AR20

CODE: 20CET101 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, October, 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) Explain clearly the principle of chain surveying. 5M
   b) Explain the following terms 5M
   (i) Representative fraction. (ii) Scale of plan. (iii) Graphical scale.

(OR)

2. a) Discuss in brief the principles of surveying. 5M
   b) Differentiate clearly between plane and geodetic surveying. 5M

UNIT-II

3. a) What is local attraction? How is it detected and eliminated? 3M
   b) Below are the bearings observed in a traverse survey conducted with a prismatic compass at a place where local attraction was suspected? 7M

Line	Fore Bearing	Back Bearing
PQ	124° 30′	304° 30′
QR	68° 15′	246° 00′
RS	310° 30′	138° 15′
SP	200° 15′	17° 45′

At what stations do you suspect local attraction? Find the corrected bearings of the lines.

(OR)

4. a) What is local attraction? How is it detected and eliminated? 3M
   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. 7M

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

UNIT-III

5. a) Describe the 'height of instrument' and 'rise and fall' methods of computing the levels. Discuss the merits and demerits of each. 3M
   b) The following staff readings were observed successively with level, the instrument having been moved forward after the second, fourth and eighth readings: 7M
   0.815, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.815, 2.030, 3.765.
   The first reading was Ween with the staff held upon a benchmark of elevation 132.135. Enter the readings in level book-form· and reduce the levels. Apply the usual checks. Find also the difference in level between the first and the last points.

(OR)

6.	a)	Discuss various methods of interpolating the contours.	5M
	b)	Describe with the help of sketches the characteristics of contours.	5M

UNIT-IV

7.	a)	Define the terms: face right and face left observations: swinging the telescope; transiting the telescope; telescope normal.	5M
	b)	Discuss the fundamentals of total station and GPS.	5M
		(OR)	
8.	a)	Discuss the principle of theodolite survey and principle of tachometry.	5M
	b)	Explain the methods of setting out a simple curve.	5M

UNIT-V

9.	a)	Discuss the perspective geometry of aerial photograph	5M
	b)	Write short on flight planning and Stereoscopy	5M
		(OR)	
10.	a)	Explain the terrestrial photogrammetric surveying?	5M
	b)	Fundamental principle of Photogrammetric and how it is used in the field of mapping surveying.	5M

UNIT-VI

11.	a)	Write a short note on remote sensing data acquisition.	5M
	b)	Write a short note on Electromagnetic Spectrum.	5M
		(OR)	
12.	a)	Describe about electromagnetic spectrum with neat sketch.	5M
	b)	Write a short note on GIS.	5M

AR20

CODE: 20HST101 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, October, 2022

ENGLISH

(Common to EEE & ECE)

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) Write about the need of understanding between parents and children. 5 M

   b) Substitute the given phrase(s) with correct **one-word(s)**: 5 M
   i) A place where convicts are kept
   ii) Killing animals is called
   iii) Fear of water is called
   iv) One who wants to see others unhappy
   v) One who write books is called

(OR)

2. a) Describe the character of Swami and his actions towards his responsibilities from 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. custom	**2. utter**	**3. resolve**	**4. negligible**	**5. reside**
a. dessert	a. express	a. turn	a. insignificant	a. remain
b. habit	b. defer	b. puzzle	b. arguable	b. home
c. ethic	c. borrow	c. decide	c. careless	c. dwell
d. deliver	d. laugh	d. want	d. dark	d. sediment

UNIT-II

3. a) Illustrate how the childhood of Abdul Kalam prepared him to become a successful personality. 5 M

   b) Convert and rewrite the following statements into present perfect continuous yes or no questions (without 'wh' words). First person statements should become second person questions. 5 M

   i) I haven't been practising hard enough.
   ii) We have been making too much noise.
   iii) She has been swimming in the lake.
   iv) No one has watered the plants.
   v) They have been waiting for a long time.

