

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 parabolic arch hinged at the springings and crown has a span of 20 m. The central rise of the arch is 6 m. It is loaded with a uniformly distributed load of intensity 3 kN/m on the left 10m length. Calculate 14M
 (a) the direction and magnitude of reaction at the hinges,
 (b) bending moment, normal thrust and shear at 4m and 14m from left end.

(OR)

2. Derive an expression for horizontal thrust in a two hinged arch? 14M

UNIT-II

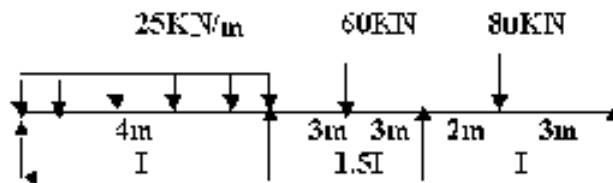
3. Two point loads of 6kN and 8kN spaced 6m apart across a girder of 16m span, the 6kN load leading from left to right. Construct the S.F and B.M diagrams stating the absolute maximum values by moving loads 14M

(OR)

4. A continuous beam ABC is simply resting on supports A and C, and continuous over the support B. The span AB is 4 m and the span BC is 6 m. Draw the influence line diagram for bending moment at B. Assume Flexural rigidity is constant throughout and calculate the influence line ordinates at 1 m intervals. 14M

UNIT-III

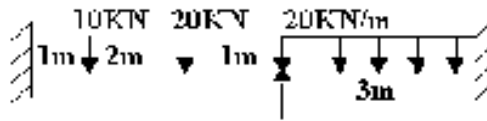
5. Analyze the continuous beam shown in figure by Moment distribution method and Sketch the BMD. 14M

**(OR)**

6. Explain the analysis procedure for a sway-frame by using slope deflection method? 14M

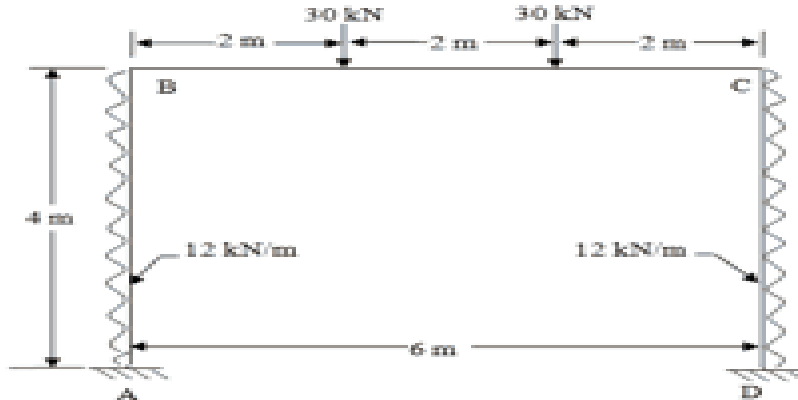
UNIT-IV

7. Analyse the Continuous beam shown in figure using Kani's method. Sketch the BMD & SFD. EI is constant. 14M



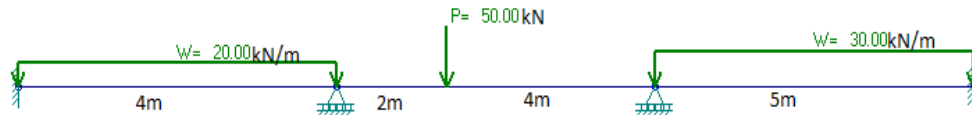
(OR)

8. Analyse the symmetric portal frame shown in figure by Kani's method 14M



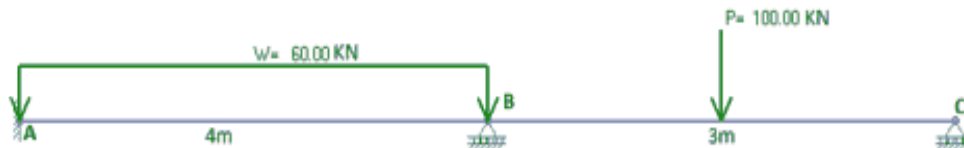
UNIT-V

9. Analyse the beam as shown in figure by using Stiffness method. Take EI as Constant. 14M



(OR)

10. Analyse the beam as shown in figure by using Stiffness method. When support B sinks by 20mm and take EI as 500 kNm^2 . 14M



AR16

CODE: 16EE3015

SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech I Semester Regular/Supplementary Examinations, October-2019

ELECTRICAL MEASUREMENTS

(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) A galvanometer has a resistance of 50 Ohms and it deflects full scale when a current of 10mA flows in it. How it can be converted into an ammeter of range 10A? 6M
- b) Compare the operational features of Moving coil and Moving Iron type instruments with suitable sketches. 8M

(OR)

2. a) Given a frame of permanent moving coil as 6m^2 . The number of windings around the coil is 50 turns and flux is 0.12 wb/m^2 . If 1mA current is allowed through the coil, calculate the deflection torque. 6M
- b) Discuss the following types of errors in moving iron instrument. 8M
 - (i) Error on account of stray magnetic fields
 - (ii) Error on account of change of frequency.
 - (iii) Temperature changes

