AR16

CODE: 16CE3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April, 2019
DESIGN AND DRAWING OF STEEL STRUCTURES
(Civil Engineering)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place
All the required code books are allowed to use. Assume the necessary data

UNIT-I

1. Write the design procedure for beam to beam connections and beam to column connections 14M

(OR)

2. A tie member consists of two ISMC250. The channels are connected on either side of a 12mm thick gusset plate. Design the welded joint to develop the full strength of the tie. However the overlap is to be limited to 400mm 14M

UNIT-II

3. Design a laterally unsupported beam for the following data. Effective span-4m, maximum bending moment-550kNm, maximum shear force-200kN, Steel of grade- Fe410. 14M

(OR)

4. Design a laterally supported beam of effective span 6m for the following data: Grade of steel:Fe410, maximum bending moment- 150kNm, maximum shear force- 210kN. 14M

UNIT-III

5. Design a tension member to carry a pull of 830kN. The member is 3.2m length. Design the member using channel section. 14M

(OR)

6. Design a compression member to carry a service load of 175kN. The effective length of the member is 5.8m 14M

UNIT-IV

7. 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(excluding crab)- 160kN, Minimum clearance between crane hook and gantry girder-1m, wheel base-3m, distance between c/c of gantries-20m, distance between c/c gantry columns-6m, crane type-M.O.T 14M

(OR)

8. Design gantry girder in an industrial building for two moving cranes for the following data: Crane capacity-200kN(each), Weight of each crane-150kN, Weight of each crab-10kN, minimum distance of crane hook-1.1m, minimum distance between cranes-2m, wheel base-3.4m, bay width- 16m, spacing of columns-7m 14M

UNIT-V

9. Design a section of a plate girder to carry a uniformly distributed load 0f 1000kN over a span of 10m.A full lateral support is provided to the compression flange. Show the curtailment and also design the flange to web connections. Provide stiffeners if required. 14M

(OR)

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. 14M

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AR16

CODE: 16EE3018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, April,2019

POWER SYSTEM ANALYSIS

(Electrical and Electronics Engineering)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

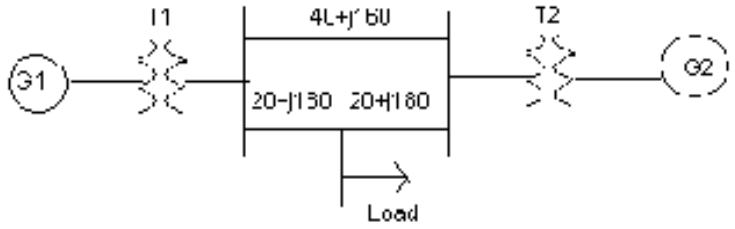
1. a) Form Ybus for the network by direct inspection method: 8M

Element	5-1	5-2	1-2	2-3	1-4	3-6	4-6
Positive sequence reactance	0.04	0.05	0.04	0.03	0.02	0.07	0.10

b) List the advantages of the p.u form of representation? 6M

(OR)

2. Prepare a per phase schematic of the system in fig. and show all the impedance in per unit on a 100 MVA, 132 KV base in the transmission line circuit. The necessary data are given as follows. 14M
G1 : 50MVA, 12.2KV, X=0.15 pu.
G2 : 20MVA, 13.8KV, X=0.15 pu.
T1 : 80MVA, 12.2/161KV, X=0.1 pu.
T2 : 40MVA, 13.8/161KV, X=0.1 pu.
LOAD: 50MVA, 0.8 power factor lag operating at 154KV. Draw p.u diagram and Determine the pu impedance of the load.