(OR)

4. a) What characteristics does Dr. Kalam say that he inherited from his parents? 5 M

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

i) If I (be) _____ rich, my life (change) _____ completely.
ii) I (invite) _____ all my friends if (have) _____ a house by the beach.
iii) If we (have) _____ a yacht, we (sail) _____ the seven seas.
iv) If they (tell) _____ their father, he (be) _____ very angry.
v) We (help) _____ you if we (know) _____ how.

UNIT-III

5. a) How can you relate *The Road Not Taken* to Decision Making and Problem Solving skills? 5 M

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

1. Maharshi said, "He has never written to me before."
2. My father said, "Go to your room and stay there."
3. He asked me, "Are you alright?
4. The students said, "Please don't give us any homework.
5. She said, "I'm very tired and can't come with you.

(OR)

6. a) Distinguish different perspectives discussed in the poem – The Road Not Taken. 5 M

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

1. He could not win a scholarship due to his carelessness.
2. If you do not leave this room, I will compel you to do so.
3. Feeling satisfied with his work, the Principal offered a permanent job.
4. The sun having risen, the fog disappeared.
5. You must run very fast to win the race.

UNIT-IV

7. a) What is the lesson 'Polit ics and the English Language' about? 5 M

b) Fill in blanks with appropriate prepositions: 5 M

i) I picked up the laptop and _____ my surprise it fell apart in my hands.
ii) Rani has a lot _____ common with her cousin. They both like many of the same things.
iii) If the baby starts to cry, pick her up _____ once.
iv) Did you forget your purse _____ purpose so you wouldn't have to pay?
v) It's best to arrive _____ foot, because there is nowhere to park.

(OR)

8. a) "When the general atmosphere is bad, language must suffer." Illustrate the statement with real-life examples. 5 M

b) Read and punctuate the given paragraph. 5 M

When I was a little boy in elementary school / the neighbourhood kids and I all looked forward to playing so many games in my backyard during the long summer holidays between grades. / for instance, one of our favourite games was whiffle ball, a kid / s version of baseball. All we needed was a cheap plastic bat and a cheap plastic ball and we could entertain ourselves in the backyard from morning to afternoon. Or if we broke the bat or lost the ball, we would play / Red Rover, Red Rover." / to play this game, we would join hands in two opposing lines and hurl ourselves at the locked wrists of the opposing team, trying to break through their line.

UNIT-V

9. a) J.B.Priestly's 'Mother's Day' is a humorous play. Illustrate. 5 M

b) Write a letter to the Training and Placement Officer of your University requesting him/her to conduct a workshop on 'How to develop Soft Skills in the campus?' 5M

(OR)

10. a) Describe Mrs. Pearson's changed personality and attitude. 5 M

b) Draft an email to the Principal of your college seeking permission to go on an education tour to the neighbouring villages to educate the young minds. 5 M

UNIT-VI

11. a) Chipko as the Eco-Feminist Movement – Illustrate. 5 M

b) Read the given text and answer the questions. 5 M

You've searched all over the house but you still can't find your keys and
You're late. (i) ..... (so/if/not) this sounds familiar, follow this advice to make sure it never happens again. Stop and think about where to start looking. Don't start searching'
(ii).....(without/with/with clear) any idea of where the lost item could (iii) ..... (is/are/be). "Lost items are often in the place they should be. Have a look in the place where it's supposed to be first. Someone might (iv) ..... (had/has/have) put it away for you.
Relax and take another look. When you're in (v) ..... (a/an/the) agitated state of mind, it's quite possible to see the item you've lost but not noticed it. Take a deep breath and look properly.

