AR16

CODE: 16CE2008 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, February-2021

STRUCTURAL ANALYSIS-I

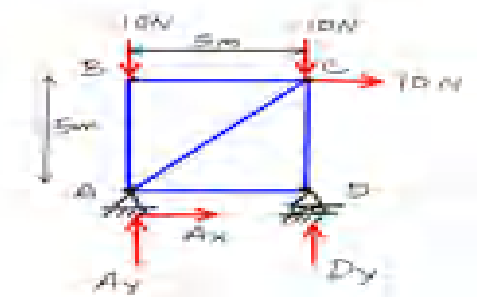
(Civil Engineering)

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

UNIT-I

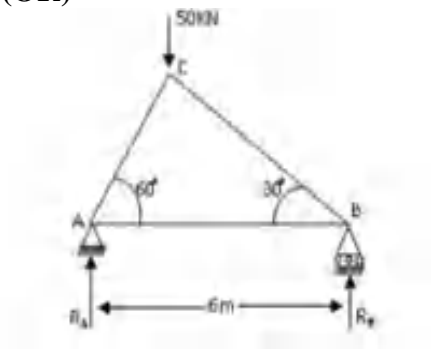
1. a) Analyse given truss by using methods of joints and determine external rections and internal forces in the members. 8m



b) Write types of frames and Assumptions in the members of a perfect frame. 6m

(OR)

2. Find the forces in the members *AB*, *BC*, *AC* of the truss shown below in Fig. End *A* is hinged and *B* is supported on rollers. 14m



UNIT-II

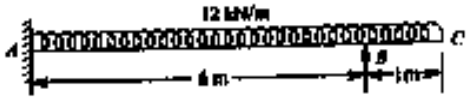
3. The propped cantilever of span 4.5m is propped at 3m from fixed end and carrying a point load of 45 kN at a distance of 1.5m from the fixed support Determine the Prop reaction and draw the SFD and BMD. 14m

(OR)

4. Calculate the fixed end moments and support reactions of fixed beam AB of length 6m carrying a UDL of 4 KN/M over the left half of the span. 14m

UNIT-III

5. a) Find the support moments and draw the SFD and BMD of give beam as shown in figure. 7m



b) Analyse a continuous beam of span's AB and BC, either ends are simply supported and length of each span 8m. The entire carrying an udl of 40 KN/M on whole span calculate the support moments and draw the SFS ad BMD. 7m

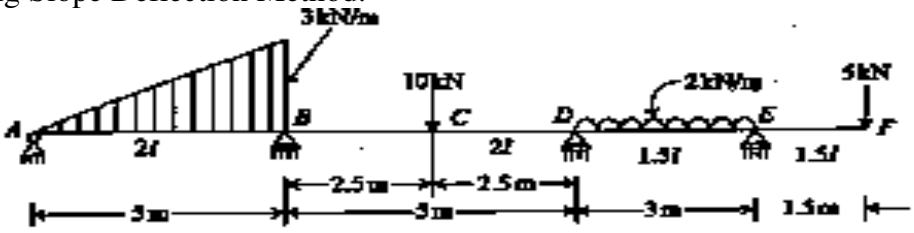
(OR)

6. a) Calculate the support moments for continuous beam having a spans of AB, BC,and CD with lengths 3m, 6m and 3m respectively. The span BC carrying a point load of 60 KN at a distance of 2m from the support B. end supports are simply supports. Draw the SFD and BMD. 7m

b) Find the support moments and draw the BMD for the given continuous beam as shown in fig. 7m

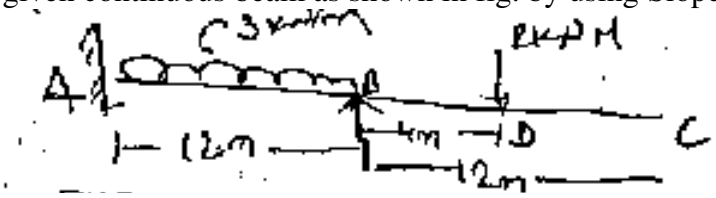
UNIT-IV

7. Find the support moments for the given continuous beam as shown in fig. by using Slope Deflection Method. 14m



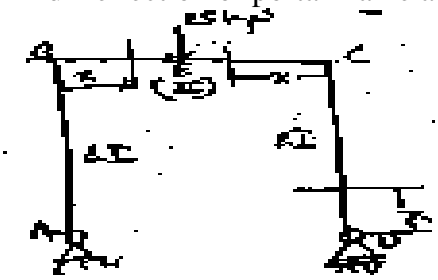
(OR)