UNIT-II

3. a) Using suitable plots, explain the characteristics of C.T and P.T 8M
- b) A 100/5A CT at its rated burden of 25VA has an iron loss of 0.2 W and magnetization current of 1.5A. Determine its ratio error and phase angle when supplying rated burden having a ratio of resistance to reactance of 5. 6M

(OR)

4. a) Using Phasor diagram Explain the reactive power measurement in balanced and unbalanced systems. 6M
- b) Derive an expression for correction factor of an EDM (Electro Dynamo Meter) type Wattmeter 8M

UNIT-III

5. a) With Neat sketch outline the Construction features of single phase energy meter. 7M
b) Explain the procedure to test the Energy meter performance using Phantom loading 7M
- (OR)
6. a) Suggest the constructional difference to make an EDM meter as wattmeter and 7M
Power factor meter.
b) Describe in detail the working of trivector meter & maximum demand meter 7M

UNIT-IV

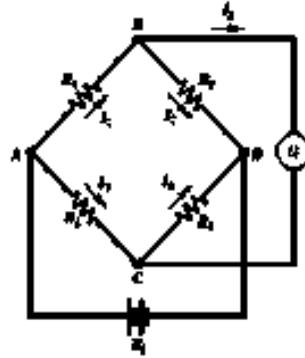
7. a) Derive an expression for Carey foster's bridge to measure the resistance. 6M
b) Consider the Wheatstone bridge shown in Figure. 8M

When

$$R_3 = R_4 = 200\Omega$$

R_2 = variable calibrated resistor

$$R_1 = \text{transducer resistance} = 40x + 100$$



i. When $x = 0$, what is the value of R_2 required to balance the bridge?

ii. If the bridge is operated in a balanced condition in order to measure 'x', determine the relationship between R_2 and 'x'.

(OR)

8. a) Sketch an electrical bridge circuit used to find the capacitance (Q value >10) of a circuit also derive its balance equation. 10M
b) Define Quality factor and Dissipation factor and classify bridges based on them. 4M

UNIT-V

9. Classify the DC & AC potentiometer with neat sketch. 14M
- (OR)
10. a) Describe the constructional features Ballistic galvanometer and explain the deflection mechanism of ballistic galvanometer 8M
b) Explain the methods of testing for core and iron losses in a magnetic material. 6M

AR16

CODE: 16ME3014

SET-2

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

III B.Tech I Semester Regular/Supplementary Examinations, October-2019

KINEMATICS & DYNAMICS OF MACHINERY (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) List different inversions of double slider crank mechanism. Illustrate them with neat sketches mentioning examples. 10
b) Differentiate between a crank and a lever. State different practical applications of a quadric cycle chain. 4

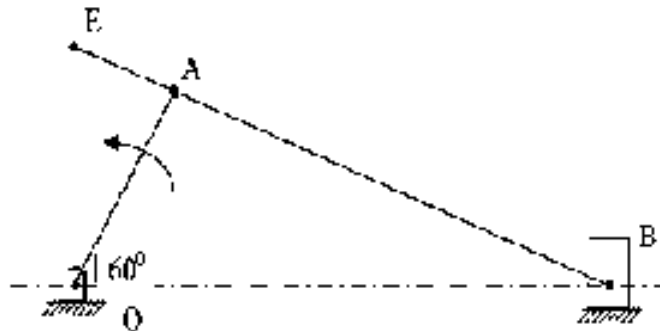
(OR)

2. Sketch and Describe the Watt's and Peaucellier straight-line motion mechanisms. 14

UNIT-II

3. a) In the slider-crank mechanism shown in figure OA = 400 mm, AB = 1400 mm and AE = 400 mm. When the crank rotates at 40 rad/s counter-clock wise and the angle AOB = 60 degrees, determine (i) the acceleration of the slider at B and (ii) the acceleration of point E. 11

1 of 4



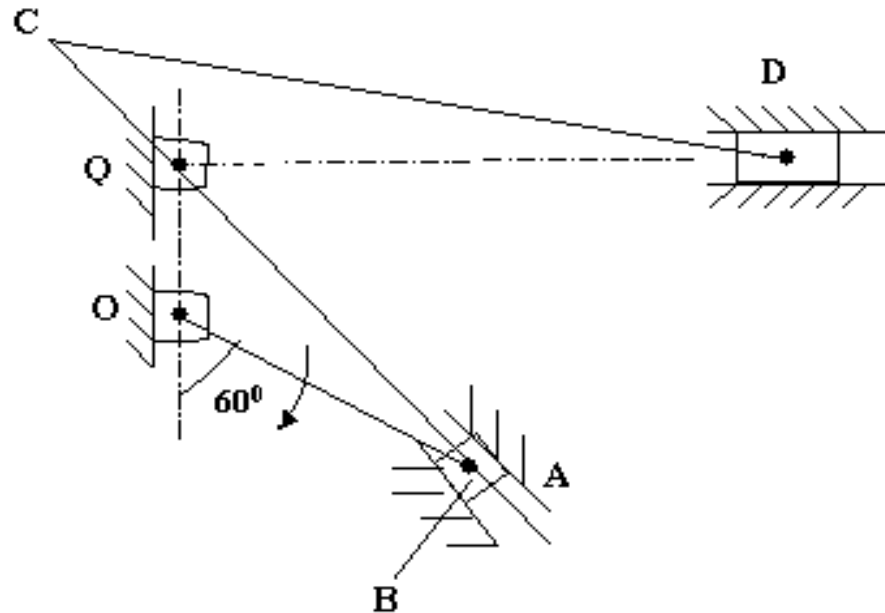
Figure

- b) Define Instantaneous centre? Explain about different types of Instantaneous centres? 3

