AR13 **Set 01**

Code: 13CE2002

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Regular / Supplementary Examinations, December, 2015

SURVEYING
(CIVIL ENGINEERING)

Time: 3 hours **Max. Marks: 70**

PART – A

Answer all Questions **[10X1=10M]**

1. a) List the classification of surveying based on instruments used?
   b) What are the different sources of errors?
   c) Define level line?
   d) Define contour interval?
   e) Define Line of collimation?
   f) What are the main parts of a theodolite?
   g) State trapezoidal rule?
   h) The prismoidal formula for determination of volume is given as-------
   i) Define tangent distance?
   j) Define simple curve?

PART – B

Answer one question from each unit **[5 x 12 = 60 M]**

UNIT-I

2. A steel tape of nominal length 30m was used to measure a line AB by suspending it between supports. If the measured length was 29.681m when the slope angle was $3^0 45'$ and the mean temperature and tension applied were respectively 10^0C and 100N, determine the corrected horizontal length. The standard length of the tape was 30.004m at 20^0C and 44.5N tension. The tape weighted 0.16min and had a cross sectional area of 2 sq.mm Take $E=2x10^5$ N/mm^2, $\alpha=1.12x10^{-5}$perC. [12M]

(OR)

3. Explain different types of bearings in Compass Surveying with neat sketch [12M]

UNIT-II

4. The following readings were observed successively with a levelling instrument. The instrument was shifted after fifth and eleventh readings.0.585,1.010,1.735,3.295,3.775,0.350,1.300,1.795,2.575,3.375,3.895,1.735,0.635, 1.605 Determine the R.L. of various points if the R.L. of the point on which the first reading was taken as 136.440. Use Rise and fall method. [12M]

(OR)

5. Explain the indirect methods of contouring? [12M]

UNIT-III

6. Explain the procedure for determination of horizontal angle by Repetition method? [12M]

(OR)

7. The following observations were made on a vertically held staff with a tacheometer set up at an a intermediate point on a straight line CD

Staff Station	Vertical Angle	Staff intercept(m)	Axial Hair Reading(m)
C	$+8^0 36'$	2.880	2.505
D	$-8^0 36'$	1.655	2.850

The instrument was fitted with an anallatic lens and had a constant 100.Complete the length and the R.L. of D1 given that C has a reduced level of 527.63m [12M]

UNIT-IV

8 The following perpendicular offsets were taken at 5m intervals from Traverse line to an irregular boundary line 2.10,3.15,4.50,3.60,4.58,7.85,6.45,4.65,3.14m.Compute the area enclosed between the traverse line and the irregular boundary from the first to the last offset by a) Average ordinate rule b)Trapezoidal rule [12M]

(OR)

9. The areas enclosed by various contours are given below

Contour(m)	100	105	110	115	120	125
Area(ha)	3	8	10	15	20	25

Determine a) capacity of the reservoir if the full reservoir level is 125.00

b) The elevation of the water surface when the reservoir is half-full [12M]

UNIT-V

10. Explain the two theodolite method for setting out curve? [12M]

(OR)

11. A simple Circular curve has a radius of 300m and a long chord of length 120m.Calculate offsets to the curve from the long chord at 10m intervals. [12M]

AR 13

Code:13EE2004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Regular / Supplementary Examinations, December, 2015

ELECTRICAL CIRCUIT ANALYSIS – I
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time:3 Hours **Max Marks:70**
Answer all Questions **[1 x 10=10M]**