8. Find the support moments and Reactions and also draw SFD and BMD for the given continuous beam as shown in fig. by using Slope Deflection Method. 14m



UNIT-V

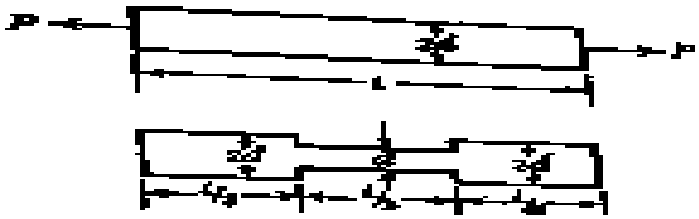
9. a) Find Deflection of portal frame at Point 'C'as show fig. 8m



b) Derive expression for strain energy stored due to bending. 6m

(OR)

10. a) Compare the strain energy two bars of same material and same length are subjected to an equal gradual applied tensile load as shown in fig. 8m



b) Derive expression for strain energy stored due to bending. 6m

AR16

CODE: 16EE2013 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, February-2021

CONTROL SYSTEMS

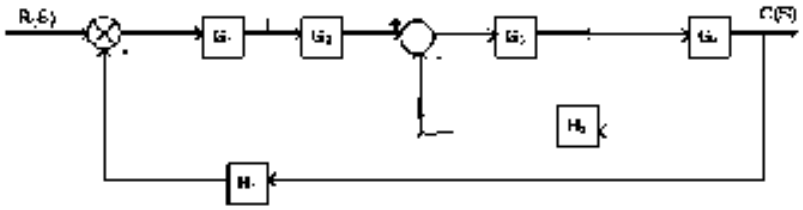
(Electrical & Electronics Engineering)

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

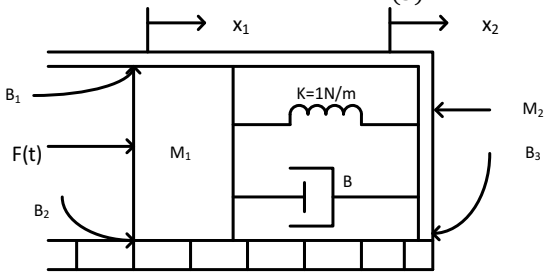
UNIT-I

1 For the given block diagram find the transfer function C(s)/R(s) by using block diagram reduction rules 14M



(OR)

2. Determine the transfer function of following mechanical system $\frac{X2}{F(S)}$; B_1=B_4=1 N-s/m 14M



B_2=B=1N-s/m M_1=M_2=1Kg

UNIT-II

3. a) Derive an expression for the transfer function of an AC Servo motor. 8M

b) The unit impulse response of a second-order system starting from rest is given by C(t) =12.5 e^{-6t}sin8t, t>=0, for this system calculate the damping ratio and the natural frequency 6M

(OR)

4. a) Derive the transfer function of field controlled dc servo motor 10M

b) A unity feedback system has a forward path transfer function G(S)= $\frac{K}{S(S+8)}$ where K is the gain of the system. Calculate the value K, for making this system critically damped. 4M

UNIT-III

5 For the unity feedback system has shown $G(s)=\frac{K}{S(S+1)(S+5)}$ sketch the root-locus plot by determining necessary points 14M

(OR)

6 For the unity feedback system has shown $G(s)=\frac{K}{S(S+6)(S^2+4S+13)}$ sketch the root-locus plot by determining necessary points 14M

UNIT-IV

7. Sketch the bode plot and determine stability for the following transfer function G(S) $=\frac{1}{S(0.5S+1)(0.2S+1)}$ 14M

(OR)

8. The open loop transfer function of negative feedback system is given by $G(s)H(s)=\frac{12}{S(S+3)(S+6)}$ using nyquist stability criteria find the stability of the system 14M

UNIT-V

9. What is a lead compensator, obtain the transfer function of lead compensator and draw pole-zero plot, and list out the effects and limitations 14M

(OR)

10. State space representation of a system is given by 14M

$\dot{X}(t)=\begin{bmatrix}0 & 1\\ 0 & -3\end{bmatrix}X(t)+\begin{bmatrix}1\\0\end{bmatrix}U(t)$ and $Y(t)=[2\ \ 4]\,X(t)$ and $X(0)=\begin{bmatrix}-1\\3\end{bmatrix}$ for the given system

a) Obtain the transfer function

b) Obtain the state transition matrix.

