AR13

CODE: 13CE3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, October-2021

DESIGN OF STEEL STRUCTURES

(Civil Engineering)

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

PART-A

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

1. a) Under what circumstances will block shear failure dominate?
   b) Why are plastic or compact sections preferred for compression members?
   c) Which one of the following is the mode of failure in a fillet weld material?
      i. Tension ii. Shear iii. Bearing iv. Crushing
   d) What is meant by slenderness ratio?
   e) How are the distortion in welded joints minimized?
   f) What are the various types of stiffeners?
   g) Which is the following is not a compression member?
      i. Strut ii. Tie iii. Rafter iv. Boom
   h) What is buckling of cross section?
   i) What is meant by lateral buckling of beam?
   j) List the loads that should be considered while designing a gantry girder.

PART-B

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

UNIT-I

2. A tie member of a roof truss consists of 2ISA 90 x 60 x 10 mm. The angles are connected on either side of 12 mm gusset plate; longer leg is connected to gusset and the member is subjected to a factored pull of 350 kN. Design the welded connection. Assume the welding is made in the workshop. (12M)

(OR)

3. a) Briefly explain the following terms (a) Size of weld (b) Throat thickness. (4M)
   b) Design a suitable longitudinal fillet weld to connect 120 x 8 mm plate to 150 x 10 mm plate to transmit a pull equal to the full strength of the small plate. Assume welding is made in the field. (8M)

UNIT-II

4. Steel beams having a clear span of 8 m are resting on 200 mm wide end bearings. The beams spacing is 3 m and the beams carry a dead load of 4.5 kN/m^2 including the weight of the section. The imposed load on the beam is 13.25 kN/m^2. The beam depth is restricted to 500 mm and f_y is 250 N/mm^2 and is laterally supported. (12M)

(OR)

5. Design a laterally unsupported beam for the following data. (12M)
Effective span : 4m
Maximum bending moment : 550 kNm
Maximum shear force : 200 kN
Steel of grade : Fe 410.

UNIT-III

6. Design a single angle discontinuous strut to carry a factored axial compressive load of 135 kN. The length of strut is 3.0 m between intersections. It is connected to 12 mm thick gusset plate by 20 mm diameter 4.6 grade bolts. Use steel of grade Fe410. (12M)

(OR)

7. A batten column of 10 m long is carrying a factored load of 1150 kN. The column is restrained in position but not in direction at both ends. Design a built up column using channel sections placed back to back. Design batten plates using bolt connection. (12M)

UNIT-IV

8. Write down the step by step procedure of design of gantry girder. (12M)

(OR)

9. Design a gantry girder to be used in an industrial building carrying an EOT crane for the following data: Crane capacity = 200 kN. Total self weight of all components = 240 kN. Minimum approach at the carne hook of gantry girder = 1.2m Wheel base = 3.5m C/C distance between gantry rails = 16m C/C distance between columns = 8m Self weight of rail section = 300 N/m Yield stress = 250 N/mm2 Design the main gantry section. Connection design not required. (12M)

UNIT-V

10. Design the cross section of a plate girder for the following data (12M)
Effective span of the girder = 16m
Superimposed loading = 40 kN/m
Design the connections also.
Draw to scale the cross section and longitudinal section of the girder showing the Intermediate stiffeners and bearing stiffeners.

(OR)

11. Design a welded plate girder is subjected to a maximum factored moment of 4000 kN-m and a factored shear force of 600 kN. Find the plate girder with intermediate stiffener only. (12M)

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CODE: 13HS3005 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, October-2021

MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCES

(Common to EEE & ECE)

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

PART-A

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

1. a) What are exceptions to law of demand
   b) Define managerial economics
   c) Define isoquants
   d) What are fixed costs
   e) Define market
   f) State types of competition
   g) What is theory Y
   h) What are social responsibilities of management
   i) Define promotion
   j) Define separation

PART-B

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

UNIT-I

2. Explain elasticity of demand, measurement and significance of elasticity of demand 12M

(OR)

3. Discuss any four forecasting techniques 12M

UNIT-II

4. a) What are Isocosts 6M
   b) Discuss about internal Economies of Scale. 6M

(OR)

5. a) Difference between explicit costs & Implicit costs, 6M
   b) What is breakeven point 6M

UNIT-III

6. Explain price determination in perfect competition Market? 12M

(OR)

7. Explain price determination in monopoly Market? 12M

UNIT-IV

8. Explain Fayol's Principles of Management 12M

(OR)

9. a) Explain Herzberg's Two-Factor Theory of Motivation 6M
   b) What are Social responsibilities of Management 6M

UNIT-V

10. a) What Functions of Marketing 6M
    b) Explain Marketing Strategies based on Product Life Cycle 6M

(OR)

11. a) Explain merit rating 6M
    b) Discuss about selection 6M

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CODE: 13ME3018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, October-2021

METROLOGY
(Mechanical Engineering)

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

PART-A

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

1. a) What is the difference between allowance and tolerance.
   b) define the following terms
   i)M.M.L ii)L.M.L
   c) Sketch a double ended plug gauge.
   d) Why are sine bars not used for measuring large angles?
   e) What are the advantages of optical instruments over conventional measuring instruments?
   f) Indicate how various surface roughness specifications are placed relative to the symbol.
   g) What is meant by the 'magnification' of a dial indicator?
   h) Name the various types of pitch errors found in screw threads.
   i) Name the various elements of the spur gear which are checked for accuracy of the gear.
   j) Distinguish between alignment tests and performance tests on machine tools.

