AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
STRUCTURAL ANALYSIS – II
(Civil Engineering)

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

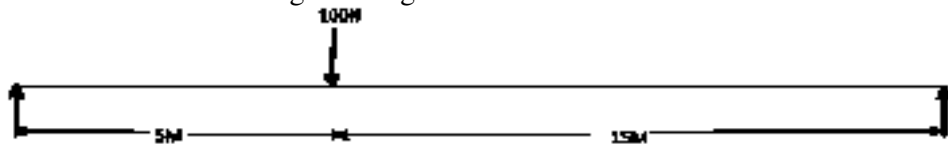Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) A three hinged arch of span 40m and rise 8m carries concentrated loads of 200Kn   4M
and 150Kn at distances of 8m and 16m from the left end and an UDL of 50Kn/m
on the right half of the span, find the horizontal thrust
   b) Explain the different types of arches with diagram   10M

(OR)

2. A three hinged circular arch of span 16m and rise 4m is subjected to two point   14M
loads of 100kN and 80kN at the left and right quarter span points respectively. Find
the reactions at support, find also the bending moment, radial shear and normal
thrust at 6m from left support

UNIT-II

3. a) Construct the ILD for the given diagram   4M

   b) Two point loads of 150KN & 250KN spaced 3m apart cross a girder of span is 15m   10M
from left to right with the 150KN load spacing influence lines for shear force and
bending moment and find the value of max bending moment at the section C from
the left hand support. Also find the maximum B.M for the given load of systems
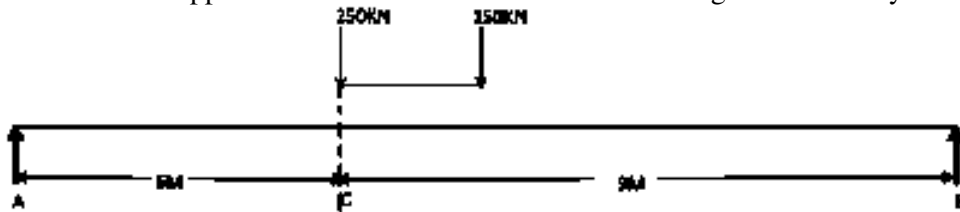

(OR)

4. a) Define Influence line diagram for simply supported beam with point load at centre   4M
   b) Four equal loads of 150kN each equally spaced at 2m apart followed by a udl of   10M
60kN/m at a distance of 1.5 m from the last 150kN load crosses a girder of 20m
span from left to right. Using influence lines, calculate the shear force and bending
moment at a section 8m from the left hand support when the loading 150kN load is
at 5m from the left hand support

UNIT-III

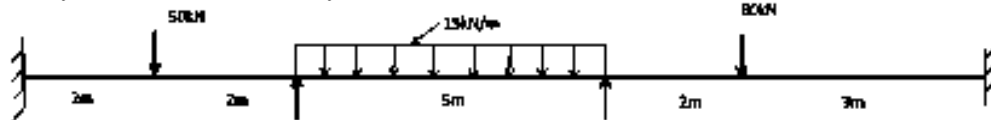5.   Analyse the continuous beam shown in fig by moment distribution method   14M
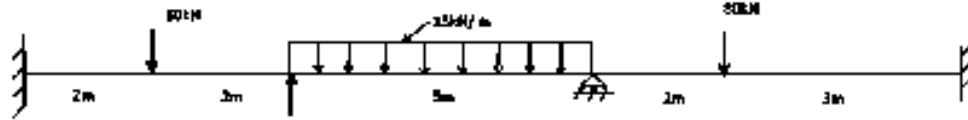
(OR)