PART – A

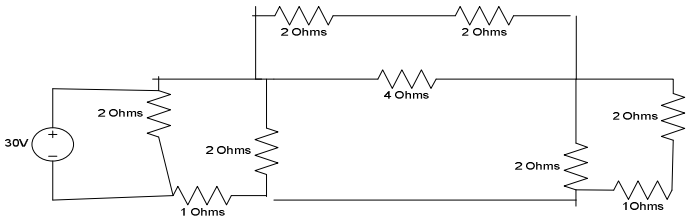
1) (a) Define "KVL"
(b) What is Super Node?
(c) Define Resonance
(d) If a network contains B branches and N nodes, then the number of mesh current equation would be
(e) Superposition theorem is valid only for
(f) Nortons Equivalent circuit consists of
(g) Maximum power is transferred when load impedance is
(h) Which parameters are widely used in transmission line theory?
(i) What is the total reactance of a series RLC Circuit at resonance?
(j) Number of terminals in 'n' port network

PART B

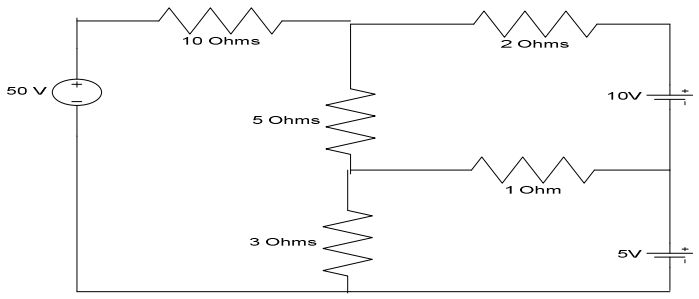
Answer one Question from each unit **[5 x 12=60M]**

UNIT 1

2. a) Determine the current delivered by the source in the given circuit



b) Determine the current in the 3 ohms resistor in the given circuit using mesh analysis



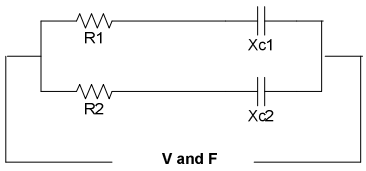
(OR)

AR 13

Code:13EE2004 **SET-1**

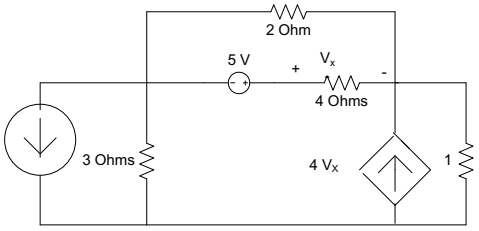
3 a) A voltage V(t) 10Sin Wt is applied to a series RLC Circuit. At resonant frequency of the circuit, the maximum voltage across the capacitors is found to be 500 V more over the band width is known to be 400 Rad/Sec and impedance of resonance is 100 Ohms , find the resonant frequency, and also find L and C of the circuit.

b) Draw the locus diagram of I_1 and Supply Current for the given parallel circuit where Xc2 is Variable



UNIT II

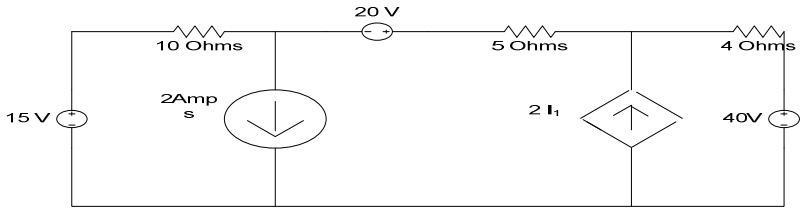
4.a) Find the voltage across the 4 Ohms resistor by using nodal analysis, the given current Source value is 5 A



b) Write the Properties of a tie set and cutest matrix

(OR)

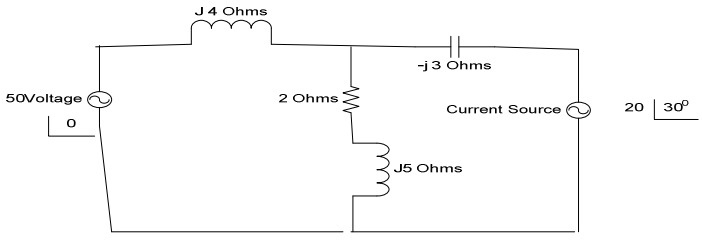
5.a) For the given circuit find the current through the 10 Ohms by using mesh analysis



b) Describe about Dual network, explain the procedure with an example

UNIT III

6.a) Determine the voltage across (2+j5) Ohms impedance as shown in the given circuit by super position theorem



