

AR13

CODE: 13CE3016

SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular / Supplementary Examinations, April, 2017

**DESIGN OF STEEL STRUCTURES
(Civil Engineering)**

Time: 3 Hours

Max Marks: 70

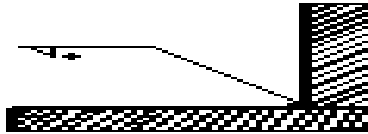
PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

- 1 a) Single-V and single-U butt welds are used for sheets of thickness
A) upto 10mm B) 5-15mm C) 10-20mm D) 15-25mm

- b) Which welding symbol is shown below?



- A) Lap joint B) Single V butt joint C) Double fillet weld D) Single fillet weld
- c) Draw a neat sketch of ISMB 400 and mention its properties
- d) What is meant by laterally supported beam ?
- e) The maximum slenderness ratio of a compression member carrying both dead and superimposed load is
A) 180, B) 200, C) 250, D) 350
- f) What is meant by built-up compression members?
- g) List any two loads to be considered for design of a gantry girder
A) vertical, B) impact, C) horizontal force along the crane rail, D) lateral thrust
- h) What is the position of Hook for Maximum Vertical load on gantry girder ?
- i) Bearing stiffener in a plate girder is used to
A) transfer the load from the top flange to the bottom one B) prevent buckling of web
C) decrease the effective depth of web D) prevent excessive deflection
- j) Horizontal stiffener in a plate girder is provided to safeguard against
A) shear buckling of web plate, B) compression buckling of web plate, C) yielding. D) None

PART-B

Answer one question from each unit

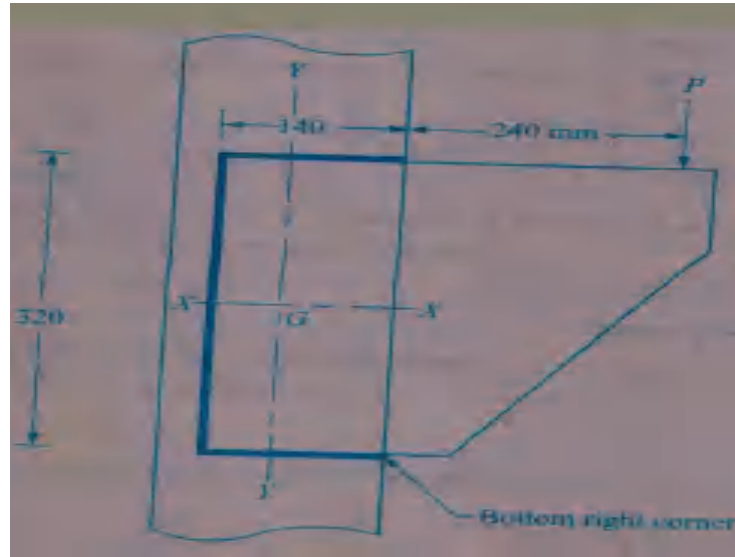
[5x12=60M]

UNIT-I

2. a) Explain any two disadvantages of the welded connections? 4M
- b) Design a welded seat angle connection between a beam MB300 and column HB200 for a reaction of beam 100KN, assuming Fe410 grade steel ($f_y=250\text{MPa}$) and site welding. 8M

(OR)

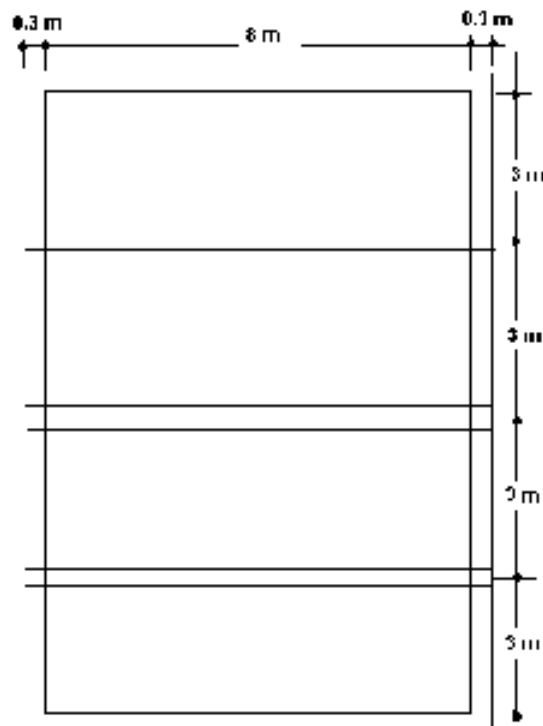
3. a) Determine the maximum load that can be resisted by the bracket shown in , by fillet 8M weld of size 6mm, if it is shop welding.



