AR16

CODE: 16CE3016   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
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. a) Write the advantages and disadvantages of welded connections   7M
    b) Write the types of welded joints with the help of a neat sketch   7M
    (OR)
2. A tie member of a roof truss consists of 2 ISA100, 75, 8mm. The angels are   14M
    connected to either side of a 10mm gusset plates and the member is
    subjected to a working pull of 300kN.Design the welded connection.
    Assume connections are made in the workshop.

UNIT-II

3. A conference hall 8m x 18m is provided with a 120mm RCC slab over   14M
    rolled steel beams spaced 3mc/c. A wearing coat of 100mm average
    thickness is provided over the roof. Design the beam section if, the flange of
    the beam is laterally supported throughout.
    (OR)
4. Design a two span continuous beam 8m long, each span being 4m. It   14M
    supports a design uniform load of 75kN/m.Use steel of grade Fe410.

UNIT-III

5. Design a tension member to carry a factored tensile load of 400kN. Two
    angles   placed back-to-back with long legs outstanding are desirable. The   14M
    length of the member is 2.9m
    (OR)

6. Design a built-up column with two channels placed face-to-face and   14M
    separated apart. The column is of 6.6m effective length and supports a
    factored load of 1500kN.Also, design the lacing system.

UNIT-IV

7. Design a simply supported gantry girder to carry an electric overhead travelling crane for the following data: Crane capacity-320kN, weight of crane and crab-300kN, Weight of Crane- 200kN, Minimum approach of crane hook- 1.2m, Distance between c/c of wheels- 3.2m, distance between c/c of gantries-16m, Span of gantry girder-4m, weight of rails- 300N/m, height of rails-75mm. 14M

(OR)

8. Two electrically operated overhead travelling cranes are to be used in a bay of an industrial building. Design the gantry for the following data: Crane capacity-250kN(each), Bay width-18m, Spacing of columns-8m, Weight of crane and crab-250kN, Minimum approach of crane hook-1.2m, Minimum distance between cranes-2m, wheel base-3.2m 14M

UNIT-V

9. A welded plate girder of span 18m has following elements. Flange plates 400 x 16 mm one plate for each flange; web 2000 x 10mm. Compute the sectional properties and moment of resistance of the plate girder. Design also the load carrying and end bearing stiffeners, if the plate girder is to carry uniformly distributed load of 120kN/m. 14M

(OR)

10. A welded plate girder of span 20m consists of following elements. Flange plates 500 x 32mm one plate for each flange, web 2200 x8mm. The girder is subjected to a uniformly distributed load of 80kN/m. It is also subjected to a lateral load of 2kN at mid-height of the girder. Design the vertical stiffeners. 14M

AR16

CODE: 16EE3018   SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
POWER SYSTEM ANALYSIS
(Electrical And Electronics Engineering)

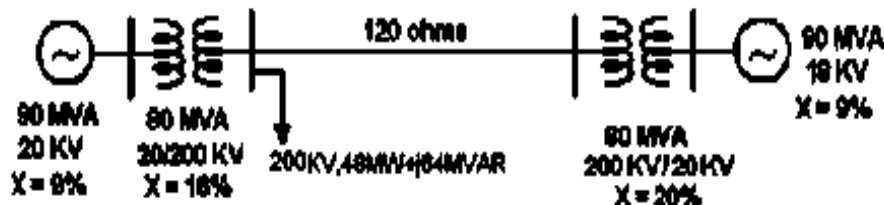Time: 3 Hours   Max Marks: 70

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) Define per unit value. Write the equation for base impedance with respect to three phase system.   6M
   b) Draw the p.u impedance diagram for the system shown in figure. Choose Base MVA as 100 MVA and Base KV as 20 KV.   8M

(OR)

2. a) Form the Ybus for the given network: 7M

Element	Positive sequence reactance
1-2	j1.0
2-3	j0.4
2-4	j0.2
3-4	j0.2
3-1	j0.8
4-5	j0.08

   b) Describe the advantages of the p.u form of representation?   7M

UNIT-II

3. With the help of a neat flow chart, explain the Newton-Raphson method of load flow solution when the system contains voltage controlled busses in addition to swing bus and load bus and also write the step by step computational procedure of NR method.   14M