6. a) Define sinking of supports   4M

    b) A continuous beam ABCD, 20m long is simply supported at its ends and is propped   10M
at the same level at B and C as shown. It is loaded as shown in fig, If support B is
sinks by 10mm, analyse the beam by moment distribution method and sketch the
bending moment diagram. Take $E = 2.1 * 10^5$ N/mm^2 and $I = 85 * 10^5$ mm^4.
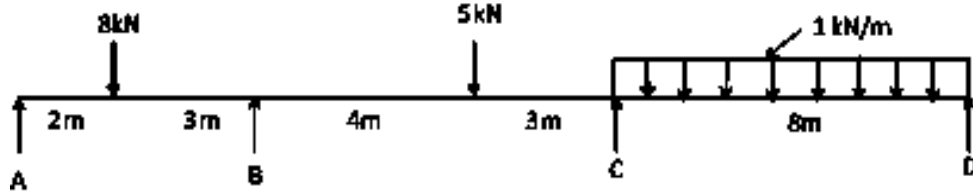
UNIT-IV

7.   Analyse the beam shown by kani's method   14M

(OR)

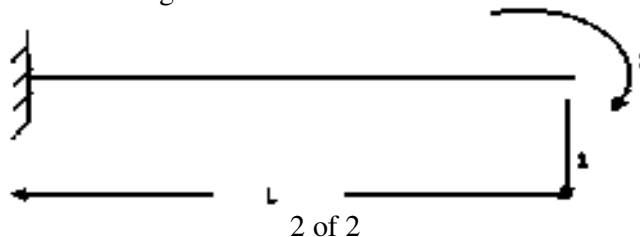8.   Analyse the frame by Kani's method and Draw BMD   14M
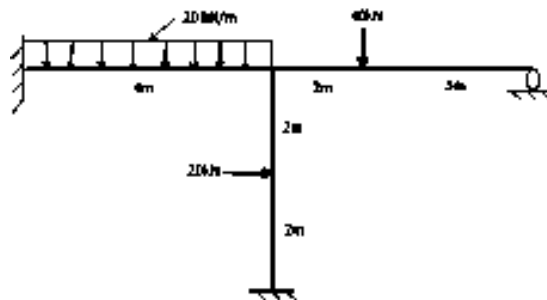
UNIT-V

9. a) Find the stiffness method of the continuous beam shown in figure   4M

    b) Derive the design steps following in the matrix flexibility method   10M

(OR)

10.   Develop the stiffness matrix for the beam for the beam element with respect to the 14M
2 coordinates shown in fig

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CODE: 16EE3015   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
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)	Derive the expression for deflection in MI instruments.	10 M
	b)	Justify , MI instruments overcome the drawbacks of PMMC.	4M

(OR)

2.	a)	Moving iron instrument can be used on both A.C and D.C. Why?. List the possible errors	7M
	b)	The coil of galvanometer which has a resistance of 50 Ohms and a current of 500 micro amperes produces full-scale deflection on it. How it can be converted into (a) an ammeter of 5 ampere range and (b) a volt meter of 300 volt range?	7M

UNIT-II

3.	a)	Draw the equivalent circuit and phasor diagram of C.T.	6M
	b)	A current transformer of nominal ration 1000/5A is operated with a total secondary impedance of 0.4+j0.3 Ohm. At rated current, the components of the primary current associated with the core magnetisation and core loss effects are 6A and 1.5 A respectively and primary has a 4 turns. Calculate the ratio error and phase angle at rated primary current if the secondary has 800 turns.	8M

(OR)

|			
4.	a)	Derive an expression for steady state deflection of EDM (Electro Dynamometer) type Wattmeter.	8M
	b)	Explain the causes of errors and compensation techniques in electro dynamo meter wattmeter	6M

UNIT-III

5.	a)	Inspect the constructional features of an Electrodynamometer and EDM as a Power factor meter.	7M
	b)	Does the power factor meter has Control torque? Explain the steady state mechanism of PF meter	7M

(OR)

6.	a)	With a neat sketch, explain the constructional features of Induction type Energy meter.	6M
	b)	Explain the methods to compensate errors due to i) no-load ii) Overload effects iii)creeping on the Watt-hour Meter.	8M

    a)   Explain why Wheatstone bridge be used for the measurement of medium range of   8M
resistance and derive the expression for bridge sensitivity of a whetstone bridge

    b)   Identify the high resistance measurement applications and list out the methods to   6M
measure high resistance.

