AR13

CODE: 13CE3011 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, Jan / Feb-2016
TRANSPORTATION ENGINEERING-I
(CIVIL ENGINEERING)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 X 10 = 10 M]**

1. a) What are the objectives of highway planning?
   b) What is the latest classification of national road?
   c) Write about map study in fixing highway alignment?
   d) Discuss about PIEV theory.
   e) Explain widening of pavement on horizontal curve
   f) Explain various gradients of vertical alignment.
   g) Define density of traffic.
   h) Write about STOP sign?
   i) What are the differences between at-grade & grade separated intersection?
   j) Explain 3E concept in prevention of road accidents.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. (a) Write about Bombay Road Development Plan?
   (b) Write about various road patterns?

(OR)

3. (a) Compare Nagpur & Lucknow Road development plans?
   (b) What are preliminary surveys to be conducted for highway alignment?

UNIT-II

4. The speeds of overtaking and overtaken vehicles are 70 and 30kmph respectively on a two-way road. If the acceleration of overtaking vehicle is 0.99m/s2. (i) Calculate safe overtaking sight distance (ii) Mention the minimum length of overtaking zone (iii) Draw a neat sketch of overtaking zone.

(OR)

5 (a) Calculate the extra widening required for a pavement of width 7m on a horizontal curve of radius 250m if the longest wheel base of vehicle expected on the road is 7m, design speed 80kmph.

(b) Write about vertical alignment, curves and grade compensation.

UNIT-III

6 (a) Carry out spot speed analysis for following data.

Speed Range(Kmph)	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of observed vehicles	5	8	9	12	13	11	9	7	6	4

(b) What is collision diagram? Explain with symbols

(OR)

7 (a) How do you present Traffic volume survey data?

(b) Explain (i) Time mean speed (ii) Space mean speed (iii) Journey speed (iv) Running speed

UNIT-IV

8 (a) What are the advantages of traffic signal?

(b) Write about cautionary signboards.

(OR)

9 (a) Average normal flow of traffic on cross roads A and B during design period are 400 and 250 PCU/Hr, the saturation flow values on these roads are estimated as 1250 and 1000 PCU/Hr respectively. The all-red time required for pedestrian crossing is 12Sec. Design two phase traffic signal by Webster method.

(b) Discuss about various road markings provided for road

UNIT-V

10 (a) Explain the design considerations of rotary elements.

(b) Draw various Un-channelized intersection with traffic movements.

(OR)

11 (a) What are the various warrants of grade separated intersection?

(b) Draw the sketches of various types of grade separated intersection. Write its advantages

***

AR13

CODE: 13EE3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, Jan / Feb-2016

ELECTRICAL MEASUREMENTS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is spring control?
   b) Define control torque?
   c) Define ratio error in instrument transformers?
   d) Can a single wattmeter be used to measure 3 phase power?
   e) What is creeping?
   f) Why is light load adjustment required in energy meters?
   g) What are the disadvantages of de-sauty bridge
   h) What quantity is measured with wien bridge?
   i) Give one application of bridges?
   j) Give the disadvantages of ballistic galvanometer.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. Explain the working principle and operation of repulsion type instrument with a neat diagram. [12 M]

(OR)

3. A moving coil instrument gives a full scale deflection of 10mA when the potential difference across its terminals is 100mV. Calculate [12 M]
   (i) The shunt resistance for a full scale deflection corresponding to 100A.
   (ii) The series resistance for a full scale reading with 1000V.
   Calculate the power dissipation in each case.