(OR)

4. a) Derive the static load flow equations of n-Bus system.   6M
   b) Explain the step by step computational procedure for the Gauss-Seidel method of load flow studies   8M

1 of 2

5. a) With the help of a detailed flow chart, explain how a symmetrical fault can be analyzed using Z_{bus}. **7M**

   b) The short circuit MVA at the bus bars for a power plant A is 1200 MVA and for another plant B is 1000 MVA at 33 KV. If these two are to be interconnected by a tie-line with reactance 1.2 ohm. Determine the possible short circuit MVA at both the plants. **7M**

(OR)

6. a) Find the bus impedance matrix using bus building algorithm for the given network. **8M**
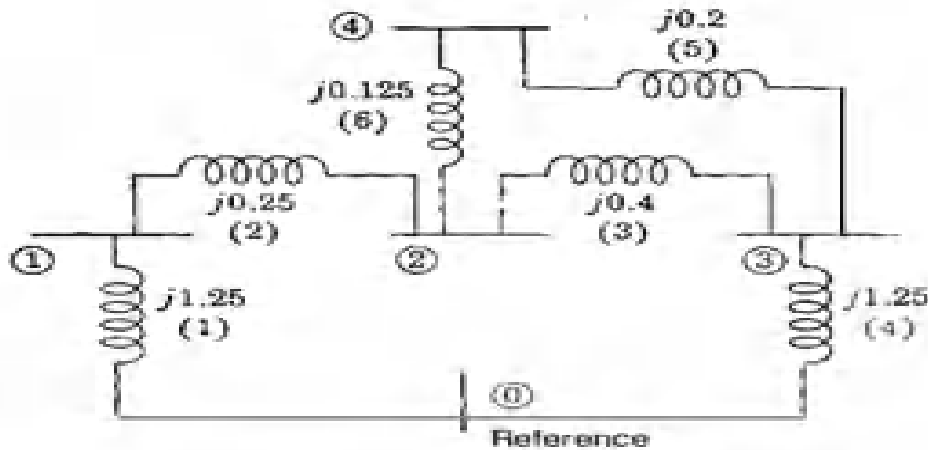
   b) What do you understand by short-circuit KVA? Explain. **6M**

UNIT-IV

7. a) List symmetrical components? Explain the symmetrical component transformation. **7M**

   b) Define sequence impedance? Explain the sequence network of an unloaded generator. **7M**

(OR)

8. a) Derive the expression for fault current for a single line-to-ground fault in a power system faulted through fault impedance Z_f. **7M**

   b) The phase 'b' of a three phase circuit is open. The currents in phases 'c' and 'a' are I and –I respectively. Determine the positive, negative and zero sequence components of the current in phase 'a'. **7M**

UNIT-V

9. a) Derive the swing equation for a single machine connected to infinite bus system. State the assumptions if any and state the usefulness of this equation. Neglect the damping. **7M**

   b) Describe the equal area criterion? How it is useful for predicting system stability. **7M**

(OR)

10. a) State the bad effects of instability. Distinguish between steady state and transient stability. **7M**

    b) Write short notes on assumptions made in deducing equal area criterion. **7M**

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AR16

SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
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) What is auto frettage? How does it help in increasing the pressure carrying capacity of a thick cylinder?   6M

    b) A thick spherical vessel of inner 'radius 150 mm is subjected to an internal pressure of 80 MPa. Calculate its wall thickness based upon the (i) Maximum principal stress theory, and (ii) Total strain energy theory. Poisson's ratio = 0.30, yield strength = 300 MPa.   8M

(OR)

2. The following data refer to a 4-stroke cylinder vertical engine.   14M
    Piston diameter=125mm
    Stroke=150mm
    Speed of the engine=1200r.p.m
    Weight of the reciprocating parts =45N
    Design stress for the material used =80N/mm^2
    Design a suitable connecting rod and check for stresses due to inertia.