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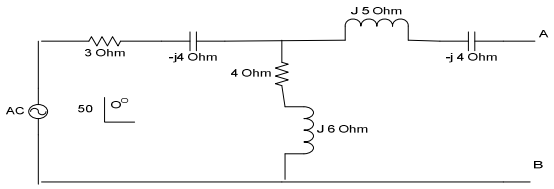
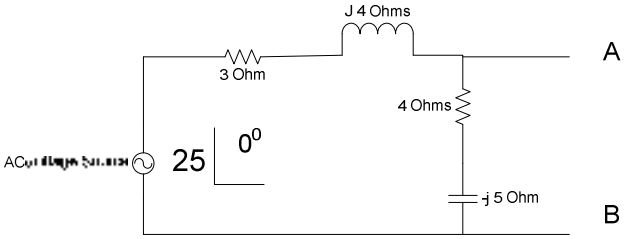
Code:13EE2004 **SET-1**

b) for the given circuit determine the thevenins equivalent circuit Between the terminals AB



(OR)

7.a) For the Circuit determine the Norton's equivalent circuit between the terminals AB

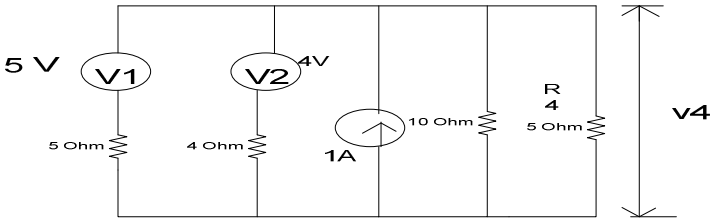


b) State and Explain Reciprocity Theorem and verify this by an example

UNIT IV

8 .a) State the maximum power transfer theorem? Derive Expression for Maximum Power for a given AC Source

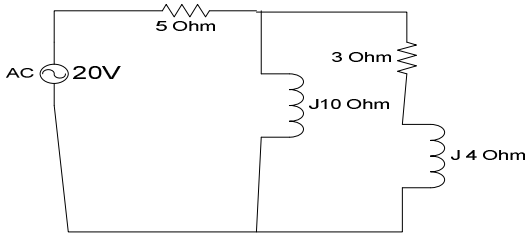
b) Using Millmans theorem find the current and voltage in resistor 5 Ohms or (V4)in the given circuit



(OR)

9.a) State telleganes theorem and derive the expression for that

b) In the network shown replace the parallel combination of j10 and 3+j4 impedances with the compensating source



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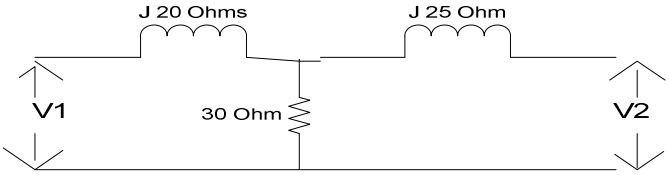
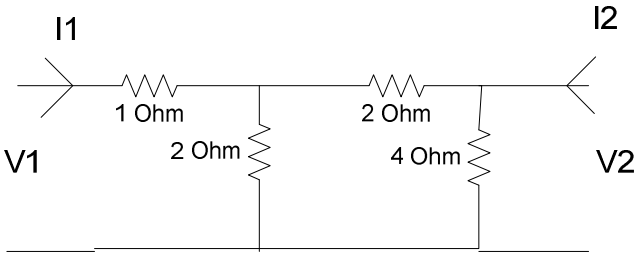
Code:13EE2004 **SET-1**