- b) Explain any two types of butt welds? 4M

UNIT-II

4. A roof of a hall measuring 8m X 12m consists of 100mm thick R.C slab supported on steel I-beams spaced 3m apart as shown in fig. The finishing load may be taken as 1.5 kN/m^2 . Design the steel beam. 12M

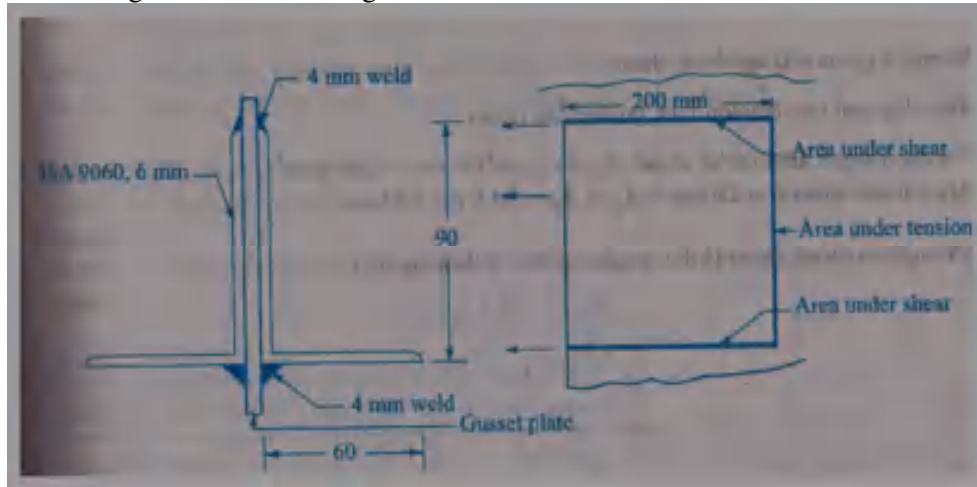


(OR)

5. An ISMB 500 section is used as a beam over a span of 6 m, with simply supported ends. Determine the maximum factored uniformly distributed load that beam can carry if the ends are restrained against torsion but compression flange is laterally unsupported.

UNIT-III

6. Example 5.5 (page 132) Determine the tensile strength of a roof truss member 2 ISA 9060, 6mm connected to the gusset plate of 8mm thickness by 4mm weld as shown in fig. The effective length of weld is 200mm.



(OR)

7. A column 44 m long has to support a factored load of 6000KN. The column is effectively held at both ends and restrained in direction at one of the ends. Design the column using beam sections and plates.

UNIT-IV

8. Design a gantry girder to be used in an industrial building carrying a manually operated overhead travelling crane, for the following data: 12M

Crane capacity	220KN
Self-weight of the crane girder excluding trolley	200KN
Self-weight of trolley electric motor, hook, etc.....	60KN
Approximate minimum approach of the crane hook to the gantry girder	1.40m
Wheel base	34m
C/c distance between gantry rails	14m
C/c distance between columns (span of gantry girder)	6m
Self-weight of rail section	350N/m
Diameter of crane wheels	150mm
Steel is of grade Fe410. Design also field welded connections if required.	
The support bracket connection need not be designed.	

(OR)

9. Explain the various types of loads to be considered for design of gantry girder 12M

UNIT-V

10. Design a welded plate girder of span 30m to carry superimposed load of 40KN/m. Avoid. Use of bearing and intermediate stiffeners. Use Fe 415(E250) steel. 12M

(OR)

11. Explain in detail about the elements of a plate girder 12M

AR13

CODE: 13EE3017

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2017

POWER SYSTEMS-III
(Electrical and Electronics Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What are the different theories that explain arc extinction process?
b) Give the expression for re striking voltage
c) For the protection of Short transmission lines which relay can be used?
d) Differential relay is used for the protection of transformers, induction motors, bus bars and alternators against:
 A. External faults
 B. Short circuits
 C. Internal faults
 D. Overloads
e) Buchholz relay can detect faults oil level in the transformer.
 A. Below
 B. Above
 C. Equal
 D. none
f) List out various faults that occur in generators
g) What is pilot wire?
h) Mho relay can be used ----- transmission lines
i) List various types of lightning arresters?
j) Write any two causes of over voltages?