AR16

CODE: 16ME2012 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, February-2021

ENGINEERING METALLURGY

(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)	With a neat sketch, discuss metallic bond and characteristics associated with it.	7M
	b)	Explain the principle of bond formation in solids, with a suitable example.	7M
		(OR)	
2.	a)	Discuss the effect of grain boundaries on the mechanical properties of metals?	7M
	b)	What are the different methods in determining the grain size? Explain any one of them.	7M

UNIT-II

3.	a)	What do you mean by intermediate alloy phase? Explain any one type of intermediate alloy phase with some examples.	7M
	b)	Write a short note on electron compounds.	7M
		(OR)	
4.	a)	What is a solid solution? Give the classification of solid solutions?	7M
	b)	Explain the Hume-Rotherys rules for the formation of solid solutions?	7M

UNIT-III

5.	a)	What is eutectic reaction? How does it differ from a eutectoid reaction?	5M
	b)	Calculate the relative amounts of various phases that are present in 0.5% C steel, just above& just below the peritectic temperature.	9M
		(OR)	
6.	a)	What are the experimental methods used for the construction of phase diagrams?	7M
	b)	Mention important reactions and critical temperature lines of Fe-Fe_3C diagram?	7M

UNIT-IV

7.	a)	Classify steels? Explain the properties of plain carbon steels?	7M
	b)	Explain white cast iron and malleable cast Iron with neat sketch.	7M
		(OR)	
8.	a)	Mention the properties, microstructure and applications of tool steels.	7M
	b)	Discuss the structure and properties of SG cast iron.	7M

UNIT-V

9.	a)	Explain the step by step procedure to be followed for powder metallurgy technique.	7M
	b)	What is annealing? Differentiate between Process annealing and recrystallization annealing.	7M
		(OR)	
10.	a)	Explain in detail about different types of carburizing methods?	7M
	b)	Describe the method for determining the TTT diagram.	7M

AR16

CODE: 16EC2009 **SET-1**

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

ELECTRONIC CIRCUITS – II
(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.	a)	Write about the classification of oscillators	6M
	b)	Show that the gain of Wien bridge oscillator using BJT amplifier must be at least 3 for the oscillations to occur.	8M
		(OR)	
2.	a)	Explain RC phase shift oscillator with neat sketch.	7M
	b)	Draw and explain about the crystal oscillator with necessary equations	7M

UNIT-II

3.	a)	Explain about the effect of cascading on bandwidth of multistage amplifiers.	8M
	b)	Draw the Darlington pair amplifier and give its analysis	6M
		(OR)	
4.	a)	Write about the choice of transistor configuration in cascade amplifiers	4M
	b)	Explain RC coupled amplifier with neat sketches.	10M

UNIT-III

5.	a)	Explain CE hybrid- π model with neat sketh.	8M
	b)	Explain about feed back conductance and input conductance CE hybrid- π model.	6M
		(OR)	
6.	a)	Derive expression for CE Short Circuit Current Gain with neat sketches	7M
	b)	A BJT has hie=224Ω,h_{fe}=50 at Ic=1mA,with f_T=80MHZ and $C_{b'c}$=12pF. Determine the parameters gm, rbb' ,rb'e , Cb'e of the small signal high frequency of the BJT	7M

UNIT-IV

7.	a)	Explain class-B push pull power amplifier.	10M
	b)	Define thermal stability.	4M
		(OR)	
8.	a)	Draw the class-A power amplifier and show that the conversion efficiency can be improved with Transformer coupling from 25% to 50%.	7M
	b)	Draw and explain about MOSFET power amplifier	7M

UNIT-V

9.	a)	Explain the circuit of a single tuned amplifier with neat sketch..	8M
	b)	Write about the classification of tuned amplifiers	6M
		(OR)	
10.	a)	Draw and explain transistor series voltage regulator	7M
	b)	Write any two types of voltage regulators	7M

AR16

CODE: 16CS2010 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, February-2021

PRINCIPLES OF PROGRAMMING LANGUAGES

(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.	a)	Explain in detail about why to study programming languages?	7 M
	b)	Discuss about various phases of compilation?	7 M
		(OR)	
2.	a)	Explain about lexical and syntax analysis?	7 M
	b)	Explain about notations used of regular expressions and syntax of numeric constants?	7 M