UNIT-II

3. Design a mild steel connecting rod with an I section for a single cylinder spark ignition engine from the following data : Diameter of piston, D=0.104m   14M
    Weight of reciprocating parts =18.2N
    Length of connecting rod from centre to centre=0.314m
    Stroke length=0.14m
    Speed of the engine=1500rev/min
    Maximum explosion pressure = 2.28MPa gauge
    Assume that the maximum thrust takes place at T.D.C. during the explosion stroke.

(OR)

4. Design a plain carbon steel centre crankshaft for a single acting four stroke, single cylinder engine for the following data: 14M
    Piston diameter = 250 mm;
    Stroke = 400 mm;
    Maximum combustion pressure = 2.5 N/mm2;
    Weight of the flywheel = 16 kN;
    Total belt pull = 3 N;
    Length of connecting rod = 950 mm.
    When the crank has turned through 30° from top dead centre, the pressure on the piston is 1 N/mm^2 and the torque on the crank is maximum.

5. a) Derive an equation - Ratio of belt tensions for flat belts.   6M

    b) In a horizontal belt drive for a centrifugal blower, the blower is belt driven at600   8M
        r.p.m. by a 15 kW, 1750 r.p.m. electric motor. The Centre distance is twice the
        diameter of the larger pulley. The density of the belt material = 1500 kg/m3;
        maximum allowable stress = 4 MPa,μ_1 = 0.5 (motor pulley), μ_2 = 0.4 (blower
        pulley), peripheral velocity of the belt = 20 m/s. Determine the following:
        1. Pulley diameters; 2. Belt length; 3. Cross-sectional area of the belt; 4. Minimum
        initial tension for operation without slip; and 5. Resultant force in the plane of the
        blower when operating with an initial tension 50 per cent greater than the
        minimum value.

(OR)

6.   Design a chain drive to transmit power of 15KW from electric motor the speed of   14M
        the motor shaft is 970r.p.m and compressor is to be run at 330r.p.m. compressor
        operates in 2 shafts the minimum Centre distance should be 550mm. design a
        suitable chain drive .

UNIT-IV

7. a) Define backlash and explain the importance of backlash in gears with neat sketch.   6M

    b) Design a pair of spur gears which transmits 20kW at 1400 r.p.m. with a speed
        ratio of 4:1. (Select suitable materials and assume necessary parameters from
        Design data book)   8M

(OR)

8.   A pair of helical gears is to transmit 15 kW. The teeth are 20° stub in diametral   14M
        plane and have a helix angle of 45°. The pinion runs at 10000 r.p.m. and has 80
        mm pitch diameter. The gear has 320 mm pitch diameter. If the gears are made
        of cast steel having allowable static strength of 100 MPa; determine a suitable
        module and face width from static strength considerations and check the gears
        for wear, given σes = 618 MPa.

UNIT-V

9. a) Enumerate any three advantages and disadvantages of rolling-contact bearings   6M
        over sliding-contact bearings

    b) A single row deep groove ball bearing has a dynamic load capacity of 40500N   8M
        and operates on the following work cycle.
                a) Radial load of 5000N at 500 rpm for 25% of the time
                b) Radial load of 10000N at 700 rpm for 50% of the time and
                c) Radial load of 7000N at 400 rpm for remaining 25% of the time
        Calculate the expected life of the bearing in hours.

(OR)

10. a) Explain McKee's investigation on bearing characteristic number, bearing modulus   6M
        and coefficient of friction.

    b) The main bearing of a steam engine is 100 mm in diameter and 175 mm long. The   8M
        bearing supports a load of 30kN at 250r.p.m. lf the ratio of the diametric clearance
        to the diameter is 0.001.The absolute viscosity of the lubricating oil is 0.015 *kg/m-
        s,* find: 1. The coefficient of friction; and 2. The heat generated at the bearing due
        to friction.