(OR)

12. a) 'The Chipko struggle is a struggle to recover the hidden and invisible productivity of vital resources'. Explain. 5 M

b) Write an essay in about 250-300 words on '21st Century's Employability Skills'. 5 M

AR20

CODE: 20MET101 **SET.2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech II Semester Supplementary Examinations, October, 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) Differentiate i) Heat and work ii) Thermal equilibrium and thermodynamic equlibrium 4M
   b) Explain Zeroth law of thermodynamics and concept of temperature. 6M

(OR)

2. a. What is Quasi static process 3M
   b.To a closed system 150 kJ of work is supplied. If the initial volume is 0.6 m^3 and pressure of the system changes as p = 8 – 4V, where P is in bar and V is in m^3, determine the final volume and pressure of the system 7M

UNIT-II

3. One kg of air is expanded at a constant pressure of 2.5 bar from a volume of 0.3 m^3 to a volume of 0.45 m^3. Find 10M
   i) external work done by the gas.
   ii) change in internal energy of the gas
   iii) heat transferred during the process.
   Assume R = 287 J/kg K, Cv = 0.72 kJ/kg K and Cp=1.005 kJ/kg K for air.

(OR)

4. Deduce the steady-flow energy equation for steam turbine and nozzle with schematic diagrams 10M

UNIT-III

5 .a What is PMM-II. Why is not possible. 4M
   b.Show that COP of a heat pump is greater than COP of a refrigerator by unity 6M

(OR)

6. State Kelvin planck and Classius statement and prove that they are equivalent 10M

UNIT-IV

7. a) Define reversible work and irreversiblity. 4M
   b) An insulated piston–cylinder device contains 2 L of saturated liquid water at a constant pressure of 150 kPa. An electric resistance heater inside the cylinder is turned on, and electrical work is done on the water in the amount of 2200 kJ. Assuming the surroundings to be at 25°C and 100 kPa, determine (i) the minimum work with which this process could be accomplished and (ii) the exergy destroyed during this process. 6M

(OR)

8. a) Derive an expression for availability in non flow system.. 4M
   b) A freezer is maintained at 20°F by removing heat from it at a rate of 75 Btu/min. The power input to the freezer is 0.70 hp, and the surrounding air is at 75°F. Determine (i) the reversible power, and (ii) the irreversibility. 6M

UNIT-V

9. Derive the first and second T-ds equations 10M

(OR)

10. Using the Maxwell's relations, determine a relation for $(\partial s/\partial P)_T$ for a gas whose equations of state is $(P-a/V^2)(V-b)=RT$. 10M

UNIT-VI

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

(OR)

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

AR20

CODE: 20CST101 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, October, 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 classification of Data Structure?	5M
	b)	What are the Asymptotic notations used for calculating space and time complexity?	5M
		(OR)	
2.	a)	Differentiate between Iterative and Recursive Functions?	5M
	b)	Write a program to implement Towers of Hanoi using recursion?	5M
		UNIT-II	
3.	a)	Write a program to search an element using Linear Search and analyse time complexity?	5M
	b)	Write an algorithm for Insertion sort and explain with an example?	5M
		(OR)	
4.	a)	Define Collision? What are the various Collision Resolution Techniques? Explain briefly?	5M
	b)	Write an algorithm for Quick sort and explain with an example?	5M
		UNIT-III	
5.	a)	Define Linked List? Explain classification of Linked list and its operations briefly?	5M
	b)	Write an algorithm for Deleting elements into the Single Linked Lists at the beginning and end.	5M
		(OR)	
6.	a)	Write a short note on Circular Linked lists?	5M
	b)	Explain Insertion operation performed on Double Linked Lists?	5M
		UNIT-IV	
7.	a)	Write an algorithm for Evaluation of Postfix Expression?	5M
	b)	Convert the given infix expression to postfix expression ((A+((B^C)-D)) *(E-(A/C)))	5M
		(OR)	
8.	a)	Write algorithms for ENQUEUE and DEQUEUE operations on Queue?	5M
	b)	Explain the implementation of stack using Linked lists?	5M
		UNIT-V	
9.	a)	Define Binary Tree? Explain binary tree traversals with an example?	5M
	b)	Explain in detail about Binary Search Tree operations insert and delete with an example?	5M
		(OR)	
10.	a)	Write the differences between Full Binary Tree and Complete Binary Tree?	5M
	b)	Write a short note on balanced tree B-Tree?	5M
		UNIT-VI	
11.	a)	Explain about Single Source shortest path algorithm in detail?	5M
	b)	Explain the implementation of BFS with an example?	5M
		(OR)	
12.	a)	Define Graph? Write a short note on Graph Representations?	5M
	b)	Explain the implementation of DFS with an example?	5M