UNIT-II

3. Explain the step by step computational procedure for the Fast Decoupled Load Flow method of load flow studies and also draw the flow chart. 14M

(OR)

4. a) Compare Gauss-Seidel method and Newton-Raphson method of load flow studies. 6M
b) For a system shown in below figure 1st bus is slack bus. Determine the power flow using Newton-Raphson Method after the end of first iteration 8M

Bus code	Bus Impedance
1-2	j0.5
2-3	j0.4
3-1	j0.3

Bus loading data

Bus no.	P_G	Q_G	V	P_L	Q_L	Description
1	-	-	$1.06\angle 0$	-	-	Slack bus
2	3	1	1.0	0	-	PV bus
3	-	-	-	4	2	PQ bus

UNIT-III

5. a) Form bus impedance matrix for the data given below. 8M

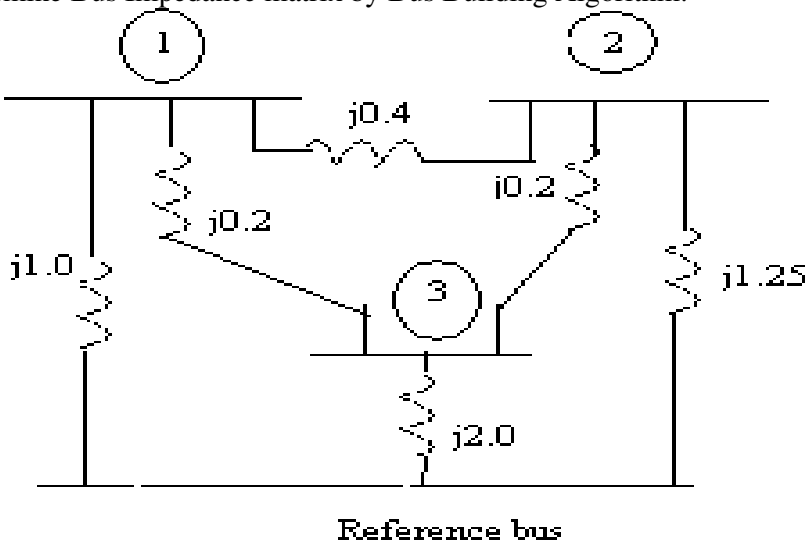
Element number	Bus code From bus – To bus	Self-impedance
1	2-3	0.6 p.u.
2	1-3	0.5 p.u.
3	1-2	0.4 p.u.

b) Explain the need for short circuit studies. 6M

(OR)

6. a) Define Bus impedance matrix. Describe the construction of Bus impedance matrix Z_{Bus} using Bus building algorithm for lines without mutual coupling. 7M

b) Determine Bus Impedance matrix by Bus Building Algorithm. 7M



UNIT-IV

7. a) Draw the relationship between the phase components and the sequence components. 7M

b) The line currents in a 3-phase supply to an unbalanced load are respectively, I_a=5+15j, I_b= 10-5j, I_c= -4-2j Amp, phase sequence is abc. Determine the sequence components of currents. 7M

(OR)

8. Classify the various types of faults? Discuss their frequency of occurrence and severity? Find the fault current when an L-L-G fault occurs at the terminals of an unloaded generator. 14M

UNIT-V

9. a) Explain critical clearing time and critical clearing angle, deriving the expressions. 7M

b) Describe various methods to improve steady state stability 7M

(OR)

10. a) State and explain equal area criterion. How do you apply equal area criterion to find the maximum additional load. 7M

b) Discuss the various factors affecting the transient stability of the system. 7M

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AR16

CODE: 16ME3018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, April,2019

DESIGN OF MACHINE MEMBERS – II

(Mechanical Engineering)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Derive the expression for Lame's equation cylinder wall thickness? 8M
   b) The inner diameter of a cylindrical tank for liquefied gas is 250 mm. The gas pressure is limited to 15 Mpa. The tank is made of plain carbon steel $10C_4$ (Sut=340 N/mm^2 and μ=0.27) and the factor of safety is 5. Calculate the cylinder wall thickness. 6M

(OR)

2. A four stroke internal combustion engine has the following specifications: Brake power = 7.5 kW; Speed = 1000 r.p.m.; Indicated mean effective pressure = 0.35 N/mm^2; Maximum gas pressure = 3.5 N/mm^2; Mechanical efficiency = 80 %. Determine: 1) The dimensions of the cylinder, if the length of stroke is 1.4 times the bore of the cylinder; 2) Wall thickness of the cylinder, if the hoop stress is 35 MPa; 3) Thickness of the cylinder head and the size of studs when the permissible stresses for the cylinder head and stud materials are 45 MPa and 65 MPa respectively 14M