AR16

CODE: 16EC3019   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
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. Explain the following terms in detail   14M
    i) Radiation Intensity   ii) Gain   iii) Directivity
    iv) Effective area

(OR)

2. Evaluate the current distribution on a short dipole and obtain the expressions for   14M
    the field components
    a) E_θ and   b) H_φ

UNIT-II

3. What is broad side array? Evaluate the expression for the radiation pattern for an   14M
    end fire array of N identical elements

(OR)

4. a) Given a linear, broadside, uniform array of 10 isotropic elements with separation   7M
        of d= $\lambda/4$ between the elements, find the directivity of the array.
    b) Find & draw the field pattern of 2-element linear array for the case of broadside?   7M

UNIT-III

5. a) Design a Rhombic antenna using a V-antenna and inverted V-antenna. Evaluate   7M
        design equations
    b) What is folded dipole antenna and explain its operation.   7M

(OR)

6. a) Design a helical shape antenna using a long wire with neat illustrations.   10M
    b) Calculate in db the directivity of 10 turn helix, having $\alpha=12^0$, circumference equal   4M
        to one wavelength

UNIT-IV

7. a) What are the general characteristics of an Yagi-Uda antenna and give applications.   7M
    b) Explain the operation of Corner reflector antenna in detail.   7M

(OR)

8. a) Discuss the principle of lens antennas with a neat sketch.   7M
    b) Discuss the analysis of non-metallic dielectric lens.   7M

UNIT-V

9. a) Describe the phenomenon of ground wave propagation, give its applications.   7M
    b) Write short notes on sky wave propagation   7M

(OR)

10. a) Determine the effective earth's radius in space wave propagation.   7M
    b) A high frequency radio link has to be established between two pints at a distance   7M
        of 2500km on earth's surface. Consider the ionosphere height to be 200 km and
        its critical frequency 5MHz, calculate the MUF for the given path

AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
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.	Demonstrate the different attributes for table, tr, td tags for student exam results portal.	14 M

(OR)

2.	a)	What is CSS? Explain various types and rules of CSS.	7 M
	b)	Illustrate grouping, descendant, child and id selectors with suitable examples.	7 M

UNIT-II

3.	a)	Write a java script program to sort the given integer elements in an array.	7 M
	b)	List the types of mouse events. With suitable examples demonstrate the events mouse over and double click.	7 M

(OR)

4.	Demonstrate the procedure of retrieving the results of a student by using Ajax.	14M

UNIT-III

5.	Write a program to display the data stored in an XML document by using XSL for any online shopping portal.	14 M

(OR)

6.	a)	Differentiate DOM and SAX parsers.	7 M
	b)	What is the importance of Internal and External DTD with suitable examples?	7 M

UNIT-IV

7.	a)	Explain the life cycle of servlet in detail.	7 M
	b)	How to implement session tracking using cookies in servlet.	7M

(OR)

8.	a)	Recall the architecture of JDBC type- 2 drivers and list out its advantages.	7 M
	b)	Write a servlet code to retrieve employee details from the database.	7 M

UNIT-V

9.	Write JSP code for storing and retrieving of book details from an online book store.	14 M

(OR)

10.	a)	Explain the various components of MVC architecture.	7 M
	b)	Illustrate the modle-2web architecture and list out the advantages over model-1.	7 M

AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-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) What is the maximum length of weld to be provided for fillet weld?
   b) What is the strength of partially penetrated but weld?
   c) What is the basis of classification of sections for flexural?
   d) What is expression for web crippling capacity under a applied load anywhere in the beam?
   e) What are the factors influencing buckling class of a column?
   f) Write the names of failures planes during block shear failure.
   g) Write the expression for interaction formula for the design of Gantry girder.
   h) How do you consider the impact load for gantry girder?
   i) What is the importance of flange curtailment?
   j) What is the reason for vertical stiffeners in the plate girder?

