AR13

CODE:13CE3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July- 2017

DESIGN OF STEEL STRUCTURES

(Civil Engineering)

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

PART-A

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

1.a) How the transverse fillet welds are more effective than the longitudinal fillet welds?
b) Why the concave shaped fillet welds are avoided?
c) Will the beam buckle when the loading is transverse to its minor axis?
d) How does buckling of column and beam differ?
e) Differentiate lacing and battening in columns?
f) Mention two compression members and two tension members?
g) Which of the loads are to be considered in designing a gantry girder in an industrial building?
h) In a workshop, usually a crane girder spans between_____
i) In a bolted plate girder flange, the angle section used should be_____
j) For large span and heavy gravity loads which of the following will be economical?
i) Beam ii) Arch iii) Truss iv) Plate girder.

PART-B

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

UNIT-I

2.a) Explain different types of welded joints with the help of neat sketch. (6M)
2.b) A tie member 75x8mm is to transmit a factored load of 145kN.Design fillet welds and necessary overlaps.The steel used is of grade Fe410.Assume gusset plate to be 12mm thick. (6M)

(OR)

3.a) A tie member of a roof truss consists of 2ISA 100,75,8mm.The angles are connected to either side of a 10mm gusset plates and the member is subjected to a working pull of 300kN.Design the welded connection.Asuume connections are made in workshops. (6M)
3.b) Design a suitable longitudinal fillet weld to connect 120x8mm plate to 150x10mm plate to transmit a pull equal to the full strength of small plate.Assume welding is to be made in field. (6M)

UNIT-II

4) A simply supported steel joist of 4m effective span is laterally supported throughout.It carries a total udl of 40kN/m (inclusive of self weight).Design an appropriate section using steel of grade Fe410. (12M)

(OR)

5) Design a two span continuous beam 8m long,each span being 4m.It supports a design uniform load of 75kN/m.Use steel of grade Fe410. (12M)

UNIT-III

6) Design a member subjected to a factored tensile load of 300kN.The length of the diagonal is 3m.The tension member is connected to a gusset plate 16mm thick with one line of 20mm diameter bolts of grade4.6. (12M)

(OR)

7) Design a built-up column 10m long to carry factored axial load of 1080kN.The column is restrained in position but not in direction at both the ends.Provide single lacing system with bolted connections. Assume steel of grade Fe410 and bolts of grade4.6.Design the column with two channels placed back-to-back. (12M)

UNIT-IV

8) Design a simply supported gantry girder to be used in an industrial building for the following data:

Crane capacity	100kN
Weight of crab	35kN
Weight of crane	160kN
Minimum approach of crane hook	1.0m
Distance between c/c of wheels	3.0m
Distance between c/c of gantries	20m
Span of gantry girder	6m
Crane type	M.O.T.

(12M)

(OR)

9 a) Where the gantry girders are used? Mention the loading increment on gantry girder based on the type of operation? (7M)

b) Mention and sketch various types of gantry girders. (5M)

UNIT-V

10) Design a welded plate girder of 30m span. It is subjected to a uniformly distributed load of 32kN/m.Design also the stiffeners and their connections. (12M)

(OR)

11) An interior bearing stiffener consists of two flats 150ISF 12mm, one on each side of 1400x8mm web of a plate girder.The stiffener plates are coped by 12mm to clear the flange-to-web welds.Steel of grade Fe410.Determine the maximum concentrated load that can be supported. (12M)

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Code:13EE3017 **SET-I**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2017

POWER SYSTEMS – III
(Electrical and Electronics Engineering)

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

PART – A

Answer all Questions **[1 x 10=10]**

1. a) What is meant by primary and backup protection?
   b) What is meant by RRRV? What are its units?
   c) Compare static and electromagnetic relays?
   d) What is Plug Setting Multiplier?
   e) What are the requirements of a protection system?
   f) What is the purpose of an Autoreclosing relay?
   g) What is the frequency range of carrier signal in transmission line?
   h) What are the advantages of Buchholz Relay?
   i) What are the types of faults in an alternator
   j) What is resonant Grounding?