UNIT-II

3. Design a connecting rod for four stroke petrol engine with the following data Piston diameter = 100 mm, stroke = 140 mm, length of the connecting rod from centre to centre = 315 mm weight of reciprocating parts = 18.2 N speed = 1500 rpm with possible over speed of 2500 compression ratio = 4:1 probable maximum explosion pressure = 2. 45 MPa. 14M

(OR)

4. Design a centre crankshaft for a single-cylinder vertical engine using the following data: Cylinder bore = 125 mm (L/r) ratio = 4.5 Maximum gas pressure = 2.5 MPa Length of stroke = 150 mm Weight of flywheel cum belt pulley = 1 kN Total belt pull = 2 kN Width of hub for flywheel cum belt pulley = 200 mm The torque on the crankshaft is maximum when the crank turns through 25° from the top dead centre and at this position the gas pressure inside the cylinder is 2 MPa. The belts are in the horizontal direction. Assume suitable data 14 M

UNIT-III

5. a) What are the advantages and disadvantages of V-belt drive over flat belt drive? 4M
   b) A-V belt is to transmit 20 kW from a 250 mm pitch diameter sheave to a 900 mm diameter pulley. The centre distance between the two shafts is 1000 mm. The groove angle is 40° and the coefficient of friction for the belt and sheave is 0.2 and the coefficient of friction between the belt and flat pulley is 0.2. The cross-section of the belt is 40 mm wide at the top, 20 mm wide at the bottom and 25 mm deep. The density of the belt is 1000 kg/m3 and the allowable tension per belt is 1000 N. Find the number of belts required. 10M

(OR)

6. a) What are the advantages and disadvantages of the chain drive over belt and rope drive. 4M

   b) Design a chain drive to connect a 12 KW, 1400 r.p.m electric motor to a centrifugal pump running at 700 r.p.m. The service conditions involved moderate shocks. 10M

   (i) Select proper chain and give a list of its dimensions.
   (ii) Determine pitch circle diameter of driving and driven sprockets.
   (iii) Determine the number of chain links.
   (iv) Specify the correct centre distance between the axes of sprockets.

UNIT-IV

7. A spur gear made of bronze drives a mild steel pinion with angular velocity ratio of 3.5 : 1. The pressure angle is 14.5° . It transmits 5 kW at 1800 r.p.m. of pinion. Considering only strength, design the diameter of gears and find also necessary face width. The number of teeth should not be less than 15 teeth on either gear. The elastic strength of bronze may be taken as 84 MPa and of steel as 105 MPa. Lewis factor for 14.5 ° pressure angle may be taken as 14M

$$y = 0.124 - \frac{0.684}{\text{No. of teeth}}$$

(OR)

8. A helical cast steel gear with 30° helix angle has to transmit 35 kW at 1500 r.p.m. If the gear has 24 teeth, determine the necessary module, pitch diameter and face width for 20° full depth teeth. The static stress for cast steel may be taken as 56 MPa. The width of face may be taken as 3 times the normal pitch. What would be the end thrust on the gear? The tooth factor for 20° full depth involute gear may be taken as 14M

$$0.154 - \frac{0.912}{z'_E},$$

UNIT-V

9. a) Outline the necessity of artificial cooling in journal bearings? 4M

   b) A full journal bearing of 50 mm diameter and 100 mm long has a bearing pressure of 1.4 N/mm^2. The speed of the journal is 900 RPM and the ratio of the journal diameter to the diameter clearance is 1000. The bearing lubricated with oil whose absolute viscosity at the operating temperature of 75^{0}C may be taken as 0.011 N-S/m^2. The room temperature is 35^{0}C. Determine the amount of artificial cooling required. 10M

(OR)

10. a) Compare between roller contact and sliding contact bearings 4M

    b) A ball bearing operates on the following work cycle: 10M

Element No.	Radial load (N)	Speed (R.P.M.)	Element time (%)
1.	3000	720	30
2.	7000	1440	40
3.	5000	900	30

The dynamic load capacity of the bearing is 16 600 N. Calculate (i) the average speed of rotation; (ii) The equivalent radial load; and (iii) The bearing life.