AR18

CODE: 18HST101 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, October, 2022

ENGLISH

(Common to EEE, ME, 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) Swami speaks about different modes of punishment at school. Do you think Samuel punishes boys like that? State reasons to justify your answer. 6M

   b) Write the meaning of the prefix and give one example word each 6M

   i. Mono ii. anti iii.mis iv.post

   Give antonyms for the following words:

   v. Responsible vi. intolerance

(OR)

2. a) Discuss the reasons for Swami's unwillingness to go to school with reference to RK Narayan's story- "Father's Help" 6M

   b) Use the following idioms in your own sentences: 6M

   i. Crocodile tears
   ii. Break the ice
   iii. Burn the mid night oil
   iv. A feather in one's cap

   Write abbreviations for the following:

   v. BCC vi. ASAP

UNIT-II

3. a) Give a brief account on some of the influences in Abdul Kalam's early life. 6M

   b) Convert the following expressions into reported speech. 6M

   i. He said to me, "who are you?"
   ii. I said to Ram, "Please send your pen."
   iii. He says," Today is a holiday"
   iv. Mother says to children, "Go away immediately".

   Change degrees of following expressions into the degrees as directed in brackets.

   v. Manju is wiser than her sister. (positive)
   vi. It is the greatest novel. (Comparative) :

(OR)

4. a) How did Hindus and Muslims maintain the relation in Rameswaram according to Abdul Kalam? 6M

   b) Transform the following expressions into passive voice: 6M

      i. Someone left the wallet in the classroom yesterday.
      ii. We are building over 1000 new houses every year
      iii. I can't repair your clock
      iv. We have warned you

      Supply suitable verb forms in the conditional sentences start with If.

      v. If it is fine tomorrow, we -----(go) for a walk in the evening
      vi. If i -----(present) well in the exam, i would pass easily.

UNIT-III

5. a) According to George Orwell's observation, most people believe that language grows organically and it is not an instrument shaped according to one's needs. Do you agree with this statement? Justify your answer by using examples from the text. 6M

   b) Re write the following sentences avoiding redundancy: 6M

      i. Our top student is a physically ill student today.
      ii. I will complete my research paper in a period of a week.
      iii. Pavan's stylish boots, made of crocodile skin, cost him an arm and a leg.
      iv. Sarma is the teacher who teaches chemistry at her high school.
      v. The book, which is located on the table, is a grammar book.
      vi. Her purse, which was manufactured in Italy, was stolen yesterday.

(OR)

6. a) Discuss three expressions and their meanings that George Orwell wishes to stop usage. 6M

   b) Choose the appropriate Modifiers to fill the blanks 6M

      i. Brush your teeth ------(good, well) after eating sweets
      ii. Ralph's plan sounded -------(foolish, foolishly) to most of the members.
      iii. Do you consider math or algebra----- (harder, hardest)?
      iv. I thought that his flute sounded------ (terribly, terrible).
      v. The new rules are------- (stricter, more stricter) than the old ones
      vi. It was the ------(most delightful, delightfullest) trip I have ever taken.

UNIT-IV

7. a) Prepare a brief note on the main characters of the play *Sacrifice*? 6M

   b) Write a letter to police authorities to arrange a traffic post in order to control the surging traffic during evenings in the junction nearby your locality. 6M

(OR)

8. a) Do you think the play *Sacrifice* is based on reality? If Yes / No, Why? 6M

   b) Draft an email to your friend describing your recent visit of school you studied together. 6M

UNIT-V

9. a) "Woods are lovely dark and deep- But I have promises to keep- Miles to go before I sleep"- Explain the message conveyed by Robert Frost through these lines. 6M

   b) Read the following passage and answer the questions: 6M

Floods are second only to fire as the most common of all natural disasters. They occur almost everywhere in the world, resulting in widespread damage and even death. Consequently, scientists have long tried to perfect their ability to predict floods. So far, the best that scientists can do is to recognize the potential for flooding in certain conditions. There are a number of conditions, from deep snow on the ground to human error, that cause flooding.