PART – B

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

UNIT – I

2. a) Derive the equation for Restriking Voltage of an arc? [6M]
   b) What is current chopping? How can it be reduced? Explain in detail? [6M]

(OR)

3. a) What are the properties of SF6 gas that makes it a good are quenching medium [6M]
   b) Describe the operation of Air Blast Circuit Breaker with neat sketches [6M]

UNIT – II

4. a) Explain the working principle of induction type relays [6M]
   b) Explain the classification of over current relay depending on the characteristics? [6M]

(OR)

5. a) What are the advantages of Static relay over Electromagnetic relay [5M]
   b) Explain the operation of Mho relay with circuit diagram? [7M]

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Code:13EE3017 **SET-I**

UNIT – III

6. An alternator rated 10kV protected by the balanced circulating current system has its neutral grounded through a resistance of a 10 Ohm. The protective relay is set to operate when there is an out-of-balance current of 1.8A in the pilot wires, which are connected to the secondary windings of 1000/5 ratio CTs
   Determine i) The percentage winding which remains unprotected.
   ii) The min. value of earthing resistance required to protect 80% of the winding [12M]

(OR)

7. a) Explain the percentage differential protection of star/ delta connected transformer with suitable diagrams [6M]
   b) Explain about Buchholtz relay with a neat sketch [6M]

UNIT – IV

8. a) Explain Transley relay with neat sketch [6M]
   b) Describe the trip circuit diagram of three zone distance relay used for the protection of transmission lines [6M]

(OR)

9. a) Explain the zonal protection scheme for a feeder and describe the reactance relay characteristics for a three zone protection? [6M]
   b) What are the various protection schemes of bus bar protection? Discuss bus bar protection by differential protection [6M]

UNIT – V

10. a) Explain Lightning phenomenon with neat diagrams [6M]
    b) What is a horn gap arrester? How does it work? [6M]

(OR)

11. a) What is Peterson coil what protective function is performed by this device [6M]
    b) What is the need of grounding the neutral? Describe briefly the various grounding Techniques? [6M]

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CODE: 13EI3002 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2017

INSTRUMENTATION AND CONTROL SYSTEMS
(Mechanical Engineering)

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

PART-A

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

1. a) Classify different types of errors
   b) Principle of manometer
   c) Define Calibration
   d) What is Gauge Factor
   e) What is the principle of Thermocouple
   f) What is the principle of Ultrasonic Flow meter
   g) What is the principle of Seismic Instrument
   h) What is Stroboscopic effect
   i) Distinguish Routh Hurwitz Criteria and Root Locus
   j) Define Stability.

PART-B

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

UNIT-I

2. a) Explain different sources of errors 6
   b) Describe the process of eliminating the errors 6

(OR)

3. a) Explain the operating principle of Mc Leod Gauge with the help of neat diagram 6
   b) Explain the working principle of Bourdon tube 6

UNIT-II

4. a) Explain the principle and working of hot-wire anemometer**.** 6
   b) Explain about turbine flow meter with diagram 6

(OR)

5. a) Explain the method of using resistive strain guage 6
   b) Derive gauge factor of a resistance strain gauge 6

UNIT-III

6. a) Explain about LVDT with the help of neat diagram**.** **6**
   b) Explain the operation of Stroboscope. **6**

(OR)

7. a) Describe the principle of Seismic Instrument **6**
   b) Explain the operating principle of Resistive Transducer **6**

UNIT-IV

8.	a)	Explain the effects of addition of poles and zeros to the transfer function	**6**
	b)	Explain the procedure to calculate the stability of system using Routh-Hurwitz Criterion with an example	**6**
		(OR)	
9.	a)	Describe open and closed loop systems with examples.	**6**
	b)	Given Characteristics equation is stable or not and find the how many poles lice on right of s-plan or left of s-plan. $S^4+3S^3-4S^2+2S+2=0$	**6**

UNIT-V

10.	a)	Explain about Phase Margin and its effect on stability	6
	b)	Write an algorithm to change the values of K_p, K_I, K_D dynamically.	6
		(OR)	
11.	a)	Explain one application of Nyquist Stability Criterion.	6
	b)	Explain frequency domain characteristics of Second-Order System.	6

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CODE: 13EC3019 **SET 2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July- 2017

MICRO PROCESSOR AND MICRO CONTROLLERS
(Electronics and Communication Engineering)

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

PART – A

Answer all Questions **[1 x 10 = 10]**

1. a) Explain the significance of segmentation?
   b) What is an addressing mode? List the addressing modes in 8086
   c) Draw the flag register of 8086
   d) What are the basic modes of operation of 8255?
   e) Explain the operation queue in 8086
   f) Illustrate functional types used in control words of 8251
   g) What is the use of 8251 chip?
   h) What is the use of modem control unit in 8251?
   i) Define an assembler directive
   j) Draw an IP register?