AR16

CODE: 16EC3019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular Examinations, April,2019

ANTENNA AND WAVE PROPAGATION

(Electronics and Communication Engineering)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.		What is a Hertzian dipole? Discuss the time variations of the current and charges associated with the Hertzian dipole. Also discuss the characteristics of the electromagnetic field due to the Hertzian dipole.	14M
		(OR)	
2.		Derive the expression for radiation resistance of a half wave dipole?	14M

UNIT-II

3.	a)	Find the Directivity of n-element linear array for the case of broadside?	7M
	b)	Find the radiation Patten of 4 & 8 isotropic elements fed in spaced λ/2 apart by using Pattern multiplication.	7M
		(OR)	
4.	a)	Find out null to null beam width of end fire array when array length 10 λ and number of elements=30	7M
	b)	What are the advantages and disadvantages of binomial array?	7M

UNIT-III

5.	a)	Write a short note on V antenna and Inverted V antenna? Discuss its applications.	7M
	b)	Design Yagi-Uda antenna of six elements to provide a gain of 12 db operating at 225 MHz operating frequency?	7M
		(OR)	
6.	a)	Explain the different modes of operation of helical antenna in detail.	7M
	b)	Explain the operation of Rhombic antenna in detail.	7M

UNIT-IV

7.	a	With neat diagram explain the principle of lens antenna? What is zoning antenna? what is the purpose zoning.	7M
	b	Explain antenna Gain measurement techniques.	7M
		(OR)	
8.	a)	With neat diagram explain the cassegrain feeding system and offset feeding system in for parabolic antenna	7M
	b)	Explain the operation of the Horn antenna in detail. Also discuss the design equations of Horn antenna	7M

UNIT-V

9.	a)	Explain in detail about Ground wave propagation.	7M
	b)	Explain in detail about Sky wave propagation	7M
		(OR)	
10.	a)	Deduce an expression for the critical frequency of an ionized region in terms of its maximum ionization density.	7M
	b)	Derive the expression for calculating field strength at a distance in space wave Propagation.	7M

AR16

CODE: 16CS3016 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April, 2019
WEB TECHNOLOGIES
(Common to CSE & IT)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.		Define form. Explain form elements for registration page of any exam portal.	14M
		(OR)	
2.	a)	What is the purpose of frame and design a web page layout with an appropriate example?	7M
	b)	Contrast the types of list with suitable example.	7M

UNIT-II

3.	a)	Write a javascript program for array reversing.	7M
	b)	Define an event. With suitable examples demonstrate the events on load and on submit.	7M
		(OR)	
4.		Explain the steps to be followed by a programmer involved in processing an Ajax based application.	14M

UNIT-III

5.	a	Write about internal DTD and external DTD	7M
	b	Differentiate DOM and SAX parsers	7M
		(OR)	
6.	a)	Define DOM. Generate an XML DOM tree for specification of a hard disk.	7 M
	b)	Explain the types of nodes in DOM used to represent an XML document.	7 M

UNIT-IV

7.	a)	Recall the architecture of JDBC type 4 driver and list out its advantages.	7 M
	b)	Write a servlet code for login page.	7 M
		(OR)	
8.	a)	Illustrate the architecture of JDBC type 1 driver and list out its	7 M
	b)	Write a servlet code to store the employee details in to the database.	7 M

UNIT-V

9.	a)	Compare and contrast JSP over servlet.	7 M
	b)	Illustrate and explain the JSP MVC architecture.	7 M
		(OR)	
10.		Write JSP code to retrieve the student records from the database.	14M

AR13

CODE: 13CE3016 SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April, 2019

DESIGN OF STEEL STRUCTURES
(Civil Engineering)

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

PART-A

ANSWER ALL QUESTIONS [1 x 10 = 10 M]

1. a) Which type of joint is used if plate thickness is less than 5 mm?

   A). Single V butt weld, B). Single U butt weld,C). Square butt weld ,
   D). Double U butt weld

   b) Which of the following joint have high corrosion resistance?