UNIT-V

10.a) Determine the Z parameters of the given network



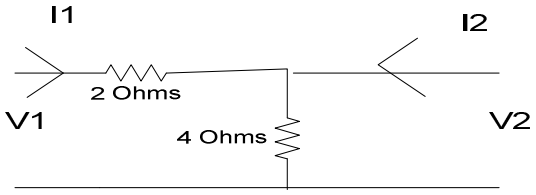
b) Find out H parameters of the network



(OR)

11a) what is meant by ABCD parameters and Obtain ABCD parameters in terms of Y parameters

b) Find H Parameters for the given circuit



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AR13

Code: 13ME2005 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Regular / Supplementary Examinations, December, 2015

PRODUCTION TECHNOLOGY

(MECHANICAL ENGINEERIG)

Time: 3 hours **Max. Marks: 70**

PART-A

Answer all questions **[10 x 1 = 10 M]**

1. a) What is a pattern?
   b) What is the purpose of a riser?
   c) Distinguish between brazing and soldering.
   d) What is the principle of gas cutting?
   e) What is meant by spring back?
   f) By what property a metal can be drawn into wire?
   g) Name the standard forms of metal supply
   h) What is a roll forging operation?
   i) By what welding process thick boiler shells are fabricated?
   j) When do you say the deformation is high energy rate forming?

PART – B

Answer one question from each Unit **[5 x 12 = 60 M]**

UNIT – I

2. (a) Explain any six properties of molding sand.
   (b) Write about any six types of patterns with sketches.

(OR)

3. (a) What is the ideal shape of a riser? Would it be possible to realize it? Justify your answer.
   (b) With a neat sketch describe various elements of a Gating system.

UNIT – II

4. (a) Explain Plasma arc welding with neat sketch?
   (b) Describe the characteristics of three types of flames used in oxy-acetylene welding.

(OR)

5. (a) Explain the principle of spot welding with neat sketch?
   (b) Discuss various welding defects.

Code: 13ME2005 **SET-1**

UNIT – III

6. (a) Why is it undesirable to minimize friction between the workpiece and tooling in a rolling operation?
   (b) Discuss the merits and demerits of cold rolling.

(OR)

7. (a) With the help of sketches explain the difference between blanking and piercing Operations.
   (b)Describe a metal forming process used to manufacture the nose cone of a missile with a neat sketch.

UNIT – IV

8. (a) Explain the process of upset forging with a neat sketch.
   (b) Explain the process of extrusion with neat sketches?

(OR)

9. (a) Explain the phenomenon of spring back and how do you compensate it during sheet metal forming?
   (b) Explain process of cup drawing operation with neat sketch? What are the defects, that may reflect in the work piece during this process.

UNIT- V

10. (a) Explain explosive forming with neat sketch?
    (b) What are the advantages of high energy rate forming.

(OR)

11. (a) Distinguish between thermosetting and thermoplastics.
    (b) Name the parts of a typical passenger car, where plastics are being used.

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AR13

CODE: 13EC2004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Regular / Supplementary Examinations, December, 2015

SIGNALS AND SYSTEMS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 hours **Max. Marks: 70**

PART – A

Answer all questions **[10 x1=10M]**

1. a) Define periodic signal and non periodic signal.
   b) Define unit pulse function.
   c) Write down the trigonometric form of the fourier series representation of a periodic signal?
   d) Write the dirichlets conditions for Fourier transform.
   e) Define time invariant system..
   f) What is poly wiener criterion and give the condition for causality.
   g) How the aliasing process is eliminate?
   h) State Convolution property..
   i) State the Region of convergence of the laplace transform..
   j) What are the types of laplace transform?