PART-B

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

UNIT-I

2. Draw and explain pin description of 8086 and explain the modes of 8086 with neat timing diagram 12M

(OR)

3. (a) Differentiate Procedure and Macro with syntax 6M
   (b) Explain the register organization of 8086 in detail 6M

UNIT-II

4. (a) Explain the operation of stack with example 6M
   (b) Write an alp to find the given string is PALINDROME or not 6M

(OR)

5. (a) Draw and explain the Interrupt Vector Table 6M
   (b) Write an alp to sort the array in descending order 6M

UNIT-III

6. (a) How physical address is converted into linear address in 80386 microprocessor 6M
   .(b) How much the physical memory can 80386 address in real mode and in Protected mode. 6M

(OR)

7. (a) What are the differences between 80386 and 80486 microprocessors 6M
   (b) List all the additional features that the 80386 microprocessor has over 8086 6M

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CODE: 13EC3019 **SET 2**

UNIT-IV

8. (a) Sketch and explain the interface of PIC 8259 to the 8086 microprocessor in minimum mode. 6M
   (b) Show the cascading of additional eight 8259s to provide 64 external interrupts. Write an 8086-assembly program to initialize master 8259 and slaves. 6M

(OR)

9. (a) With a neat block diagram, explain the 8259A system connections 6M
   (b) Explain different signals of 8255 PPI and control words 6M

UNIT-V

10. (a) List the differences between the Microprocessor and Microcontroller 5M
    (b) What is an addressing mode? Explain the addressing modes 8051 in detail 7M

(OR)

11. (a) Briefly explain about PIC Microcontroller 6M
    (b) Explain the Port3 of 8051 with each signal in detail 6M

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CODE: 13CS3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2017

WEB TECHNOLOGIES
(Common to CSE & IT)

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

PART-A

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

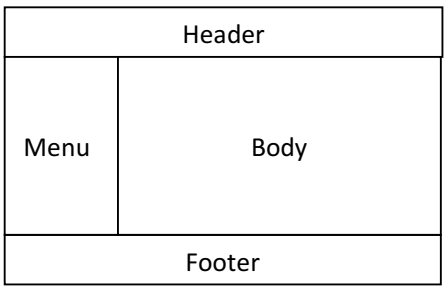
1. a) How do you create a table in HTML?
   b) What is the purpose of a form in HTML?
   c) What is the syntax for defining an Un-ordered list in HTML?
   d) How an external DTD is referred in a XML file?
   e) Define a Servlet.
   f) Define a session.
   g) Differentiate between a web server and an application server.
   h) What is the purpose of the JSP directive <%@ page ... %>
   i) What is an instance variable?
   j) Does the JDBC-ODBC Bridge support multiple concurrent open statements per connection.

PART-B

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

UNIT-I

2. a) Using HTML Frames divide a webpage in the following format. A picture should be displayed in the Header frame and a simple table should be displayed in the Body frame. **6M**



   b) How Cascading Style Sheets(CSS) are helpful in designing a website? What are external CSS? Explain with syntax. **6M**

(OR)

3. a) Write a JavaScript program to prompt the user for radius of a sphere and computes the volume of the sphere. (Use: volume=(4.0/3.0)*Math.PI*Math.pow(radius,3)) **6M**

   b) List various types of built-in objects in java script and explain their use **6M**

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CODE: 13CS3016 **SET-2**

UNIT-II

4.	a)	What are the data types available in XML schema	**6M**
	b)	With an example explain XML file validation using XML schema	**6M**
		(OR)	
5.	a)	Explain the structure of a DTD? What are the data types used in a DTD?	**6M**
	b)	How an XML file is traversed using DOM parser?	**6M**

UNIT-III

6.	a)	How to install a Tomcat Server?	**6M**
	b)	Explain the contents of a jakarta-tomcat directory	**6M**
		(OR)	
7.	a)	Write a Servlet Program to handle HTTP requests and responses.	**6M**
	b)	What are the security issues associated with Servlet Programming?	**6M**

UNIT-IV

8.	a)	Explain the Anatomy of a JSP Page with a simple JSP program	**6M**
	b)	Explain the purpose and syntax of scripting elements in JSP.	**6M**
		(OR)	
9.	a)	Explain error handling in JSP with an example program	**6M**
	b)	Explain about the standard action elements in JSP	**6M**

UNIT-V

10.	a)	Create a simple Employee information table using SQL and write JSP code to insert data in to the table using JDBC.	**6M**
	b)	Explain the classes PreparedStatement and CallableStatement with examples.	**6M**
		(OR)	
11.	a)	Explain the JSP tags and attributes associated with Application specific database actions.	**6M**
	b)	List and explain the classes related to javax.sql package	**6M**

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