   A)Welding joint, B) Riveted joint, C) Bolted joint, D)None of the above

   c) A beam is defined as a structural member subjected to

   A) axial loading, B) transverse loading C) axial and transverse loading D) none of these.

   d) Based on lateral supports to compression flanges beams are classified into _____ types.

   e) The most economical section for a column, is

   A)Rectangular, B)solid round, C)tubular,D) none

   f) The best arrangement to provide unified behaviour in built up steel columns is by

   A)Battening, B) tie plates, C) perforated cover plates,D) lacing

   g) For determination of allowable stress in axial compression, Indian Standard Institution has adopted
   A) Euler's formula B) Rankine formula C) Engesser formula D) Secant formula

   h) Gantry girders are designed to resist
   A)lateral loads, B) longitudinal loads and vertical loads, C)lateral, longitudinal and vertical loads, D) lateral and longitudinal loads

   i) Shear buckling of web in a plate girder is prevented by using

   A) vertical intermediate stiffenerB) horizontal stiffener at neutral axis C) bearing stiffener D) none of the above

   j) Economical depth of a plate girder corresponds to
   A) minimum weight, B) minimum depth C) maximum weight D) minimum thickness of web

PART-B

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

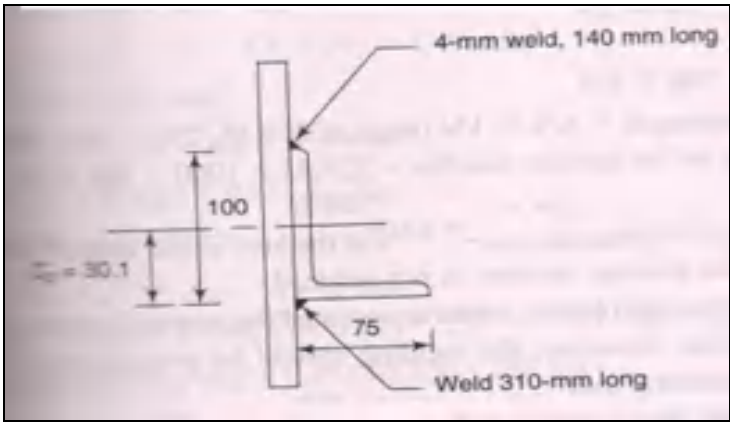
UNIT-I

2. a) What are the advantages of the welded connections? 4M

   b) Design a welded seat angle connection between abeam MB300 and column HB200 for a reaction of beam 100KN, assuming Fe410 grade steel (f_y=250MPa) and site welding. 8M

(OR)

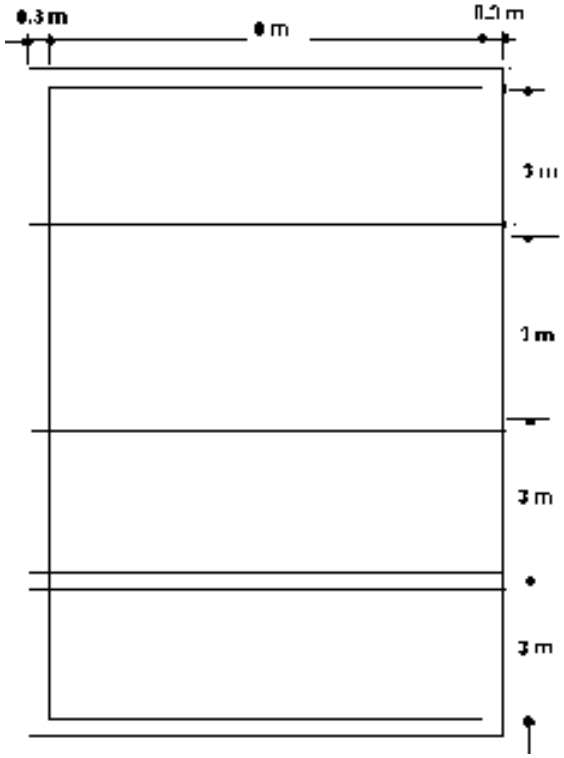
3. a) Determine the tensile strength of a roof truss diagonal of 150x75x10mm (f_y=250MPa) connected to the gusset plate 6 mm weld as shown in fig. 8M



   b) Explain any two types of welded joints in brief? 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 1.5KN/m^2. Design the steel beam. 12M



(OR)

5 Design a simply supported beam of 10m effective span carrying a total factored load of 60KN/m. The depth of beam should not exceed 500mm. The compression flange of the beam is laterally supported by floor construction. Assume stiff end bearing is 75mm. 12M