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Explain the terms: restriking voltage, recovery voltage and RRRV.
b) Draw a neat sketch of SF6 circuit breaker. And explain its operation.
(OR)
3. a) For a 132KV system, the reactance and capacitance up to the location of the circuit breaker is 3 ohms and 0.015 micro F respectively. Calculate the following:
 i. The frequency of transient oscillation
 ii. The maximum value of re striking voltage across the contacts of the circuit breaker
 The maximum value of RRRV
b) Discuss the operation of Air Blast circuit breaker.

AR13

UNIT-II

4. a) Classify various types of Induction relays? And Explain the operation of Shaded pole type relay
b) Explain the operation of MHO relay with neat diagram
- (OR)**
5. a) Derive the expression for Induction type relays
b) Discuss about Differential relays with neat diagram

UNIT-III

6. a) The neutral point of 11kV alternator is earthed through a resistance of 5Ω , the relay is set to operate when there is out of balance current of 1.5A. The C.T.s have a ratio of 1000/5. What percentage of the winding is protected against earth faults?
b) Explain the construction and principle of operation of a Buchholz relay with a neat diagram?
- (OR)**
7. a) Which are the various types of faults which can occur in generator? Explain briefly
b) For a 10 MVA, 132 kV/6.6 kV power transformer with delta-star connections, obtain the number of turns each current transformer should have for the differential protection scheme to circulate a current of 5 A in the pilot wires?

UNIT-IV

8. a) Discuss how the bus bars are protected by differential protection
b) Explain the 3-zone distance protection scheme in detail
- (OR)**
9. a) Elaborate on various methods for protection of feeders.
b) Discuss the operation of impedance relay for mho relay protection

UNIT-V

10. a) List out advantages of neutral grounding
b) Explain the operation of valve type lightning arresters?
- (OR)**
11. a) Discuss about solid grounding?
b) Write a short notes on zinc oxide lightning arresters?

AR13

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SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 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) How to minimise errors in measuring instruments
b) What are the thermal conductivity type of gauges
c) Discuss briefly the functioning of thermocouple
d) What are the units for flow measurement
e) List out various types of transducers
f) What are the measuring units of torque
g) Give an example of closed loop system
h) Describe second order control system with an example
i) Give a note on ramp input
j) What is phase margin

PART-B

Answer one question from each unit

[5 x 12=60M]

UNIT-I

2. a) Discuss dynamic performance characteristics of measuring instruments with suitable examples. **6 M**
b) Sketch and explain the working principle of McLeod pressure gauge. **6 M**
(OR)
3. a) Explain the Following **6 M**
(i) Bourdon tubes (ii) Diaphragm gauges
b) Sketch and explain the working principle of Ionization type of pressure gauge? **6 M**

UNIT-II

4. a) Explain the principle of working of a pyrometer. **6 M**
b) Distinguish between the thermistor and thermocouple **6 M**
(OR)
5. a) Discuss the functioning of resistance strain gauge. **6 M**
b) Explain the measurement of flow rate using turbine flow meters. **6 M**

UNIT-III

6. a) Explain principle and operation of seismic instruments. **6 M**
b) Sketch and explain the working principle and working of Torsion meters. **6 M**
(OR)
7. a) Explain principle and operation of resistive transducers. **6 M**
b) Explain the following **6 M**
(i) Load cells (ii) Elastic force meters

AR13

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SET-2

UNIT-IV

8. a) Give the block diagram of a closed loop control system and derive its transfer function **6 M**
b) How stability of control systems can be measured using Routh- Hurwitz criterion. **6 M**
(OR)
9. a) Write a note on the effects of addition of poles and zeros to transfer functions **6 M**
b) Using Routh-Hurwitz, test the stability of the system whose characteristic equation is $S^4+3S^3+6S^2+9S+12=0$ **6 M**

UNIT-V

10. a) Explain about P, PI, PD, PID controller algorithms. **6 M**
b) Explain Nyquist stability criterion **6 M**
(OR)
11. a) Explain the gain margin and phase margin **6 M**
b) With the help of Nyquist plot assess the stability of a system $G(s)=3/s(s+1)(s+2)$ **6 M**