UNIT-II

3.	a)	Explain about binding time, late and early binding.	7 M
	b)	Compare static scoping with dynamic scoping with example program?	7 M
		(OR)	
4.	a)	Explain the role of semantic analyser?	7 M
	b)	Explain about decoration of a top-down parse tree for (1 + 3) * 2 using Attribute Grammar with example?	7 M

UNIT-III

5.	a)	Explain about Naive recursive and Linear iterative Fibonacci function with example?	7 M
	b)	What is a tail-recursive function? Why is tail recursion important?	7 M
		(OR)	
6.	a)	Compare records and variants with examples.	7 M
	b)	What is a pointer? Discuss the advantages of pointers.	7 M

UNIT-IV

7.		What is exception handling? Explain in detail about Exception Propagation with suitable example?	14 M
		(OR)	
8.	a)	Explain about the calling sequence in detail?	7 M
	b)	Explain about the review of stack layout?	7 M

UNIT-V

9.	a)	Explain about copy constructor with example?	7 M
	b)	Explain about static and dynamic method binding?	7 M
		(OR)	
10.	a)	Discuss about Abstract classes?	7 M
	b)	Explain about Generic classes in object oriented programming?	7 M

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AR13

CODE: 13CE2008 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

II B.Tech II Semester Supplementary Examinations, February-2021

STRUCTURAL ANALYSIS-I

(Civil Engineering)

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

PART-A

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

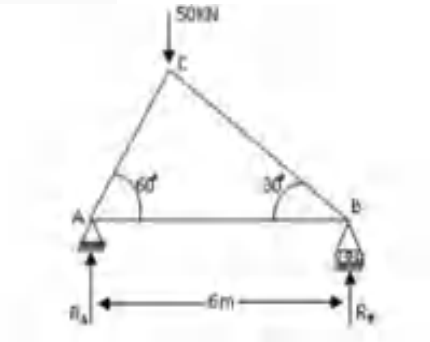
1 a) A propped cantilever beam of length "l" carries a u.d.l load "w" per unit run over the whole.
b) A cantilever beam of length 5m carries a uniformly distributed load of 100 N/m throughout its length. The maximum shearing force in the beam is?
c) In a propped cantilever at the fixed end what is the slope and deflection.
d) The disadvantages of fixed beam is?
e) The fixing moment in a fixed beam carrying an eccentric point load is?
f) Defined the continuous beam is?
g) What is the basic formula for Clapeyron's theorem of three moment equation for continuous beam with sinking support is?
h) What is the strain energy stored in a simply supported beam due to bending moment?
i) In a cantilever carrying a uniformly varying load starting from zero at the free end, the shape of Bending moment diagram is
j) Absolute maximum bending moment occurred in?

PART-B

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

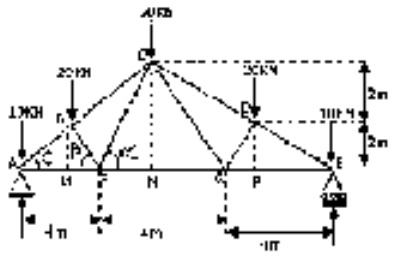
UNIT-I

2. Find the forces in the members *AB*, *BC*, *AC* of the truss shown below in Fig. End *A* is hinged and *B* is supported on rollers. 12m



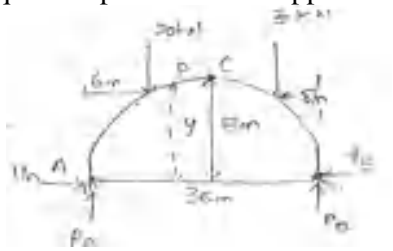
(OR)

3. Determine the forces in the members of the truss loaded as shown in the Fig. Also indicate the nature of the force (tensile or compressive). 12m



UNIT-II

4 Analyse the three hinged parabolic arch as shown in fig and te radial shear, normal thrust and bending moment at the quarter span from left support. 12m



(OR)

5 A three-hinged segmental arch has a span of 40 m and a rise of 7 m. It is subjected to a load of 80 kN acting at 10 m from the right support. Find (i) the horizontal thrust and vertical reactions at supports. and (ii) normal thrust., Radial shear, and bending moment at 10 m from the left support. 12m