(OR)

1 of 4

4. a) Figure shows a worth whit quick return motion mechanism. The various dimensions in the mechanism are as follows:
 $OQ = 100 \text{ mm}$; $OA = 200 \text{ mm}$; $QC = 150 \text{ mm}$ and $CD = 500 \text{ mm}$.
 The crank OA makes an angle of 60° with vertical and rotates at 120 rpm in the clockwise direction.
 Locate all the instantaneous centers and find the velocity of ram D .



- b) Define rubbing velocity a pin joint. What will be the rubbing velocity at pin joint when the two links move in same and opposite directions?

UNIT-III

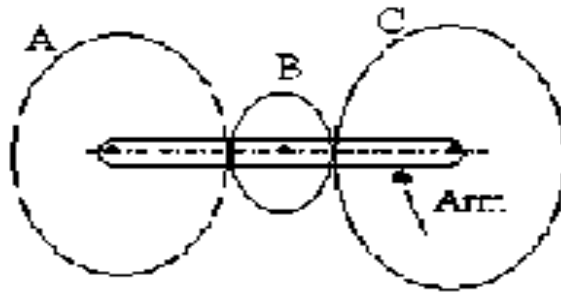
5. a) The crank-pin circle radius of a horizontal engine is 300 mm . The mass of the reciprocating parts is 250 kg . When the crank has travelled 60° from I.D.C., the difference between the driving and the back pressures is 0.35 N/mm^2 . The connecting rod length between centres is 1.2 m and the cylinder bore is 0.5 m . If the engine runs at 250 r.p.m. and if the effect of piston rod diameter is neglected, calculate : 1. pressure on slide bars, 2. thrust in the connecting rod, 3. tangential force on the crank-pin, and 4. turning moment on the crank shaft. 11
- b) Define steering, pitching and rolling. 3
- (OR)
6. a) The turbine rotor of a ship has a mass of 3500 kg . It has a radius of gyration of 0.45 m and a speed of 3000 r.p.m. clockwise when looking from stern. Determine the gyroscopic couple and its effect upon the ship: 12
- when the ship is steering to the left on a curve of 100 m radius at a speed of 36 km/h .
 - when the ship is steering to the right on a curve of 150 m radius at a speed of 40 km/h .
- b) What are the requirements of an equivalent dynamical system? 2

UNIT-IV

7. a) A pair of 200 full depth involute spur gears having 30 and 50 teeth respectively of module 4 mm is in mesh. The Smaller gear rotates at 1000 rpm find (i) sliding velocity at the engagement and at disengagement of pair of a teeth (ii) Contact ratio. 11

- b) Differentiate between compound and reverted gear train 3
(OR)

8. a) In an epicyclic gear train, as shown in Figure, the number of teeth on wheels A, B and C are 48, 20 and 50 respectively. If the arm rotates at 400 r.p.m., clockwise, find: i. Speed of wheel C when A is fixed and ii. Speed of wheel A when C is fixed. 9



- b) Deduce length of path of contact. 5

UNIT-V

9. a) A governor of the Proell type has each arm 250 mm long. The pivots of the upper and lower arms are 25 mm, from the axis. The central load acting on the sleeve has a mass of 25 kg and each rotating ball has a mass of 3.2 kg when the governor sleeve is in mid position, the extension link of the lower arm is vertical and the radius of path of rotation of the masses is 175 mm. the vertical height of the governor is 200 mm. if the speed of governor is 160 rpm, when in mid position, find: 14

- (a) Length of the extension link and
(b) Tension in the upper arm.

(OR)

10. a) The torque delivered by two stroke engine represented by $T=1000+300 \sin 2\theta-500 \cos \theta$ N-m where θ is the angle made by the crank from IDC. The engine speed is 250rpm. The mass of flywheel is 400 kg and radius of gyration is 400mm. Determine: 11

- i) Total percentage of fluctuation of speed.
ii) The angular acceleration of flywheel when the crank has rotated through an angle of 60° from IDC.
iii) The maximum angular retardation of flywheel.

- b) Differentiate between Governors and flywheel. 3

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

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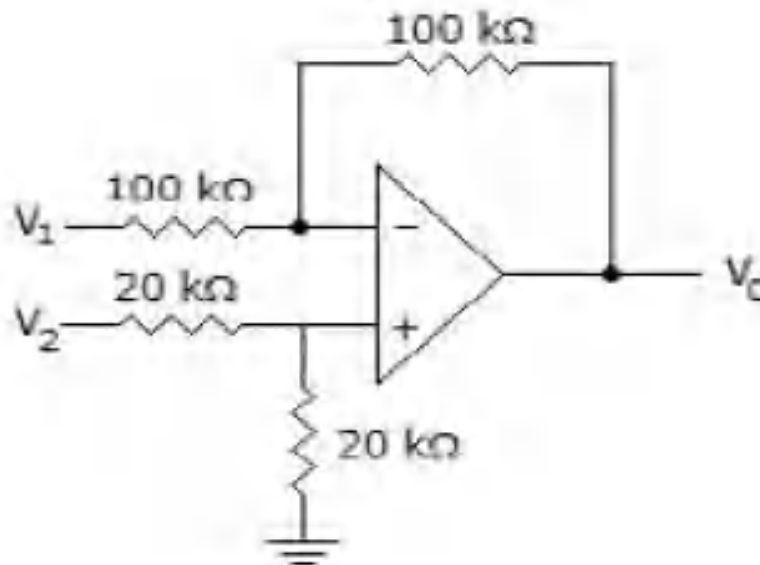
All parts of the Question must be answered at one place