2 of 2

AR13

CODE:13EC3019

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2017

MICROPROCESSOR AND MICROCONTROLLERS (Electronics & Communication Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Explain the function of accumulator
b) List the maximum mode signals
c) Demonstrate the function of BIU
d) Categorize the source of interrupts
e) Define an opcode & operands
f) Distinguish ADD and INC instructions
g) List the operating modes of 8255
h) Explain the importance of a flag in status register
i) Show the contents of AC, CY flags if we add 25h and 75h
j) Analyze the given instruction MOVC and MOVX

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Explain briefly about the architecture of 8086 with a neat diagram? 6
b) Demonstrate memory segmentation & mention its advantages 6
(OR)
3. a) Sketch the Write Cycle Timing Diagram in Minimum Mode of 8086 and explain 6
b) Explain the following Signals in 8086 with respect to their states 6
(i) READY (ii) /TEST
(iii) /DEN (iv) INTR

UNIT-II

4. a) Sketch the interrupt structure of 8086 and represent the memory required for the interrupts? 6
b) Explain the following Instructions(8086) with the help of Syntax and Examples? 6
(i) AAM (ii) CMC
(iii) IRET (iv) JA
(OR)
5. a) Write a program to reverse the given string 'MPMC' 6
b) Use the concept of procedure and write the 8086 assembly code to generate 5!(factorial). 6

UNIT-III

6. a) Explain the Register organization of 8051? 6
b) The architecture of 8051 microcontrollers is better than 8086. Justify your answer. 6
(OR)
7. a) Illustrate the Interrupts of PIC in detail 6
b) Outline the Program Status Word (PSW) Register of 8051? 6

UNIT-IV

8. a) Explain the following special function registers 6
i) TCON ii) IP iii) IE
b) Draw the interrupt structure of 8051 and mention how least priority interrupt is made as highest priority? 6
(OR)
9. a) Explain the following Instructions with the help of Syntax and Examples? 6
(i) MOVX (ii) MOVC (iii) XCHD (iv) PUSH (v) DJNZ
b) Explain the addressing modes of 8051 with each example 6

UNIT-V

10. a) Explain Pin diagram of 8255 PPI 6
b) Explain the working 8257 DMA controller 6
(OR)
- 11 Demonstrate about interrupt priority schemes used in 8259 12

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SET-2

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Regular / Supplementary Examinations, April, 2017

WEB TECHNOLOGIES

(Computer Science Engineering & Information Technology)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1.
 - a) How can you include comments in HTML?
 - b) What is the difference between JavaScript and Jscript?
 - c) Describe the differences between XML and HTML.
 - d) How would you build a search engine for large volumes of XML data?
 - e) Identify the advantages of JSP over Servlet.
 - f) Should you override the service() method?
 - g) What is a thread-safe JSP page?
 - h) How is JSP used in the MVC model?
 - i) How do you load the drivers in JDBC?
 - j) How do you call a stored procedure from JDBC?

PART-B

Answer one question from each unit

[5 x 12=60M]

UNIT-I

2.
 - a) Design a form for a publishing house called foobar that allows the books to be ordered via the Internet. The form should include the customer's name, address, phone no. and Book's title, author and edition. Payment has to be made in cash on delivery so no credit card information is needed. 8
 - b) What is a CSS? Explain Briefly. 4
- (OR)**
3.
 - a) Explain about java script events. 6
 - b) Write a java script program for image rotation. 6

UNIT-II

4.
 - a) Explain the XML encryption with a program. 4
 - b) Define XML schema. Write the situation where XML schema is better than DTD for validating a XML document. 8
- (OR)**
5.
 - a) If XML is all about "text" data, is it possible to include binary data (such as an image) in an XML document ? Justify your answer with a suitable example. 6
 - b) Differentiate between DOM and SAX parser. 6

UNIT-III

6. a) What is a servlet? What is the difference between GENERICSERVLET and HTTPSERVLET? 6
b) What is session tracking? Discuss different methods used for session tracking. 6
- (OR)**
7. a) Explain the life cycle of a servlet. 6
b) Write short notes on Cookies. 6

UNIT-IV

8. a) Discuss about scripting elements. 6
b) Explain conditional processing with an example. 6
- (OR)**
9. a) What are the major components of a web browser? Draw a neat diagram to explain them. 8
b) Write short notes on Implicit JSP objects. 4

UNIT-V

10. a) Difference between ResultSet and ResultSetMetaData with an example. 6
b) How do we retrieve warning? Explain with an example. 6
- (OR)**
11. a) Write a JDBC program to store and retrieve student details. 6
b) Explain the JDBC Architecture. 6