UNIT-III

6. a) The propped cantilever of span 4.5m is propped at 3m from fixed end and carrying a point load of 45 kN at a distance of 1.5m from the fixed support Determine the Prop reaction and draw the SFD and BMD. 6m

b) A propped cantilever of span l carrying a udl W KN/m to whole span. Calculate the support reactions and maximum moment. 6m

(OR)

7. Find the fixed moments and support reactions of a fixed beam AB of length 6m, carrying a udl of 4 KN/m over the left half of the span. And draw the SF and BM digrams. 12m

UNIT-IV

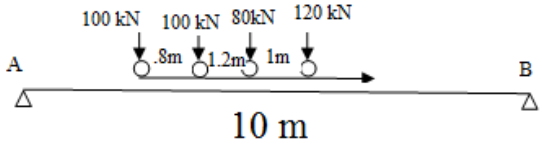
8 Draw the SF and BM diagrams for a given continuous beam 12m

(OR)

9 A coniferous beam ABC consists of spas AB and CD of lengths 12m and 18m. The beam carries a concentrated load of 30 KN at te middle span of AB and a clockwise couple of 90 KN/m at the middle of the span BC. Determine the support moments and reactions at supports. Draw also SF and BM diagrams. 12m

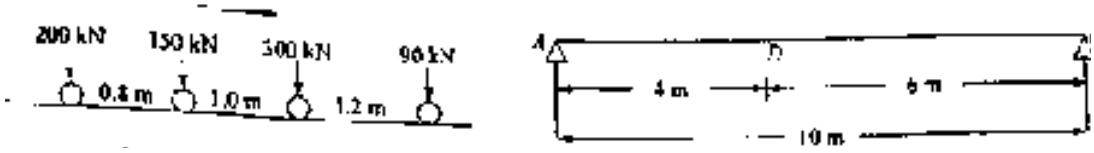
UNIT-V

10. Find the maximum bending which can occurs under the 80 kN load in a given girder. The load moves from left to right on a girder of span 10m. 12m



(OR)

11. a) The wheel loads as shown in figure rolling over along a beam of span 10m find the maximum bending moment which can occurs at a section of 4m from left end. 7m



b) Explain the effect of moving loads and uses of influence lines? 5m

AR13

CODE:13EE2009 **SET-1**

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

CONTROL SYSTEMS
(Electrical and Electronics Engineering)

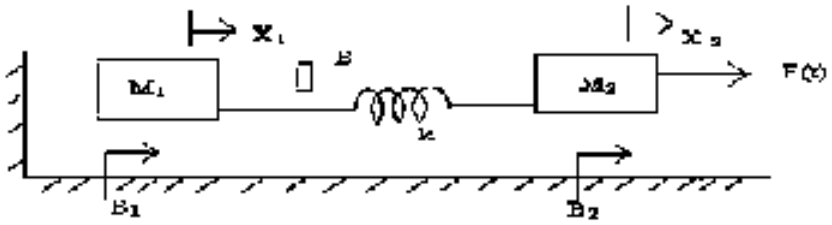
Time: 3 Hours **Max Marks: 70**

PART-A
ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) What is meant by a closed loop control system? Give example.
   b) What are the advantages and disadvantages of open loop control system
   c) What is the difference between AC servo motor and DC servo motor?
   d) What is a synchro?
   e) What is meant by steady state response?
   f) What happens when a system is not stable?
   g) Define phase margin and gain margin?
   h) State the Nyquist stability theorem
   i) What is the need of lag-lead compensator?
   j) What is controllability?

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

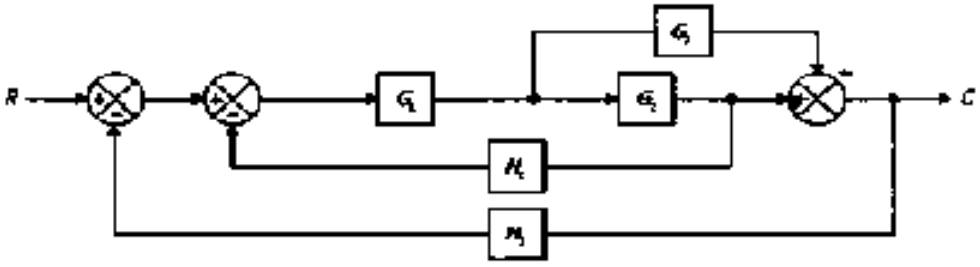
UNIT-I
2. a) Write the differential equations governing the Mechanical system shown in fig. and determine the transfer function 8M



   b) State and explain the Mason's gain formula 4M

(OR)