UNIT-II

4. (a) What are the disadvantages for using ammeter shunts for high current measurements. Elaborate on the need for current transformers. [5M]
   (b) How can 3 phase power be measured with the help of wattmeters for unbalanced loads. [7M]

(OR)

5 Derive the condition for phase angle error in a potential transformer with the help of a phasor diagram [12M]

AR13

CODE: 13EE3016 **SET-2**

UNIT-III

6		What are various adjustments that need to be done for an energymeter?	[12M]
		(OR)	
7		What are maximum demand meters, Explain their necessity and application	[12 M]

UNIT-IV

8		Explain how the effect of lead resistance is nullified with the help of kelvin's double bridge .	[12M]
		(OR)	
9		Explain the working of Anderson bridge with the help of phasor diagram	[12M]

UNIT-V

10		Explain the construction and working of a fluxmeter.	[12M]
		(OR)	
11	(a)	Explain the working of a.c. potentiometer. Indicate the advantages.	[6M]
	(b)	Explain how iron loss can be measured in a ring specimen	[6M]

***

SET-1

AR13

CODE: 13ME3014

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, Jan / Feb-2016

METAL CUTTING & MACHINE TOOLS
(MECHANICAL ENGINEERING)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 X 10 = 10 M]**

1. a) What are the principle angles of the single point cutting tools?
   b) What are the mechanisms of the cutting tool wear?
   c) How do you specify the Lathe?
   d) Why automatic lathes are preferred in industries?
   e) What are the major differences between shaper and planer?
   f) Specify a drilling machine.
   g) What are the types of grinding process?
   h) Write at least any four finishing operations?
   i) What are the advantages of CNC systems over conventional NC system?
   j) Classify NC system.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. (a) Explain Merchant's force circle diagram with assumptions in metal cutting. [6M]
   (b) Explain the ASA system of tool nomenclature. Also give the tool designation in that system. [6M]

(OR)

3. (a) Explain various types of cutting tool materials with their properties. [6M]
   (b) Explain briefly various types of cutting fluids with their major functions. [6M]

UNIT-II

4. (a) Explain with neat sketches about various Lathe operations. [6M]
   (b) Explain how power and motions is transmitted from spindle to feed rod with neat sketch. [6M]

(OR)

5 (a) Explain about various types of lathes with their working principles and applications [6M]
   (b) Explain briefly about thread cutting methods on Lathe. [6M]

AR13

CODE: 13ME3014

UNIT-III

6 (a) Sketch and explain the quick return mechanism in shaper [6M]

(b) Sketch and write about the principal parts of a double housing planer. [6M]

(OR)

7 (a) With the help of a neat sketch, discuss the working of a surface broaching machine. [6M]

(b) Briefly explain the following operations with help of neat sketches: [6M]
(i) Boring
(ii) Counter sinking
(iii) Counter boring.

UNIT-IV

8 (a) Sketch and explain the cylindrical grinding machine with main parts [6M]

(b) Explain the working of gear hobbing process with diagram. [6M]

(OR)

9 (a) Sketch and explain the abrasive jet machining process with advantages, disadvantages and applications [12M]

UNIT-V

10 Explain in detail about design considerations in CNC machines for improving machining accuracy. [12M]

(OR)

11 Write a short notes on the following [12M]
(i) Classification CNC Machines
(ii) Feed back drive
(iii) G-codes and M-codes
(iv) CNC controllers.

****

AR13

CODE: 13EC3047 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, Jan / Feb-2016

ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 X 10 = 10 M]**

1. a) Compare static and dynamic characteristics of measurement system.
   b) What will happen when sweep signal is applied to horizontal plates of CRO?
   c) What is a Standard Signal generator?
   d) Write a short note on digital voltmeter.
   e) Define harmonic distortion and the equation for finding out distortion factor.
   f) Define Lissajous figure?
   g) Write the conditions for balance of Maxwell's bridge.
   h) What is the principle of Strain gauge?
   i) What are the various blocks in Data Acquisition System.
   j) Which bridges are used to measure the inductance?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. (a) Mention about the static and dynamic characteristics of an instrument. Explain about them in detail. [6M]
   (b) Explain Shunt and thermocouple type ammeter. [6M]

(OR)

3. (a) Draw the internal structure of CRT and list its functions [6M]
   (b) Give the specifications of a Digital Multimeter. Draw the general block schematic of a Digital Multimeter and explain. [6M]

UNIT-II

4. (a) Explain how function generator generates sine wave, triangular wave and square wave. [6M]
   (b) Explain the block diagram of Digital Fourier analyzers. [6M]