PART-B

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

UNIT-I

2. a) Explain the weld design procedure for a single angle member connected with gusset plate. Assume the single angle is welded on three sides on gusset.   **6M**
   b) A 12mm thick bracket plate is used to transmit a reaction of 100 kN at an eccentricity of 80mm from the face of column flange. Design the butt weld for grade Fe 410 steel and E43 electrode   **6M**

(OR)

3. A bracket plate is welded to a flange of a column ISHB 200, as shown in figure Calculate the size of weld required to support a factored load of 100 kN. Assume shop welding.   **12M**
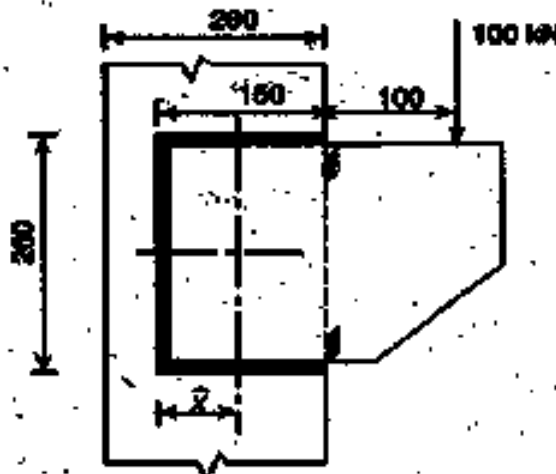
4. a) Explain concept of section classification with the help of moment curvature relationship. **6M**

   b) Check safety of section ISLB 350@0.495kN/m used for a continuous beam with maximum bending moment of 146.25 kN-m and max. shear force of 292.5kN. Check for deflection is not required. **6M**

(OR)

5. A two span continuous beam is fixed at A and simply supported at B and C. AB= 6m and BC= 4m. It carries factored UDL of 10kN/m over the entire length. Design uniform section. **12M**

UNIT-III

6. Compute the tensile capacity of an angle section ISA 200x150x8mm of Fe 410 grade of steel connected with the gusset plate with one row (4 no.) only of M20 bolts. **12M**

(OR)

7. A built-up column with two channel back to back for shed at Srikakulam is to be provided with lacing system. Design the section with effective length of the column is 7 m and supports a factored axial compressive load of 700kN. Design the column and single lacing system. **12M**

UNIT-IV

8. A gantry girder is to be designed for the following data: Longitudinal spacing of column = 8 m; c/c distance of gantry girder = 15 m; wheel spacing = 3.2 m; minimum hook approach (edge distance)= 1m;weight of crane girder = 100kN; weight of trolley car = 16kN. Design the gantry girder for 10t capacity. **12M**

(OR)

9. Design a simply supported gantry girder for the data of the building and crane is **12M**

Bay width	= 12m
Column spacing	= 8m
Capacity of each crane	= 300 kN
Weight of each crane girder	= 140 kN
Weight of each crab	= 15kN
Spacing of wheels	= 3.2 m
Self-weight of rail section	= 100 N/m
Assume self-weight of Gantry girder	= 2 kN/m
Minimum hook approach	= 1.2 m

UNIT-V

10. Design a plate girder to withstand u.d.l. of 50 kN/m over a span of 20m. The beam also supports a concentrated load of 150kN at centre of the span. The maximum depth of the beam is to be restricted to the economical depth. Design stiffeners. Draw elevation of girder. **12M**

(OR)

11. a) A plate girder of flanges 450x 35 mm and web is made of 1400x 8 mm, subjected to a factored moment of 5000kNm and factored shear force of 900kN. Stiffener spacing is 2m. Calculate the shear buckling capacity of web using tension field action. **6M**

   b) For the problem (11a) design the welded connection between flange and web also if the intermediate stiffeners of size 100x10mm both side are to be provided design the connection of intermediate stiffeners with web. **6M**

AR13

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021
MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCE
(Common to ECE & EEE)

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

PART-A
Answer all questions   **10X1=10M**

1. a) What is elasticity of demand?
   b) Write any two determinants of demand.
   c) Define Isocosts
   d) What is variable cost?
   e) Define perfect competition.
   f) Write any two disadvantages of monopoly.
   g) Define social responsibility
   h) What is motivation?
   i) Write any four sources of recruitment
   j) Define job evaluation

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

UNIT-I
2. Discuss in detail about law of demand and its exceptions.   (12M)
(OR)
3. Define demand forecasting. Explain any three methods of demand forecasting.   (12M)

UNIT-II
4. What is production? Discuss about least cost combination of inputs in detail.   (12M)
(OR)
5. Explain about Break-even analysis with its significance.   (12M)