UNIT-III

6 Design a stiffened seat angle for a reaction of 300kN from the beam of ISMB 400. This beam has to be connected to a column of size ISHB 200. Assume Fe 410 grade steel and shop weld. 12M

(OR)

7 A column section ISHB 300@ 577N/m is carrying a factored axial load of 600KN,a factored axial load of 600KN, a factored moment of 30KN-m and a factored shear force of 60 KN. Design a suitable column splice. Assume ends are milled. 12M

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: 12 M

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 types and uses of gantry girder with neat sketches 12M

UNIT-V

10. Design a welded plate girder of span 26m to carry superimposed load of 30KN/m. Avoid 12M

Use of bearing and intermediate stiffeners. Use Fe 415(E250) steel.

(OR)

11. Write down the step wise procedure for design of plate girder 12M

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AR13

SUB CODE: 13HS3005 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April, 2019

MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCE
(Common to EEE & ECE)

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

PART-A

Answer all questions **10X1=10M**

1. a) Define demand
   b) What is demand forecasting?
   c) What is isoquants?
   d) Define opportunity cost
   e) Write any two features of perfect competition.
   f) Define market structure
   g) Write any four principles of management.
   h) What is leadership?
   i) Define marketing
   j) What is placement?

PART-B

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

UNIT-I

2. Write and explain about determinants of demand. (12M)

(OR)

3. Explain about different types of elasticity of demand. (12M)

UNIT-II

4. What is economies of scale? Explain about internal and external economies of scale. (12M)

(OR)

5. Define cost. Discuss about different types of costs. (12M)

UNIT-III

6. Explain about monopoly and monopolistic competition with examples. (12M)

(OR)

7. Discuss about price-output determination in case of monopoly. (12M)

UNIT-IV

8. Write and explain about different functions of management. (12M)

(OR)

9. Explain about styles of leadership in detail. (12M)

UNIT-V

10. Discuss in detail about different channels of distribution. (12M)

(OR)

11. What is selection? Explain about selection process in detail. (12M)

AR13

CODE: 13ME3018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April, 2019

METROLOGY
(Mechanical Engineering)

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

PART-A

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

1. a) Define Tolerance
   b) Name the fit between the hole having diameter of 20±0.04 mm and shaft having diameter of 20±0.02mm.
   c) Define least count.
   d) What are the applications of optical flats?
   e) What are the applications of auto collimators.
   f) Write working principle of optical projector.
   g) Draw the ISI symbols of surface finish with details.
   h) Write working principle of electrical comparators.
   i) Define pitch diameter of thread.
   j) List the instruments used in machine alignment tests.

PART-B

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

UNIT-I

2. a) Explain the Hole and Shaft basis systems with neat sketches. [6M]
   b) Evaluate limits and fits for a pair of Diameter 30 H7/g6 [6M]

(OR)

3. a) List and explain different types of fits with details. [8M]
   b) Write short notes on (i) Selective Assembly, (ii) Interchangability [4M]

UNIT-II

4. a) Explain the working principle of differential micrometer with neat sketch. [6M]
   b) Design and explain 'GO' and 'NOGO' gauge used to shat diameters of 39.98±0.02 mm [6M]

(OR)

5 a) Explain angular measurement using bevel protractor with neat sketch. [6M]
   b) Explain working principle of pneumatic comparators. [6M]

AR13

CODE: 13ME3018 **SET-1**

UNIT-III

6.	a)	Describe the working principle of auto collimators and its applications.	[8M]
	b)	Explain the working principle of NPL interferometer.	[4M]
		(OR)	
7.	a)	How surface irregulaties are measured with optical flats.	[8M]
	b)	Write short notes on straight edges and surface plates.	[4M]

UNIT-IV

8.	a)	Describe the factors causing surface roughness and surface waviness.	[6M]
	b)	Explain working principle of profilograph with neat sketch.	[6M]
		(OR)	
9.		List various mechanical comparators and explain any two mechanical comparators.	[6M]

UNIT-V

10.	a)	Describe various errors in screw threads.	[6M]
	b)	Explain alignment test on a milling machine.	[6M]
		(OR)	
11	a)	List and explain the gear measurement methods.	[6M]
	b)	List the co ordinate measurement methods and explain any one of them.	[6M]