3. a) Obtain the transfer function C/R for the block diagram shown in the fig 8M



   b) What is control system? Explain about Open Loop and Closed Loop Systems 4M

UNIT-II

4.	a)	Draw the response of second order system for critically damp case and when input is unit step.	6M
	b)	Explain the construction and principle of operation of synchro transmitter	6M

(OR)

5.	a)	Define the steady state error and error constants of different types of inputs	4M
	b)	Damping factor and natural frequency of the system are 0.12 and 84.2 rad/sec respectively. Determine the rise time, peak time, maximum peak overshoot and settling time.	8M

UNIT-III

6.		Explain the procedure to draw root locus of a given transfer function.	12M

(OR)

7.		Sketch the root locus for the open loop transfer function of unity feedback control system given below: G(S) H(S) =K/S(S+1) (S+2).Also find K of breakaway point	12M

UNIT-IV

8.		Determine the gain margin and phase margin of a system having G(S) = 100 / {S(1+S) (1+0.1)S}using bode plot.	12M

(OR)

9.		Construct the polar plot for the function GH(S) =2(S+1)/ S2. Find Gain cross over frequency, Phase cross over frequency, Gain margin and Phase margin.	12M

UNIT-V

10.		What is compensation? Why it is needed for control system? Explain the types of compensation	12M

(OR)

11.		Define state, state vector, state variable, state transition matrix and explain the properties of state transition matrix.	12M

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AR13

CODE: 13ME2009 **SET-2**

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

KINEMATICS OF MACHINERY
(Mechanical Engineering)

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

PART-A

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

1. a) How many degrees of freedom exist for a structure?
   b) Define Inversion with reference to kinematics of Machinery.
   c) Write two examples for exact straight line motion mechanisms.
   d) Mention any one significant difference between Ackermann and Davis steering gears.
   e) Give an example of a mechanism that involves concept of Coriolis component of acceleration.
   f) Write the exact location of instantaneous center when two links are connected by a pin joint.
   g) How do you define 'dwell period' with respect to cams and followers?
   h) Draw a neat diagram of radial roller follower.
   i) What do you mean by 'gear train value'
   j) What is the purpose of differential gear of an automobile?

PART-B

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

UNIT-I

2. Explain the following inversions of single slider crank chain with neat diagram for each inversion [12M]
   1. Crank and Slotted Lever Quick Return Mechanism.
   2. Whitworth Quick Return Motion Mechanism.

(OR)

3. a) Explain the following with a neat diagram mentioning one example for each [6M]
      1. Incompletely constrained motion
      2. Completely constrained motion
      3. Successfully constrained motion
   b) A crank and slotted lever mechanism used in a shaper has a center distance of 250 mm between the center of oscillation of the slotted lever and the center of rotation of the crank. The radius of the crank is 100 mm. Find the ratio of time of return to time of cutting stroke. [6M]

UNIT-II

4. Explain Hart's Mechanism with a neat diagram. Mathematically, prove that it is an exact straight line motion mechanism. [12M]

(OR)

5. a) In a Davis steering gear, the distance between the pivots of the front axle is 1 metre and the wheel base is 2.5 metres. Find the inclination of the track arm to the longitudinal axis of the car, when it is moving along a straight path. [6M]

b) Two shafts are connected by a universal joint. The driving shaft rotates at a uniform speed of 1000 rpm. Determine the greatest permissible angle between the shaft axes so that the total fluctuation does not exceed 100 rpm. Also calculate the maximum and minimum speeds of the driven shaft. [6M]

UNIT-III

6. a) The mechanism shown in Fig. 1 has crank OB = 30 mm and length of connecting rod AB = 150 mm. The center of gravity of the rod is at G which is 50 mm from B. The speed of the crank is 150 rpm. For the position shown, in which OB is turned 45° from OA, Find 1. Velocity of point G [6M]

Fig. 1

b) Locate all the instantaneous centers for a four bar mechanism as shown in Fig. 2. The lengths of various links are: AD = 500 mm; AB = 250 mm; BC = CD = 300 mm. If the link AB rotates at a uniform speed of 100 rpm in the clockwise direction, find the angular velocity of BC. [6M]