UNIT-I

1. a) Write the expressions for A , Z_i , Z_o for Dual Input, Unbalanced Output Differential Amplifier and Single Input, Balanced Output Differential Amplifier. [8M]
b) Explain about Classification of Integrated Circuit. [6M]
- (OR)
2. a) Explain the working of Level Translator Circuit in Op-Amp. [7M]
b) Explain about various Temperature Ranges of an Integrating Circuit. [7M]

UNIT-II

3. a) Explain about Dominant Pole frequency Compensation technique [8M]
b) List the Ideal Characteristics of Op-Amp. [6M]
- (OR)
4. a) List and explain the all basic building blocks of Op-Amp [8M]
b) Find the Output for the following circuit where $V_1=V_2=1V$. (Assume Op-Amp is ideal) [6M]



UNIT-III

5. a) With the help of circuit diagram and transfer characteristics, explain the working of Schmitt Trigger using Op-Amp. [8M]
b) Explain the working of V-I converter with grounded load? [6M]

(OR)

6. a) Draw the circuit diagram of Ideal Integrator and explain its working. State its disadvantages and explain how these disadvantages are removed in Practical Integrator. [9M]
b) Explain the working of Sample and hold circuits using Op-Amp. [5M]

UNIT-IV

7. a) Explain the working of RC Phase Shift Oscillator and derive the expression for frequency of oscillation. [8M]
b) Design a 70Hz active notch filter using Op-Amp.(Assume necessary data) [6M]

(OR)

8. a) Explain the working of Parallel Comparator type ADC. [8M]
b) Calculate the values of LSB, MSB and full scale output voltage for a 9 bit DAC for 0-12V range. [6M]

UNIT-V

9. a) Draw the block diagram of PLL and explain about each block briefly? [8M]
b) Explain the working of LM317? [6M]

(OR)

10. a) With the help of circuit diagrams and waveforms, explain the working of astable multi vibrator using 555 timer and derive an expression for its frequency of oscillation. [8M]
b) Design a Monostable multi vibrator using IC555 with a gate width of 2 ms(Assume necessary data) [6M]

AR16

CODE: 16CS3012

SET-2

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

III B.Tech I Semester Regular/Supplementary Examinations, October-2019

COMPUTER NETWORKS (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) Elaborate data communication system and its components with more illustration? 7
b) Explain categories of networks and topologies along with merits and demerits for real time operations. Give example of each topology. 7
(OR)
2. a) Analyse the OSI model and TCP/IP protocol suite with clear representation of layered architecture? 7
b) Write a short notes on 7
(i) Network criteria (ii) Distributed processing (iii) Data Representation

UNIT-II

3. a) Explain Medium Access Control sub layer and its characteristics. Illustrat MAC frame structure with sketch? 7
b) Explain Error correcting codes with example? 7
(OR)
4. a) Explain different sliding window protocols and its processes with usages? 7
b) Illustrate why flow control and error control techniques needed for communication? 7
Explain framing method and give example of it?

UNIT-III

5. a) Explain the implementation of Connection Less Service process with neat diagram? 7
b) Explain any two routing algorithms with step by step while used in Internet layer? 7
(OR)
6. a) Explain various congestion control algorithm in step by step manner? 7
b) Compare and contrast the IPv4 and IPv6 protocols with merits and demerits? 7

UNIT-IV

7. a) Explain various characteristics of Connectionless and Connection Oriented Services with detailed comparisons? 7
b) Illustrate the paradigm of client – server model which is defined in transport layer? 7
(OR)
8. a) Explain the process of Connection Termination in step by step model? 7
b) Write a short notes on Reliable communication and Unreliable communication? 7

UNIT-V

9. a) Explain the step by process process for E mail communication in detail? 7
b) Explain the DNS name space supported components and its functionality in brief? 7
(OR)
10. a) Discuss the world wide web architecture, principles and applications? 7
b) Write a short notes on 7
(i) HTTP (ii) HTML (iii) PHP

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

III B.Tech I Semester Supplementary Examinations, October-2019

**STRUCTURAL ANALYSIS -II
(Civil Engineering)**

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 X 10 = 10 M]

1. a) What is the difference between statically determinate beam and statically indeterminate beams?
- b) Define degree of freedom
- c) Define Distribution factor for frames
- d) What do you mean by multi storey frames
- e) What is the advantage of Kani's method when compared with slope deflection method
- f) Write the slope deflection equations for a continuous beam
- g) When do you recommended arch structures
- h) What are the three conditions under which sway occurs in a portal frame?
- i) Compare the internal reactions developed within a beam and within an arch, in response to the external loading on each of these.
- j) What are the assumptions made in slope deflection method