(OR)

5 (a) What is a wave analyzer? What is its uses? Explain the working of a frequency selective wave analyzer. Mention about its applications. [6M]
   (b) Draw the block diagram of sweep-frequency generator and explain. [6M]

AR13

CODE: 13EC3047 **SET-2**

UNIT-III

6	(a)	Explain the following i) Trigger pulse ii) Sync selector circuits .	[6M]
	(b)	Why is a delay line used in the vertical section of the oscilloscope?	[6M]

(OR)

7	(a)	With a block diagram explain the operation of a dual trace oscilloscope	[6M]
	(b)	Draw and explain the block diagram of a Digital storage Oscilloscope.	[6M]

UNIT-IV

8	(a)	What is Wien's bridge? Derive the expression for the frequency. List its applications.	[6M]
	(b)	The basic AC bridge consists of the following constants: AB:R=400 ohms BC:R=150 ohms in series with c=0.2 micro Farads CD:unknown DA:R=100 ohms in series with L=10mH.Oscillator frequency is 1 KHz. Determine the constants of arm CD.	[6M]

(OR)

9	(a)	Explain with neat circuit diagram operation of Schearing bridge.	[6M]
	(b)	Discuss in detail about the working principle of Q meter. What are the various sources of error in a Q meter?	[6M]

UNIT-V

10	(a)	Describe the operation Piezo electric transducers.	[6M]
	(b)	Explain the operation of a LVDT with a neat diagram.	[6M]

(OR)

11	(a)	What is the need for standards of measurements? How they are classified? Explain.	[6M]
	(b)	Explain the following transducers i) Sensistors ii) Resistance Thermometer.	[6M]

***

AR13 SET-2

CODE: 13CS3011

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, Jan / Feb-2016

COMPILER DESIGN
(COMMON TO CSE & IT)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 X 10 = 10 M]**

1. a) Make a distinction between Syntax tree and Parse tree.
   b) What is boot strapping?
   c) Write the name of the file created by the LEX compiler when the LEX file is given as input
   d) When do you say that the grammar is Ambiguous?
   e) Write a syntax tree for x = y + z * p
   f) Interpret the output for intermediate code generation?
   g) Explain the concept of subdivisions of runtime memory
   h) What do you mean by the process of Instruction Selection?
   i) What do you mean by transfer function in Dataflow Analysis?
   j) Write different representations of intermediate code

PART-B

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

UNIT-I

2. a) In which phase of a compiler the tokens will be generated? Illustrate the role of lexical analyzer by considering regular expression letter(letter |digit)* 4M

   b) What is syntax tree? Write syntax-directed definition for constructing a syntax tree for an expression. The grammar for an expression is given below. 8M
   E → E+T | E-T | T
   T → (E) | id | num

(OR)

3. Consider the following grammar for regular expressions. 12M
   R → R/R | RR | R* | (R) | a | b
   Modify the grammar to make it LL(1). Generate the predictive parsing table for the resulting grammar.

AR13 SET-2

CODE: 13CS3011

UNIT-II

4. Consider the following grammar. S → CC, C → a C | d

a) Create Closure sets for SLR parsing 4M

b) Diagram the GOTO graph for the created closure sets. 4M

c) Construct the SLR parsing table 4M

(OR)

5. a) Write the benefits of Intermediate Code Generation 6M

b) Construct a DAG for a+ a*(b-c) + (b-c)*d 6M

UNIT-III

6. a) Describe the various attributes of symbol table 7M

b) Explain a symbol Table 5M

(OR)

7. Briefly explain about the subdivision of the runtime memory 12M

UNIT-IV

8. a) What is a code optimization? Defend its advantages? 6M

b) Point out the problems in optimizing a compiler 6M

(OR)

9. What are the properties of the Dataflow Analysis? Explain them with an example 12M

UNIT-V

10. Describe briefly about different object code forms 12M

(OR)

11. What are DAGs and justify its usefulness in implementing transformations on basic blocks? 12M

*****