jailed for 15 months after admitting burglary and assault. In May last year, Lisa was given a Certificate of Appreciation by Staffordshire Police, for her „outstanding courage and public action". But in the future she intends to leave household security to a new member of her family, Chan, who is real guard dog.

1. How was Lisa feeling as she walked home from work?
    A tired
    B anxious
    C depressed
    D relieved
2. What does 'pick up' mean?
    A contact
    B visit
    C collect
    D check
3. Why didn't Lisa wait in her neighbour's until the police arrived?
    A She was worried about losing her television.
    B She wanted to know what was happening.
    C She not iced something from her neighbour's window.
    D She realised that the burglar was leaving.
4. What does 'Lisa saw red' mean?
    A She got impatient .
    B She felt frightened.
    C She got angry.
    D She felt brave.
5. What happened when Lisa shouted at the burglar?
    A He tried to explain why he was there.
    B He fell over as he ran towards her.
    C He pretended not to have heard her.
    D He dropped the TV and at tacked her.

AR20

CODE: 20MET101 **SET--1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Regular/Supplementary Examinations, August, 2022

THERMODYNAMICS
(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) Explain 4M
   i)System and surrounding
   ii) Closed and Open system

   b)Differenciate microscopic and macroscopic approach 6M

(OR)

2. a) What is the difference between extensive and intensive properties ? 4M
   b) The cylinder of a gas engine has a volume of 0.001m^3 and contains air at a pressure of 110kpa and temperature 21^{0}C.Calculate mass of the air contained in the cylinder. Assume R=0.287kJ/kg K 6M

UNIT-II

3. a) Explain the three corollaries First law of Thermodynamics. 6M
   b)Show that internal energy is a property of the system. 4M

(OR)

4. a) Write down and explain the significance of steady flow energy equation. 4M
   b)Air enters an adiabatic nozzle steadily at 300 kPa, 200°C, and 30 m/s and leaves at 100 kPa and 180 m/s. The inlet area of the nozzle is 80 cm^2. Determine (i) the mass flow rate through the nozzle, (ii) the exit temperature of the air, and (iii) the exit area of the nozzle. 6M

UNIT-III

5. a) Show that COP of an ideal heat pump is always greater the COP of ideal refrigerator by one. 4M
   b)Air at 15^{0}C and 1.05 bar occupies a volume of 0.02m^3. The air is heated at constant volume until the pressure is 4.2bar and then cooled at constant pressure back to the original temperature. 6M
   Calculate the
   i) net heat flow to or from the air.
   ii) net entropy change

(OR)

6. a) What are the four principles of Carnot cycle ? 4M
b)A Carnot heat engine operates between a source at 1000 K and a sink at 300 K. If the heat engine is supplied with heat at a rate of 800 kJ/min, determine (i) the thermal efficiency and (ii) the power output of this heat engine. 6M

UNIT-IV

7. a) Derive an expression for availability in non-flow systems. 4M
b) A system at 500 K receives 7200 kJ/min from a source at 1000 K. The temperature of atmosphere is 300 K. Assuming that the temperatures of system and source remain constant during heat transfer find out: (i) The entropy produced during heat transfer; (ii) The decrease in available energy after heat transfer. 6M

(OR)

8 a) Derive an expression for maximum work in a reversible process. 4M
b) Calculate the decrease in available energy when 20 kg of water at 90°C mixes with 30 kg of water at 30°C, the pressure being taken as constant and the temperature of the surroundings being 10°C. Take Cp of water as 4.18 kJ/kg K. 6M

UNIT-V

9. a) Define pure substance and explain how the properties are evaluated. 5M
b) Draw the phase equilibrium for pure substance on P-T coordinates 5M

(OR)

10. a) Derive an expression for the specific-heat difference c_p-c_v for an ideal gas. 4M
b) Derive the Gibbs and Maxwell's relations. 6M