UNIT-III
6. Discuss in detail about features of perfect competition.   (12M)
(OR)
7. Explain about price-output determination in case of monopolistic competition.   (12M)

UNIT-IV
8. Discuss in detail about Maslow's Theory of Human Needs with examples.   (12M)
(OR)
9. Explain about F.W.Taylor's scientific management theory in detail.   (12M)

UNIT-V
10. Write and explain about different functions of marketing.   (12M)
(OR)
11. Define performance appraisal. Explain about methods of performance appraisal.   (12M)

AR13

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

Time: 3 Hours   Max Marks: 70

PART-A

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

1. a) How tolerances are specified and indicated?
   b) Define basic size in limits and fits
   c) State the names of linear measuring instruments.
   d) State the meaning of wringing in slip gauges.
   e) Sketch the various patterns of interference bands observed in the following cases:
      (i) Perfect flat surface (ii) Convex shape
   f) Differentiate between surface roughness and waviness.
   g) Mention the basic requirements of a comparator.
   h) What is the 'best size wire'?
   i) Define the term constant chord.
   j) What is meant by alignment tests on machine tools?

PART-B

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

UNIT-I

2. a) Explain hole basis and shaft basis system with an examples.   7M
   b) Differentiate between interchangeable assembly and selective assembly, with suitable examples.   5M

(OR)

3. a) With the help of neat sketches state the essential conditions for clearance and interference fits.   5M
   b) In a hole and shaft assembly of 30 mm nominal size, the tolerances for hole and shaft are   7M

      Hole : $30^{+0.02}_{-0.00} \, mm$ and Shaft : $30^{-0.04}_{-0.07} \, mm$
      Determine
      (i) Maximum and minimum clearance
      (ii) Hole and shaft tolerances
      (iii) Maximum metal limits of hole and shaft

UNIT-II

4. a) Briefly explain with neat sketches of (i) Profile Gauge (ii) Plug Gauge.   6M
   b) Explain the construction and use of Sine bar with suitable sketches.   6M

(OR)

5. a) Design the general type GO gauges and NOGO gauges for components having 20H7/f8 fit. Given Gauge tolerance =10% of work tolerance. Assume the data following:
Upper deviation of shaft 'f' is $-5.5D^{0.41}$,
The standard tolerance unit $i=0.45 D^{1/3}+0.001D$, where D is the geometric mean of the lower and upper limits of diameter step in which the diameter consideration lies, D is in mm,
20mm falls in diameter steps of 18-30mm
The standard tolerance for IT7=16i and IT8=25i. ... 8M

b) Why slip gauges are termed as 'end standard'? Explain with suitable example, the method of making a required combination with the help of slip gauges. ... 4M

UNIT-III

6. a) Describe the working of NPL flatness interferometer with a neat sketch. ... 6M
   b) Explain how flatness errors of lapped surfaces are measured with an optical flat. ... 6M

(OR)

7. a) Describe with a neat sketch working principle of a Michaleson's interferometer. ... 6M
   b) What is the difficulty in using the optical flat alone? How do you overcome this difficulty in an interferometer? ... 6M

UNIT-IV

8. a) The heights of peaks and valleys of 20 successive points on a surface are 35, 25,40, 22, 37, 19, 41, 21, 42, 18, 42, 24, 44, 25, 40, 18, 40, 18, 39, and 21 microns respectively, measured over a length 20mm.Determine CLA and RMS values of roughness surface. ... 6M
   b) Describe the working principle of pneumatic comparator ... 6M

(OR)

9. a) Describe the help of neat sketch working principle of profilograph. ... 6M
   b) Describe the working principle of an electronic comparator. ... 6M

UNIT-V

10. a) With a neat sketch illustrate how the effective diameter of a screw thread may be checked using the three wire method. ... 6M
    b) What are the different types of CMM, explain briefly? ... 6M

(OR)

11. a) Describe a gear tooth Vernier and indicate how the tooth thickness is checked with this instrument ... 6M
    b) Explain with suitable sketches any two alignment tests performed on Milling machine. ... 6M