PART-B

UNIT-I

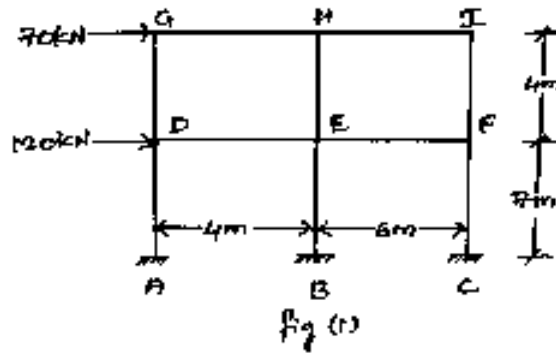
Answer one question from each unit

[5x12=60M]

- 2) a) A two hinged parabolic arch of span 50m and central rise 6m is subjected to a uniformly distributed load of 15kN/m on the left half of the span and also a concentrated load of 80kN at the crown. Determine the horizontal thrust at the supports and the maximum bending moment for the arch. Assuming secant variation of moment of inertia of the arch section
- b) Derive the expression for horizontal thrust for a two hinged parabolic arch carrying a uniformly distributed load of intensity w/m throughout its length.

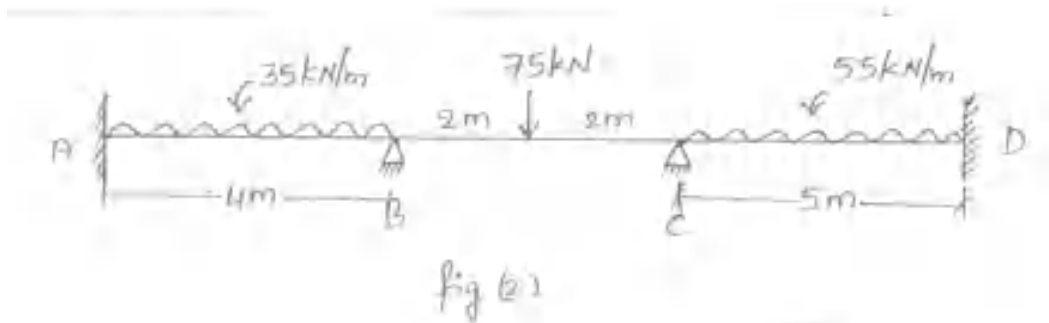
(OR)

- 3) a) State the assumptions of Portal method.
- b) Using the cantilever method, analyze the building frame subjected to horizontal forces shown in figure 1. sketch the bending moment diagram.



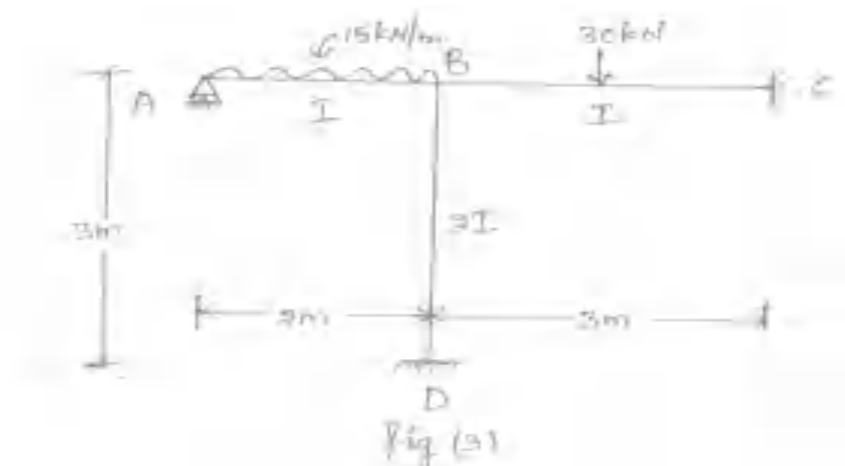
UNIT-II

- 4) Determine the support moments for the continuous beam shown in figure 2. if the support 'B' sinks by 4.50mm. for all members moment of inertia is $4.00 \times 10^7 \text{ mm}^4$, young's modulus of elasticity is 200 kN/mm^2



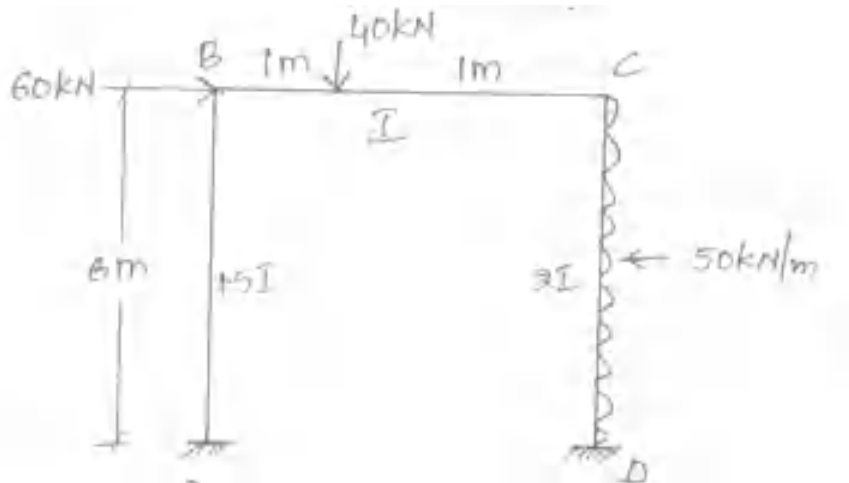
(OR)

- 5) Analyze the structure in figure 3 by slope deflection method and sketch the bending moment diagram.