UNIT-VI

11 An engine working on Otto cycle has a volume of 0.45 $m^{3,}$ pressure 1bar and temperature 30°C at the beginning of compression stroke. At the end of compression stroke, the pressure is 11 bar. 210 kJ of heat is added at constant volume. Determine: (i) Pressures, temperatures and volumes at salient points in the cycle. (ii) Percentage clearance. (iii) Efficiency. (iv) Network per cycle. (v) Mean effective pressure. (vi) Ideal power developed by the engine if the number of working cycles per minute is 210. Assume the cycle is reversible. 10M

(OR)

12.. Draw P-V and T-S diagram for Diesel cycle and derive the thermal efficiency . 10M

AR20

CODE: 20CST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Regular/Supplementary Examinations, August, 2022

DATA STRUCTURES AND ALGORITHMS

(Common to CSE, IT, AIML)

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)	Define Data Structure? Explain the advantages of data structures?	5M
	b)	Explain in detail about how performance can be calculated for algorithms?	5M
		(OR)	
2.	a)	What is recursion? Explain in detail about types of recursions with an example?	5M
	b)	Write a program to generate Fibonacci series using recursion?	5M
		UNIT-II	
3.	a)	Write a program to search an element using Binary Search and analyse time complexity?	5M
	b)	Write an algorithm for Bubble sort and explain with an example?	5M
		(OR)	
4.	a)	Write an algorithm for Merge sort and calculate time complexity?	5M
	b)	Define Hashing? Explain in detail about various Hashing Functions?	5M
		UNIT-III	
5.	a)	Compare and contrast Arrays and Linked lists?	5M
	b)	Write an algorithm for Inserting elements into the Single Linked Lists at the beginning, end.	5M
		(OR)	
6.	a)	Explain Deletion operation performed on Double Linked Lists?	5M
	b)	Explain in detail about Circular Linked Lists?	5M
		UNIT-IV	
7.	a)	Define Stack? Explain algorithms for PUSH and POP operations?	5M
	b)	Evaluate the postfix expression 2 5 3 6 + * * 5 / 2- step by step procedure using stack.	5M
		(OR)	
8.	a)	Define Queue? Explain various types of Queues? Explain various operations of Queue?	5M
	b)	Explain the implementation of Queues using Linked lists?	5M
		UNIT-V	
9.	a)	Define Binary Tree. Write and explain the structure required for a binary tree node.	5M
	b)	What is Binary Search Tree? Draw a BST for the following keys 43, 75, 19, 36, 8, 62, 49, 84, 12, 18, 29.	5M
		(OR)	
10.	a)	Write the differences between Binary Tree and Complete Binary Tree?	5M
	b)	Write a short note on balanced tree AVL Tree?	5M
		UNIT-VI	
11.	a)	Define Graph. Write various graph representation techniques.	5M
	b)	Explain the implementation of DFS with an example?	5M
		(OR)	
12.	a)	Explain the implementation of BFS with an example?	5M
	b)	Explain about Single Source shortest path algorithm in detail?	5M

AR18

CODE: 18HST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August-2022

ENGLISH

(Common to ECE & EEE Branches)

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) What is the summary of "Father's Help" by R.K Narayan? **6M**
   b) Form words for the following roots and provide its meaning. **6M**
   i) Somni ii) Aqua iii) Geo iv) Corp
   v) Klept vi) Cide

(OR)

2. a) What excuse does Swami make to his mother about not going to school? What is mother's response to Swami's condition? **6M**
   b) Give one word substitutes for the following. **6M**
   i. One who deserts one's religion
   ii. One who eats indiscriminately and in large quantities.
   iii. Deliberate suffering for one's sins.
   iv. Someone who travels with devotion to a sacred place.
   v. Someone who loves collecting stamps.
   vi. A person who believes in God. .