PART – B

Answer one question from each unit **[5 x 12=60M]**

UNIT-I

2. a) Explain about complex exponential function and show that the complex exponential functions are orthogonal functions.
   b) Derive the relation between unit step function and signum function along with their appropriate definitions. [6M + 6 M]

(OR)

3. a) Verify the orthogonality of the following functions: $S_1(t) = 1$ and $S_2(t) = c(1-2t)$ in the interval [0 1].
   b) Find whether the following signals are even or odd
   i)$x(n) = \sin(-2\pi n)$ (ii $x(n) = \cos(2\pi n)$ [6M + 6 M]

UNIT-II

4. a) Find the exponential Fourier series of a signal $x(t) = \cos 5t \sin 3t$.
   b) Explain about the Dirichlet's condition for Fourier series.. [7M + 5 M]

(**OR)**

5.State and prove the following properties of fourier transform [6X2=12M]

i. Parseval's theorem
ii. Time convolution
iii. Time shifting
iv. Time Differentiation
v. Time reversal
vi. linearity

UNIT-III

6. a) Explain how input,output signals are related to impulse response of LTI System? [6M + 6 M]
b) Derive the relationship between bandwidth and rise time.

(OR)

7. a) Define signal bandwidth and obtain the conditions for the distortion less transmission through a system. [6M + 6 M]
b) Explain causality and poly wiener criterion for physical realization.

UNIT-IV

8. a) Explain sampling theorem for Band limited signals with a graphical example [6 M]
b) Explain auto correlation and its properties [3 M]
c) Explain about Rayleigh's Energy Theorm [3 M]

(OR)

9. a) Prove that the auto-correlation function and energy density spectrum form a Fourier transform pair. [6M + 6 M]
b) Explain the effect of under sampling with an example and neat diagrams.

UNIT-V

10. a) State and prove initial value and final value theorem w.r.t laplace transform [6M + 6 M]
b) State and prove the Time shifting Convolution properties of Z transform.

(OR)

11. a) State and prove any four properties of laplace transforms. [8 M]
b) Write the properties of ROC of Z transform. [4 M]

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AR13 **Set 01**

Code: 13CS2004

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech I Semester Regular / Supplementary Examinations, December, 2015
ADVANCED DATA STRUCTURES
(Common to CSE and IT)

Time: 3 hours **Max. Marks: 70**

PART – A

Answer all Questions **[10X1=10M]**

1. a) Define Dictionary.
   b) Compare hashing with Skip list.
   c) Define Re Hashing.
   d) What is a balanced tree?
   e) Define splay tree.
   f) Define binary heap.
   g) What are the advantages of a trie?
   h) Define Max heap.
   i) Write various pattern matching algorithms.
   j) What are graph storage structures?

PART -B

Answer one question from each unit **[5X12 = 60M]**

UNIT – I

2. a) Define Hashing. Explain various hash functions. [6M]
   b) Explain open addressing techniques in hashing. [6M]

(OR)

3. Explain various operations performed on skip lists. [12M]

UNIT – II

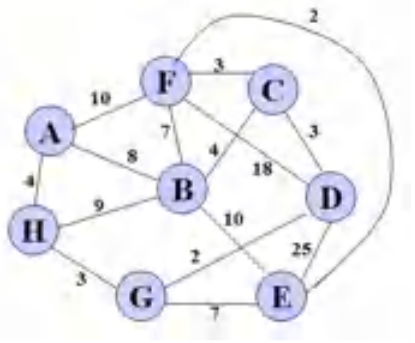
4. Define AVL Tree. Explain various operations performed on AVL tress. [12M]

(OR)

5. Explain Splay tree operations with example. [12M]

UNIT – III

6. Explain Prim's Algorithm for finding minimum cost spanning tree. [12M]



(OR)

7. a) Write an algorithm for All Pairs Shortest Path. [7M]
   b) Explain Floyd's Algorithm. [5M]

UNIT – IV

8. Explain various operations performed on Binomial Heaps. [12M]

(OR)

9. Explain the operations performed on Heap. [12M]

UNIT – V

10. Discuss Knuth – Morris –Pratt algorithm with an example. [12M]

(OR)

11. a) What is Binary trie? Construct a Binary trie. [6M]
    b) Discuss Brute Force pattern matching algorithm. [6M]

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