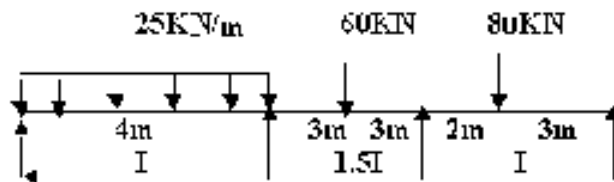
UNIT-III

- 6) Using moment distribution method of analysis, analyze the frame shown in figure 4. and also draw bending moment diagram



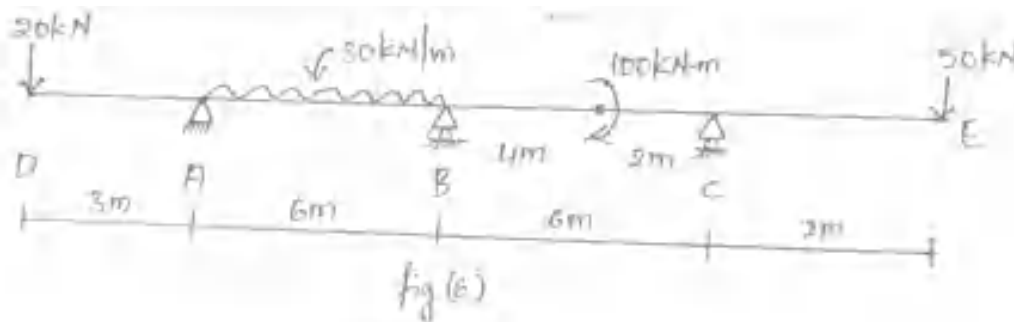
(OR)

- 7) Analyze the continuous beam shown in figure by Moment distribution method and Sketch the BMD.



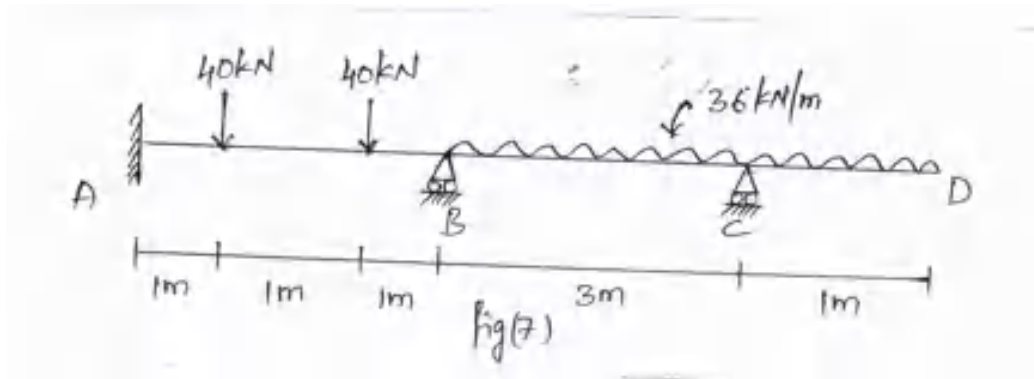
UNIT-IV

- 8) Using kani's method of analysis, analyze the structure as shown in figure 6. and also draw bending moment and shear force diagrams



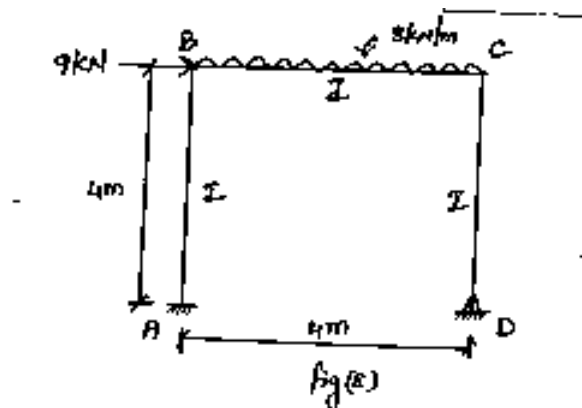
(OR)

- 9) Analyze the beam shown in figure 7 by kani's method and draw bending moment diagram take $EI = \text{constant}$.



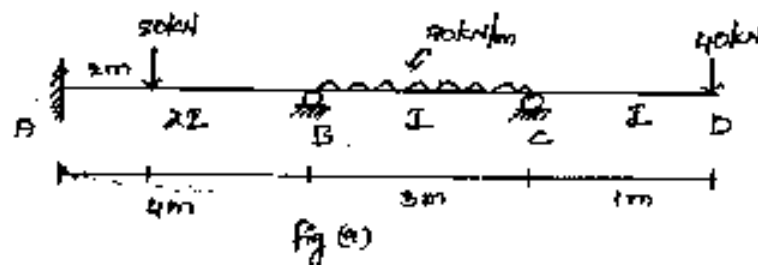
UNIT-V

- 10) Analyze the frame shown in figure 8 by stiffness method. Also, draw the SFD and BMD.