UNIT-II

3. a) Teachers can either 'make' or 'break' their students' lives. Cite two incidents from 'My Childhood' in justification to the statement. **6M**
   b) Change the degree of comparison without changing the meaning. **6M**
   i. Malacca is the oldest town in Malaysia. (in to Positive degree)
   ii. Peter is cleverer than any other boy in the class. (in to Superlative degree)
   iii. Jupiter is the biggest of all planets. (in to Comparative degree)
   iv. Very few boys are as industrious as John. (in to Comparative degree)
   v. India is the largest democracy in the world. (in to Positive degree)
   vi. Shakespeare was greater than any other playwright. (in to Superlative degree)

(OR)

4. a) What does Abdul Kalam say about his parents in the lesson 'My Chilhood'? **6M**

   b) Fill in the blanks with an appropriate tense form. **6M**

   i. When I opened my eyes, I …… (see) a strange sight.
   ii. Every morning she …… (wake) up early and gets ready for work.
   iii. I …… (hear) anything from her in a long time.
   iv. The headmaster …… (want) to talk to you.
   v. Jane …… (live) with her parents.
   vi. We .....(visit) Greece next month.

UNIT-III

5. a) In his essay "Politics and the English Language," how does George Orwell himself use rhetorically effective similes and metaphors? **6M**

   b) Write appropriate pronouns in the blanks of the following sentences.. **6M**

   i. Someone seems to have forgotten ----------library card at the counter.
   ii. In India, -----don't get to learn phonetic symbols ay school level.
   iii. Needless to say that the pleasure is entirely ----------!
   iv. Everybody appears to have packed -------suitcases.
   v. All of us have decided to withdraw --------- application from the office.
   vi. If anyone needs to consult the doctor ------can first register at the counter.

(OR)

6. a) According to Orwell in his essay "Politics and the English Language," why do people use hackneyed imagery and prefabricated phrases? **6M**

   b) Complete the following sentences using a, an (or) the. In some cases, no articles are needed. **6M**

   i. If you are really hungry, you can eat ---- apple.
   ii. She went on to become ----- successful playback singer.
   iii. ------ library on the corner has an amazing collection of story books.
   iv. I don't speak ------Hindi very well.
   v. She is ------ prettiest girl I have ever seen.
   vi. --------- is complicated.

UNIT-IV

7. a) How did Tagore depict Raghupati as the embodiment of evil in his work 'Sacrifice'? **6M**

   b) You want to buy a book from the Kalka Publications, which is situated at Kanchan Bazar, Hyderabad, Andhra Pradesh, 500030. Write a letter indicating your requirements. **6M**

(OR)

8. a) Examine different Kinds of Sacrifice in Tagore's Sacrifice'. **6M**

   b) Assume that recently you have purchased a dishwasher from Modern Electrical Equipments, Bhopal. The appliance has not performed up to your expectations. Draft an email informing the company about the cause of your dissatisfaction and seek an appropriate replacement/claim in this regard. **6M**

UNIT-V

9. a) Analyze "Stopping by Woods on a Snowy Evening" by Robert Frost. **6M**

   b) Write a précis for the following passage and also suggest a suitable title. **6M**

   Discipline is of the utmost importance in student life. If the young students do not obey their superiors and go without discipline, they will be deprive do much of the training they should have at this period and in future they will never be able to extract obedience from other sin the society. Society will never accept them as persons fit for commanding and taking up any responsible positions in life. So it is the bounder. Duty of all the students to observe discipline in the preparatory stage of their life. A college without discipline can never impart suitable education to students. The rule of discipline in the playground and the battle field as well plays a very important role. A team without discipline may not fare well in spite of good players for want of mutual understanding and cooperation. In any army everyone from the rank of the general down to the ranks of an ordinary soldier must observe discipline. In case a soldier does not obey his immediate superior the army becomes a rabble quite unfit for the achievement of the common ends of war. At first sight it may appear to us that discipline takes away individual liberty. But on analysis it is found that it does not do so, for liberty is not license. We find disciplined liberty at the root of all kinds of human happiness.