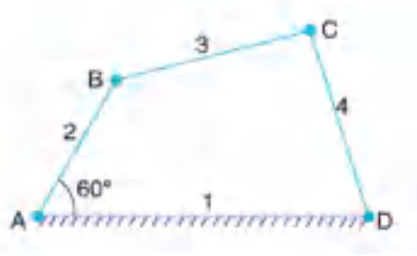

Fig. 2

(OR)

7. In a quick return mechanism, as shown in Fig. 3, the driving crank is 50 mm long and rotates at a uniform speed of 200 rpm in the clockwise direction. Find the velocity and acceleration of ram R. [12M]

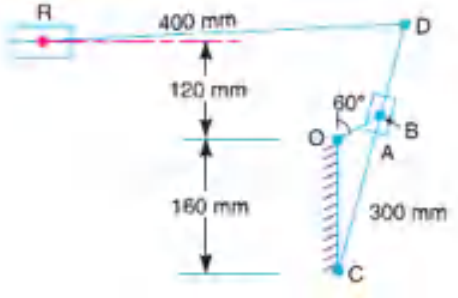

Fig. 3

UNIT-IV

8. A cam is to be designed for a knife edge follower with the following data : [12M]
Cam lift = 35 mm during 90^0 of cam rotation with simple harmonic motion
Dwell for the next 30^0.
During the next 60^0 of cam rotation, the follower returns to its original position with simple harmonic motion.
Dwell during the remaining 180^0.
Draw the profile of the cam when the line of stroke of the follower passes through the axis of the cam shaft.
The radius of the base circle of the cam is 35 mm.

(OR)

9. Draw the cam profile for an engine to give equal uniform acceleration and retardation during opening and closing of the valve each of which corresponds to 60^0 of cam rotation. The valve must remain in the fully open position for 30^0 of cam rotation. The lift of the valve is 35 mm and the least radius of the cam is 30 mm. The follower is provided with a roller of radius 25 mm and its line of stroke passes through the axis of the cam. [12M]

UNIT-V

10. a) Define the following in relevance to toothed gearing [6M]
    1. Module.
    2. Pitch circle
    3. Circular Pitch.

    b) The following data refer to a pair of 20^0 involute gears in mesh : [6M]
Module = 6 mm, Number of teeth on pinion = 12, Number of teeth on gear = 36, Addenda on pinion and gear wheel = 1 module.
Find the number of pairs of teeth in contact.

(OR)

11. a) The speed ratio of the reverted gear train, as shown in Fig. 4, is to be 12. The module pitch of gears A and B is 3.125 mm and of gears C and D is 2.5 mm. Calculate the suitable numbers of teeth for the gears. No gear is to have less than 24 teeth. [6M]

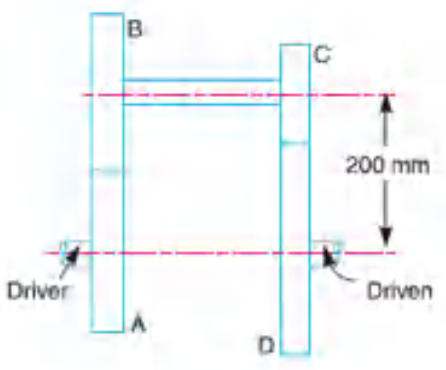

Fig. 4

b) In an epicyclic gear train as shown in Fig. 5, the number of teeth on the wheels A, B and C are 36, 18 and 50 respectively. If the arm rotates at 300 rpm clockwise, find 1. Speed of wheel C when A is fixed. 2. Speed of wheel A when C is fixed. [6M]

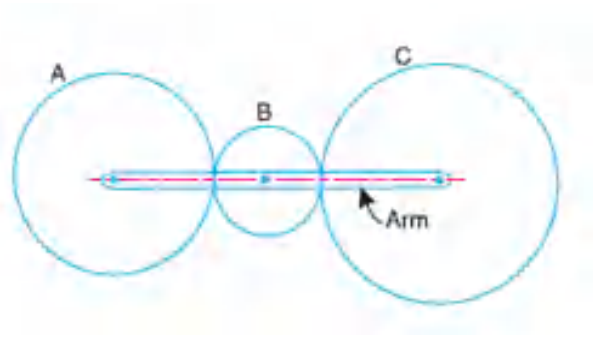

Fig. 5

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AR13

CODE: 13EC2008 **SET-I**

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

ELECTRONIC CIRCUITS – II
(Electronics and Communication Engineering)