CODE: 13CS3016   **SET-1**
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, February-2021

WEB TECHNOLOGIES
(Computer Science & Engineering)

Time: 3 Hours   Max Marks: 70
PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**
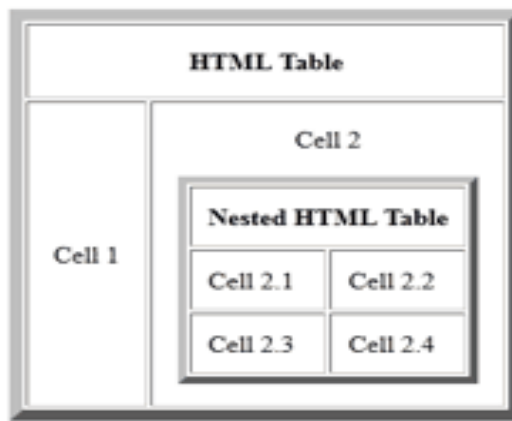
1. a) _____ tag is used to create hyperlinks in HTML. Give its syntax
    b) What is the main purpose of adding JavaScript code to a HTML page?
    c) List any four keywords that used in defining DTDs.
    d) What are the advantages of XMLSchemas over DTDs?
    e) Give the structure of deployment descriptor (web.xml) file present in Tomcat directory in relation to Servlets.
    f) _____ method is used to read Form data in a JSP page
    g) What is the purpose of <%@page %> directive element in JSP
    h) List any four JSP action elements
    i) What are the JDBC packages that are used for Database connectivity
    j) What is the name of the JDBC driver that converts JDBC calls directly into database specific calls

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

UNIT-I

2. a) Design the following web page using HTML lists   (6M)
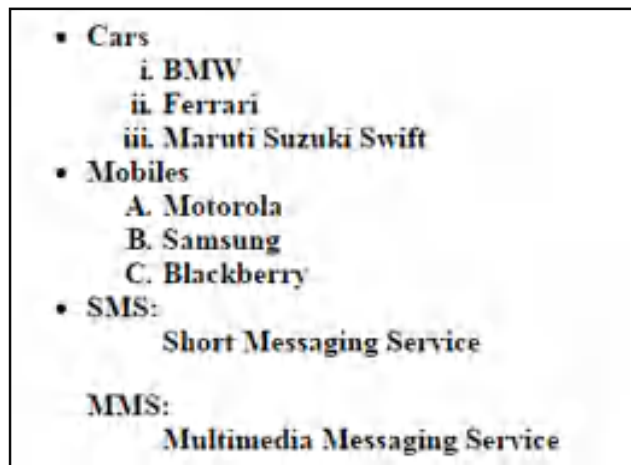
    b) Define CSS. What are the different ways in which CSS can be added to a web page? Give examples for each.   (6M)
(OR)
3. a) What are the sub tags of a <table> tag? Design the following table structure using HTML table tags   (6M)

b) (i) Write a JavaScript program that reads an integer and displays a message (3M)
whether it is an odd or even number? (3M)
(ii) Differentiate between HTML and DHTML

UNIT-II

4. a) What is XML Schema? Design an XML Schema for the following XML document (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 DTD? Write both Internal and External DTDs for the following XML file (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) What are the uses of Cookies in Web Pages? Illustrate with an example the process of creating and accessing cookies. (8M)

   b) What are the problems with servlets? Explain how JSP overcome those problems. (4M)

(OR)

7. a) Define Servlet. Sketch and explain the Life cycle of a Servlet. (6M)

   b) Explain in detail the anatomy of a JSP page. (6M)

UNIT-IV

8. a) Explain in detail about sharing data between pages in JSP using Session with an example. (6M)

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

(OR)

9. a) Explicate various Scripting elements present in JSP. (6M)

   b) List and explain the various Implicit Objects in JSP with suitable examples (6M)

UNIT-V

10. a) Draw the architectures of Various JDBC Driver Types. List their advantages and disadvantages (6M)

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

(OR)

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

    b) Write a JSP program that displays the details of all the books (title, author, publication, isbn, edition, price store in the technical library database. (6M)

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