(OR)

- 11) Analyze the Continuous Beam As Shown In The Figure 9 By Stiffness method.



DYNAMICS OF MACHINERY
(Mechanical Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Define turning moment diagram.
b) Define coefficient of maximum fluctuation of speed
c) Differentiate between flywheel and a governor in one aspect.
d) Why there is no effect of the gyroscopic couple acting on the body of a ship during rolling?
e) What is meant by self-energizing brake?
f) Why balancing of dynamic forces are necessary?
g) Define static balancing.
h) Define swaying couple and tractive effort.
i) Define critical or whirling or whipping speed of a shaft
j) Define force transmissibility.

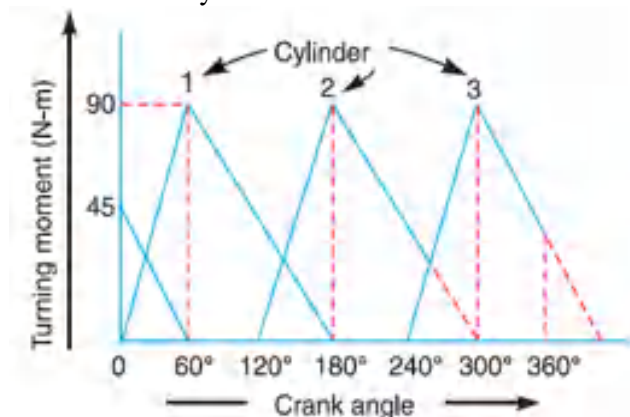
PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. A three cylinder single acting engine has its cranks set equally at 120° and it runs at 600 r.p.m. The torque-crank angle diagram for each cycle is a triangle for the power stroke with a maximum torque of 90 N-m at 60° from dead centre of corresponding crank. The torque on the return stroke is sensibly zero. Determine :
 1. power developed.
 2. Coefficient of fluctuation of speed, if the mass of the flywheel is 12 kg and has a radius of gyration of 80 mm,
 3. Coefficient of fluctuation of energy, and 4. Maximum angular acceleration of the flywheel.



(OR)

3. The turning moment diagram for a petrol engine is drawn to the following scales : 12M
Turning moment, 1 mm = 5 N-m ; crank angle, 1 mm = 1°. The turning moment diagram repeats itself at every half revolution of the engine and the areas above and below the mean turning moment line taken in order are 295, 685, 40, 340, 960, 270 mm². The rotating parts are equivalent to a mass of 36 kg at a radius of gyration of 150 mm. Determine the coefficient of fluctuation of speed when the engine runs at 1800 r.p.m.

UNIT-II

4. Explain clearly the working principal of Porter governor and Derive an Expression 12M
for the Speed of the porter governor?
- (OR)
5. An aero plane makes a complete half circle of 50 m radius, towards left, when 12M
flying at 200 km per hr. The rotary engine and the propeller of the plane has a mass of 400 kg and a radius of gyration of 0.3 m. The engine rotates at 2400 r.p.m. clockwise when viewed from the rear. Find the gyroscopic couple on the aircraft and state its effect on it.

UNIT-III

6. A centrifugal clutch is to transmit 15 kW at 900 r.p.m. The shoes are four in 12M
number. The speed at which the engagement begins is 3/4th of the running speed. The inside radius of the pulley rim is 150 mm and the centre of gravity of the shoe lies at 120 mm from the centre of the spider. The shoes are lined with Ferrodo for which the coefficient of friction may be taken as 0.25.
Determine : 1. Mass of the shoes, and 2. Size of the shoes, if angle subtended by the shoes at the centre of the spider is 60° and the pressure exerted on the shoes is 0.1 N/mm².
- (OR)
7. The simple band brake, as shown in Fig. 19.12, is applied to a shaft carrying a 12M
flywheel of mass 400 kg. The radius of gyration of the flywheel is 450 mm and runs at 300 r.p.m. If the coefficient of friction is 0.2 and the brake drum diameter is 240 mm, find :
1. The torque applied due to a hand load of 100 N,
2. The number of turns of the wheel before it is brought to rest, and
3. The time required to bring it to rest, from the moment of the application of the brake.

UNIT-IV

8. A, B, C and D are four masses carried by a rotating shaft at radii 100, 125, 200 and 12M
150 mm respectively. The planes in which the masses revolve are spaced 600 mm apart and the mass of B, C and D are 10 kg, 5 kg, and 4 kg respectively. Find the required mass A and the relative angular settings of the four masses so that the shaft shall be in complete balance.
- (OR)
9. A four crank engine has the two outer cranks set at 120° to each other, and their 12M
reciprocating masses are each 400 kg. The distance between the planes of rotation of adjacent cranks are 450 mm, 750 mm and 600 mm. If the engine is to be in complete primary balance, find the reciprocating mass and the relative angular position for each of the inner cranks. If the length of each crank is 300 mm, the length of each connecting rod is 1.2 m and the speed of rotation is 240 r.p.m., what is the maximum secondary unbalanced force ?