PART-B

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

UNIT-I

2. a) Define limits, fits and allowances. 6M
   b) Classify tolerances used in metrology. 6M

(OR)

3. a) Explain Unilateral system of dimensioning and state its advantages. 4M
   b) The fundamental tolerance for quality IT6 is 10i where 'i' is the tolerance unit. The subsequent tolerance grades are based on R5 series. For size of 35mm, i = 16 and the fundamental deviations for H and f are 0 and 25 respectively in units of 0.001mm. Determine the limits of tolerances for a hole and shaft 35H8/f7. Draw a diagram of this fit. 8M

UNIT-II

4. a) Design the 'general' type of GO and NOGO gauge for checking the assembly $\phi 30H_7f_8$ given i(microns)= $.45D^{(1/3)} + .001D$ where D in mm
   Fundamental shaft deviation for 'f' shaft = $-5.5D^{0.41}$
   30mm falls in the diameter step of 18 and 30
   Take the wear allowance as 10% of the gauge tolerance. 8M
   b) With the help of sketches explain the working of an external micrometer. 4M

(OR)

5. a) Explain Taylor's Principle as applicable to limit gauging with sketches. 6M
   b) With neat sketch explain the angular measurement using sine bar 6M

UNIT-III

6. a) With the help of neat sketches, explain the method for testing straightness by using spirit level and autocollimator. 6M
   b) Describe the use of optical flats and mono-chromatic light for dimensional comparison and testing flatness of surfaces. 6M

(OR)

7. a) Explain the working principle of Michaelson's interferometer. 6M
   b) With the help of neat sketch explain the working principle of a tool maker's microscope. 6M

UNIT-IV

8. a) Differentiate between surface roughness and surface waviness. 6M
   b) With the help of neat sketch explain the working principle of a reed type mechanical comparator. 6M

(OR)

9. a) Describe with a neat sketch the construction, principle and operation of Talysurf. 8M
   b) Discuss the advantages and disadvantages of electrical comparators? 4M

UNIT-V

10. a) Define 'best size' wire. Derive an expression for the same in terms of the pitch and angle of the thread. 6M
    b) Explain with the help of sketch, the working principle of the instrument which is used in checking of involute profile of the gear. 6M

(OR)

11 Describe types, uses and applications of CMM. 12M

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CODE: 13CS3016 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, October-2021

WEB TECHNOLOGIES

(Computer Science and Engineering)

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

PART-A

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

1. a) Write the syntax for creating submit and reset button
   b) Define event in java script
   c) What are the two different parsers in XML?
   d) Difference between XML and XHTML
   e) List any 2 classes available in javax.servlet package
   f) What is session tracking?
   g) Write any two disadvantages of the servlet
   h) Write the syntax for page directive
   i) Define JDBC
   j) Write the syntax for loading the JDBC driver

PART-B

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

UNIT-I

2. a) Explain the different types of selectors in CSS 8
   b) Explain frameset and frame tag with an example 4

(OR)

3. a) Write JAVAscript for checking whether the number is palindrome or not using functions 6
   b) Explain objects in JAVAscript 6

UNIT-II

4. a) What is DTD? Explain how to declare the elements entities and attributes 6
   b) Define an XML schema. Explain creation of XML schema with an example 6

(OR)

5. a) Explain the importance of XML in web application 6
   b) Show how SAX is alternative method for parsing XML documents 6

UNIT-III

6. a) Write a servlet for handling http request and responses 6
   b) Explain about MVC architecture 6

(OR)

7. Write a servlet for checking the authentication of the servlet of the user with the init parameter (username and password) in web.xml 12

UNIT-IV

8. a) Explain conditional processing in JSP 6
   b) Explain about JSP scripting elements and comments 6

(OR)

9. a) Explain four different scopes of JSP implicit objects 8
   b) Define JAVA bean? What are the rules for defining java Bean? 4

UNIT-V

10. a) Explain different types of drivers in JDBC 6
    b) Explain JDBC architecture with neat sketch 6

(OR)

11. Write a JSP to retrieve the details of the student (name, branch) whose student id is 1001 which is entered in HTML form 12

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