When deep snow melts it creates a large amount of water. Although deep snow alone rarely causes floods, when it occurs together with heavy rain and sudden warmer weather it can lead to serious flooding. If there is a fast snow melt on top of frozen or very wet ground, flooding is more likely to occur than when the ground is not frozen. Frozen ground or ground that is very wet and already saturated with water cannot absorb the additional water created by the melting snow. Melting snow also contributes to high water levels in rivers and streams. Whenever rivers are already at their full capacity of water, heavy rains will result in the rivers overflowing and flooding the surrounding land.

Rivers that are covered in ice can also lead to flooding. When ice begins to melt, the surface of the ice cracks and breaks into large pieces. These pieces of ice move and float down the river. They can form a dam in the river, causing the water behind the dam to rise and flood the land upstream. If the dam breaks suddenly, then the large amount of water held behind the dam can flood the areas downstream too.

Broken ice dams are not the only dam problems that can cause flooding. When a large human-made dam breaks or fails to hold the water collected behind it, the results can be devastating. Dams contain such huge amounts of water behind them that when sudden breaks occur, the destructive force of the water is like a great tidal wave. Unleashed dam waters can travel tens of kilometres, cover the ground in metres of mud and debris, and drown and crush everything and creature in their path.

Although scientists cannot always predict exactly when floods will occur, they do know a great deal about when floods are likely, or probably, going to occur. Deep snow, ice-covered rivers, and weak dams are all strong conditions for potential flooding. Hopefully, this knowledge of why floods happen can help us reduce the damage they cause.

i. What do you mean by the word 'unleashed'? 1M
ii. List the strong conditions that lead to potential flooding. 1M
iii. Find out a word from the passage which is synonym of 'forecast'.1M
iv. Explain how melting snow results in floods. 2M
v. What is compared to the effect of tidal wave in the given passage?1M

(OR)

10. a) How does Robert Frost relates human life in his poem "Stopping by Woods on a Snowy Evening" . 6M

b) Present your views in the form of an essay on "Participation in games and sports leads to holistic development of one's personality" 6M

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AR18

CODE: 18CST101 SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I B.Tech II Semester Supplementary Examinations, October, 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)	Explain in detail about the elementary data organizations.	4M
	b)	Explain various operations performed on Data Structures.	8M
		(OR)	
2.	a)	Define Time & Space Complexities. Explain the procedure to determine the Space Complexity for a given algorithm.	6M
	b)	Explain in detail Asymptotic Notations.	6M

UNIT-II

3.	a)	Explain Linear Search Technique and derive its Time Complexity.	6M
	b)	Explain Quick Sort and derive its Time Complexity.	6M
		(OR)	
4.	a)	Discuss any two hash functions.	6M
	b)	Compare Merge Sort and Quick Sort based on method of dividing and conquering.	6M

UNIT-III

5.	a)	Define a stack. Describe the stack ADT.	6M
	b)	Explain different operations performed on stacks.	6M
		(OR)	
6.	a)	Write an algorithm to convert an infix expression into postfix notation.	6M
	b)	Explain the operations performed on Circular Queue.	6M

UNIT-IV

7.	a)	Discuss about linked representation of a queue.	6M
	b)	Define double linked list. Explain how to insert and delete an element at the end of the list.	6M
		(OR)	
8.	a)	Explain the deletion operation in a Circular Linked List.	6M
	b)	Discuss about Double Linked Linear List.	6M

UNIT-V

9.	a)	Define Binary Tree. Explain different Tree Traversals?	6M
	b)	What is AVL? Write the properties and applications of AVL Trees?	6M
		(OR)	
10.	a)	Explain various graph representation techniques with examples.	6M
	b)	Discuss any one Traversal algorithms in Graphs.	6M

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