UNIT-V

10. a) Explain the term 'whirling speed' or 'critical speed' of a shaft. Prove that the whirling speed for a rotating shaft is the same as the frequency of natural transverse vibration. 6M
- b) Calculate the whirling speed of a shaft 20 mm diameter and 0.6 m long carrying a mass of 1 kg at its mid-point. The density of the shaft material is 40 Mg/m^3 , and Young's modulus is 200 GN/m^2 . Assume the shaft to be freely supported. 6M
- (OR)**
11. The following data relate to a shaft held in long bearings. 12M
- Length of shaft = 1.2 m
Diameter of shaft = 14,
Mass of a rotor at mid point = 16 kg,
Eccentricity of centre of mass of rotor from centre of rotor = 0.4 mm. Modulus of elasticity of shaft material = 200 GN/m^2 Permissible stress in shaft material = $70 \times 10^6 \text{ N/m}^2$ Determine the critical speed of the shaft and the range of speed over which it is unsafe to run the shaft. Assume the shaft to be mass less.

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****III B.Tech I Semester Supplementary Examinations, October-2019****LINEAR IC APPLICATIONS
(Electronics and Communication Engineering)****Time: 3 Hours****Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) Define slew rate.
- b) What is the use of compensation resistor R_{comp} ?
- c) What is the resolution of a digital-to-analog converter (DAC)?
- d) What is a precision rectifier?
- e) What are advantages of active filters over passive filters?
- f) Draw a V/I converter using op-amp.
- g) What are offsets?
- h) What is necessity of compensating an op-amp?
- i) Give the advantages of R-2R type of D/A converter.
- j) What is a notch filter?

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

2. a. Derive the Differential Amplifier- AC analysis of single input dual output Configuration in detail 8M
- b. Define common mode rejection ratio. Explain its significance. 4M

(OR)

3. a. Explain the concept of level translator in detail 6M
- b. List and explain the function of all the basic building blocks of an op-amp. 6M

UNIT-II

4. a. Why are low closed loop gains avoided with uncompensated op-amps. 6M
- b. The DC open loop gain of an op-amp is 100,000. What will be the open loop gain at its break frequency? 6M

(OR)

5. a. Explain the terms (i) slew rates (ii) CMRR (iii) PSRR (iv) drift and list out ideal and practical characteristics of above parameters. 8M
- b. How fast can the output of an op-amp change by 10 V, if its slew rate is $1\text{V}/\mu\text{s}$. 4M

UNIT-III

6. a. Obtain the expression for output of a two input op-amp inverting summing amplifier circuit. 6M
- b. Draw the circuit of a full wave rectifier and explain its response. 6M

(OR)

7. a. Draw the circuit of a log amplifier using two op-amps and explain its operation. 6M
- b. Draw and explain the circuit of a lossy integrator showing initial conditions. 6M

UNIT-IV

8. a. Design a fourth order Butterworth low pass filter whose band-width is 1KHz. Select all capacitors equal to $1\mu\text{F}$. 6M
- b. Give the conversion time for (i) counting (ii) Successive approximation ADC 6M

(OR)

9. a. Design a band pass filter so that $f_o=2\text{KHz}$, $Q=20$ and $A_o=10$ with $C=1\mu\text{F}$. 6M
- b. Explain the conversion process in a dual slope ADC. 6M

UNIT-V

10. a. Define capture range, lock range and pull-in-time related with a PLL. 6M
- b. Discuss some applications of timer in mono stable mode. 6M

(OR)

11. a. How is a 555 timer in its astable mode can be connected as a pulse position modulator. 6M
- b. Explain about analog switches and their applications. 6M

Time: 3 Hours**Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) What are layered tasks. Briefly explain.
- b) Describe categories of networks.
- c) What are the services provided to the network layer.
- d) Categorize Error correcting codes.
- e) List the principles of congestion control.
- f) Write any three differences between IPV4 and IPV6.
- g) Explain services provided to the upper layers.
- h) Define UDP.
- i) What is meant by HTTP.
- j) Define and abbreviate SNMP.

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

2. a) Describe in detail TCP/IP reference model along with protocols. (8M)
- b) Define addressing. List the different types of addressing (4M)

(OR)

3. a) Explain in detail OSI reference Model. (6M)
- b) Illustrate differences between physical address and logical address. (6M)

UNIT-II

4. a) Differences between pure aloha and slotted aloha. (6M)
- b) Consider the following message $M=1010001101$. Find out The cyclic redundancy check (CRC) for this message using the divisor polynomial $x^5+x^4+x^2+1$. (6M)

(OR)

5. a) Describe in detail Selective Repeat ARQ. (6M)
- b) Define bridge? Explain source routing bridge briefly. (6M)

UNIT-III

6. a) Distinguish virtual circuit and datagram subnet. (6M)
- b) Explain optimality principle. (6M)

(OR)

7. a) Describe in detail Hierarchical routing. (6M)
- b) Briefly discuss about congestion control algorithms. (6M)

UNIT-IV

8. a) Draw and explain the TCP segment header format. (6M)
- b) Briefly describe about crash recovery. (6M)

(OR)

9. a) How is UDP protocol implemented in the internet transport protocol. (6M)
- b) Explain multiplexing process. (6M)

UNIT-V

10. a) Briefly discuss about Domain Name System. (6M)
- b) Explain briefly about the Simple Network Message Protocol. (6M)

(OR)

11. a) Define E-mail. Explain the architecture and services of E-mail. (6M)
- b) Discuss i) User agent (6M)
ii) Message format