AR13

CODE: 13CS3016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, April, 2019

WEB TECHNOLOGIES

(Common to CSE & IT)

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

PART-A

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

1. a) What are the advantages of adding CSS to a HTML Page?
   b) Give the syntax for adding a Java script code to a HTML page.
   c) Write any 2 differences between HTML and XML?
   d) SAX stands for _____
   e) Define Session Tracking. List different Session Tracking techniques.
   f) Give the structure of deployment descriptor (web.xml) file present in Tomcat directory in relation to Servlets.
   g) _____ method is used to read Form data in a JSP page
   h) Give the syntax for evaluating expression 2+3*5 using JSP Expressions Scripting element
   i) List different categories of JDBC Drivers.
   j) DriverManager.getConnection(_____ , _____ , _____); What are the parameters that are included ?

PART-B

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

UNIT-I

2. a) Design the following table structure using HTML table tags (6M)

Table Demo

<table>
<tr><td rowspan="2">Header1</td><td colspan="3">Header2</td></tr>
<tr><td>Cell 1</td><td>Cell 2</td><td>Cell 3</td></tr>
<tr><td colspan="2">Cell 4</td><td>Cell 5</td><td>Cell 6</td></tr>
<tr><td>Cell 7</td><td>Cell 8</td><td colspan="2"><table><tr><td colspan="2">Nested Table</td></tr><tr><td>One</td><td>Two</td></tr><tr><td>Three</td><td>Four</td></tr></table></td></tr>
</table>

   b) Explain in detail how events are handled in JavaScript and Write a JavaScript program to validate Login form consisting of username and password. (6M)

(OR)

3. a) Design the following web page consisting of 4 frames using HTML Frames. Fill all the 4 Frames with different colors. (6M)

b) Define CSS. What are the different ways in which CSS can be added to a web page? Give examples for each.

UNIT-II

4. a) What is XML DTD? Write both Internal and External DTDs for the following XML file (6M)

Books.xml:

```
<?xml version="1.0"?>
<bookstore>
    <book>
        <title>WEB TECHNOLOGIES</title>
        <author>Uttam.K.Roy </author>
        <price>Rs.300 </price>
    </book>
    <book>
        <title>DATA STRUCTURES</title>
        <author>Gilberg </author>
        <author>Forouzan</author>
        <author>Prasad</author>
    </book>
</bookstore>
```

b) Differentiate between DOM and SAX XML Parsers. (6M)

(OR)

5. a) Explain the basic structure of an XML document. Differentiate XML and HTML. (6M)

   b) Define XML Schema? Design an XML Schema for the following XML document (6M)

Students.xml:

```
<?xml version="1.0"?>
<students>
        <student roll=”1”>
    <firstname> James </firstname>
    <lastname> Watson </lastname>
    <year> 3 </year>
    <courses>
        <course id=”1”>
            <name> Advanced Java </name>
        </course>
        <course id=”2”>
            <name> Web Technologies
</name>
        </course>
    </courses>
</student>
</students>
```

UNIT-III

6. a) Illustrate with an example how to create and compile the Servlet source code and give the importance of Deployment Descriptor (web.xml) in deploying a Servlet web application. (8M)

   b) Define Cookie. Illustrate with an example the process of creating and accessing cookies. (4M)

(OR)

7. a) Explain in detail Life cycle of a Servlet. Give the syntax for all the life cycle methods. (6M)

   b) Write a Servlet that Welcomes the user by name [Eg: Welcome CSE]. Accept the username through a HTML form (6M)

UNIT-IV

8. a) What is the syntax for declaring variables and methods in JSP? Give examples (6M)

   b) Write a JSP program to display even numbers from 1 to 20. (6M)

(OR)

9. a) List different implicit JSP objects and explain in detail about them with examples (6M)

   b) Explain in detail JSP action elements with examples. (6M)

UNIT-V

10. a) Write a JSP program that outputs details of all the employees (employee ID, name, address, department, salary) stored in the Employee database using JDBC (6M)

    b) Define JDBC. Explain the JDBC architecture. (6M)

(OR)

11. a) Design a JSP program that outputs details of all the books in the technical-library database with author names starting with the letter 'A' using JDBC (6M)

    b) List and explain all the classes and interfaces in javax.sql package (6M)

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