(OR)

10. a) How does Robert Frost use imagery in Stopping by Woods on a Snowy Evening? **6M**

    b) Write an essay on "The Menace of Drug Addiction" **6M**

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AR18

CODE: 18CST101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, August-2022

DATA STRUCTURES AND ALGORITHMS

(Common to CSE, IT Branches)

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)	Define the term data structure. Differentiate between Linear and Non-linear data structures.	6M
	b)	Explain insertion and deletion Operations performed on Data Structures.	6M
		(OR)	
2.	a)	Explain about different Asymptotic Notations.	6M
	b)	Define Time & Space Complexities. Explain the procedure to determine the Time Complexity for a given algorithm.	6M

UNIT-II

3.	a)	Explain Binary Search Technique and derive its Time Complexity.	6M
	b)	Write the Algorithm for Merge sort and derive its Time Complexity.	6M
		(OR)	
4.	a)	Discuss any two hash functions.	6M
	b)	Explain collision resolution techniques.	6M

UNIT-III

5.	a)	Explain PUSH & POP operations of stacks.	6M
	b)	Explain in detail the applications of stacks.	6M
		(OR)	
6.	a)	What is a queue? Explain different types of queue.	6M
	b)	Explain the operations performed on Circular Queue.	6M

UNIT-IV

7.	a)	Define Linked List. Explain about insertion and Deletion in Linked list.	6M
	b)	Discuss about array and linked representation of a stack.	6M
		(OR)	
8.	a)	Differentiate singly linked list and doubly linked list.	6M
	b)	Explain the insertion operation in a Circular Linked List.	6M

UNIT-V

9.	a)	Define Binary Tree. What are the traversals performed on binary trees?	6M
	b)	Discuss in detail about B+ Trees.	6M
		(OR)	
10.	a)	Explain Basic Terminologies and Representations of Graph.	6M
	b)	Write and explain Depth First Search algorithm for graphs.	6M

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AR16

CODE: 16CE4036 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, August-2022

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)	Derive 3-D differential equation governing ground water flow and also mention the assumptions made while deriving it.	7M
	b)	Discuss about vertical distribution of ground water with a neat sketch.	7M
		(OR)	
2.	a)	Explain ground water hydrologic cycle.	7M
	b)	Why ground water flow contours are prepared and mention their applications.	7M

UNIT-II

3.	a)	Derive the expression for discharge for steady radial flow into a well fully penetrated in a confined aquifer.	7M
	b)	What is recuperation and derive the expression for discharge from open well by recuperation test?	7M
		(OR)	
4.	a)	Explain Dupit's and Theism's equations and also mention the assumptions made for the ground water analysis.	7M
	b)	Derive the non-equilibrium equation for ground water flow for unsteady case.	7M

UNIT-III

5.	a)	What is aerial photogrammetry and discuss its applications in sub-surface investigation for ground water?	7M
	b)	Discuss in detail about Geophysical logging method of ground water exploration.	7M
		(OR)	
6.	a)	Explain a case study on groundwater investigation by subsurface methods.	7M
	b)	Discuss in detail about Electrical resistivity method of ground water exploration.	7M

UNIT-IV

7.	a)	Explain the concept of Artificial Recharge of ground water and also mention various methods of Artificial Recharge.	7M
	b)	What is Remote sensing and GIS and explain applications of these methods in Artificial Recharge of Ground water?	7M
		(OR)	
8.	a)	Explain various methods of Artificial Recharge of ground water with neat sketches.	7M
	b)	Discuss any two case studies of Artificial Recharge of ground water by RS & GIS.	7M

UNIT-V

9.	a)	Explain various factors affecting saline water intrusion into aquifers.	7M
	b)	Discuss about ground water basin management with case studies.	7M
		(OR)	
10.	a)	Derive Ghyben-Herzberg relation between fresh and saline water with neat sketch.	7M
	b)	Discuss about step by step studies to be made and data to be collected for ground water basin management.	7M