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

PART-A

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

1. a) What is Line Regulation
   b) Define Tran conductance of transistor at high frequencies
   c) What is the effect of Bypass Capacitor?
   d) The Darling pair is called as_____
   e) Write any one advantage of Negative Feedback
   f) Define Loop Gain
   g) What is Bark haussan Criterion
   h) In a wein Bridge Oscillator. If the Value of R is 100kΩ and frequency of Oscillation is 10kHz.Find the Value of Capacitor C
   i) What is the technique used to eliminate oscillations in a tuned amplifiers?
   j) List any one Application of Tuned Amplifier

PART-B

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

UNIT-I

2. a) Explain RC coupled amplifier with frequency response characteristics **8M**
   b) Explain different coupling methods of multi stage amplifiers. **4M**

(OR)

3. a) Explain about choice of Transistor configuration in cascade Amplifier **6M**
   b) Draw the circuit diagram of Darlington pair circuit deriving its important characteristics. **6M**

UNIT-II

4. a) Explain the General Characteristics of negative feedback amplifiers **8M**
   b) An Amplifier has voltage gain with feedback of 100. If the gain without feedback changes by 20% and the gain with feedback should not vary more than 2%, determine the values of open loop gain A and feedback ratio β **4M**

(OR)

5. a) Derive R_i and R_o for Voltage Series Feedback Amplifier with neat circuit Diagram **6M**
   b) Explain about Classification of Feedback Amplifiers **6M**

UNIT-III

6. a) Explain the Operation of Wien Bridge Oscillator **6M**
   b) Determine the frequency of oscillations for Wien bridge Oscillator **6M**

(OR)

7. a) Explain the Operation of RC Phase shift Oscillator with neat Circuit Diagram **6M**
   b) Determine the frequency of oscillations for RC Phase shift Oscillator **6M**

UNIT-IV

8. a) Explain class A Power Amplifier. **8M**
   b) Explain about thermal stability. **4M**

(OR)

9. a) Classify Different Power amplifiers **4M**
   b) Explain class-B push-pull power amplifier. **8M**

UNIT-V

10. a) Explain Single tuned amplifier with the frequency response **7M**
    b) Explain about series Voltage Regulator **5M**

(OR)

11. a) Explain double tuned amplifier **6M**
    b) Explain about classification of Tuned amplifier and their applications **6M**

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AR13

CODE: 13CS2010 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B.Tech II Semester Supplementary Examinations, February-2021
PRINCIPLES OF PROGRAMMING LANGUAGES
(Common to CSE & IT)

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

PART-A

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

1. a) Define Lexeme and Token.
   b) Write differences between function and procedure
   c) Define Binding and Binding Time.
   d) What is an overriding method?
   e) What are two parts of a compound term?
   f) What are the distinct categories of Subprograms
   g) Explain about generic methods.
   h) What does a lambda expression specify?
   i) What are three forms of PROLOG Term?
   j) What are two forms of DEFINE?

PART-B

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

UNIT-I

2. a) What is an overloaded subprogram? Explain with an example. 6M
   b) Define name and structure type compatibility. What are relative merits of these two? 6M

(OR)

3. a) Explain about lexical analysis. Write short notes on context free grammer. 6M
   b) Explain in detail abstract data types in java with examples. 6M

UNIT-II

4. a) Explain about binding time, late and early binding. 6M
   b) Explain Thread class in JAVA and its methods 6M

(OR)

5. a) What is exception handling? How exceptions are handled in C++ and JAVA. 6M
   b) What are the problems posed by managing a heap of single-size cell and variable size cell? Explain in detail various methods for reclaiming garbage. 6M

UNIT-III

6. a) Write an analysis of the similarities and differences between java packages and C++ namespaces. 6M
   b) Explain the following terms : i) Message passing ii) Concurrency in Ada iii) Monitors. 6M

(OR)

7. Compare records and variants with examples. 12M

UNIT-IV

8.		What is exception handling? Explain in detail about Exception Propagation with suitable example?	12M

(OR)

9.	a)	Describe deep access and shallow access methods for implementing dynamic scoping.	6M
	b)	Explain with example how operand-evaluation order interacts with functional side effects.	6M

UNIT-V

10.	a)	Explain about constructor with example?	6M
	b)	Explain about static and dynamic method binding?	6M

(OR)

11.	a)	How PROLOG is different from other logic programming languages? Give an example for each feature.	6M
	b)	Explain the control structure of a PROLOG program.	6M

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