(OR)

8.   a)   List out the various detectors used in AC and DC bridges. On what basis the   6M
selection of detector is depends.

    b)   For a given AC bridge, arm **ab** consists of a coil with inductance L_1 and resistance   8M
r_1 in series with a non-inductive resistance R. Arm **bc**, **dc** consists of a non-
inductive resistor each 100Ω. Arm **ad** consists of standard variable inductor L of
resistance 32.7Ω. Balance is obtained when L = 47.8 mH and R = 1.36Ω. Find the
value of resistance and inductor in arm **ab**.
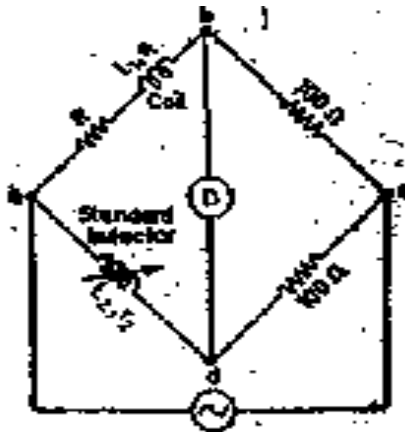
UNIT-V

9.   a)   What is meant by the Calibration of Instrument. Explain in detail how the   8M
Potentiometer used to calibrate AMMETER and VOLTMETER.

    b)   How to standardise DC and AC potentiometer with suitable numerical support.   6M

(OR)

10.   a)   Derive the expression for deflection of Flux Meter   6M

    b)   Explain the step-by-step method to obtain B-H curve of a given magnetic   8M
material.

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CODE: 16ME3014   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
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) Differentiate between a higher pair and a lower pair with a simple illustration
   b) Sketch a paucellier mechanism. Show that it can be used to trace a straight line

(OR)

2. a) What do you mean by inversion of a mechanism? Describe the function of an elliptical trammel with a neat sketch.
   b) How are with worth quick-return mechanism and crank and slotted lever mechanism different from each other? Explain.

UNIT-II

3. a) Define Kennedy's theorem. How is it useful to find out the instantaneous centers of a mechanism?
   b) The dimensions of the mechanism shown below are as followed: Fixed link OA and crank OP are 200 mm and 350 mm respectively. Other lengths are AR=200 mm and RS=400 mm. angle AOP=120^0 Locate all the instantaneous centres of the mechanism
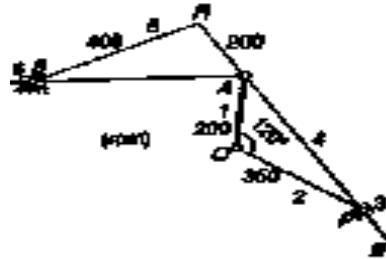
(OR)

4. a) Describe the procedure to draw velocity and acceleration diagrams of a four bar mechanism.
   b) What is coriolis acceleration component? In which case does it occur? How is it determined?

UNIT-III

5. a) Explain the terms friction circle friction couple and friction axis
   b)
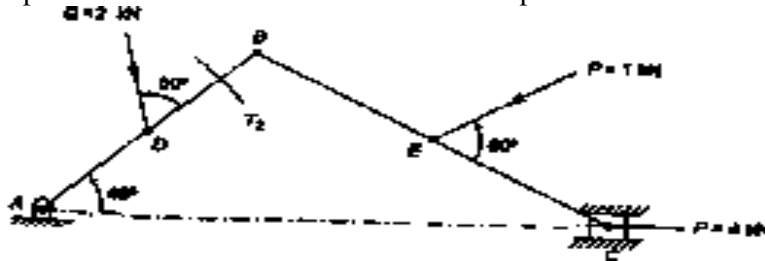
   A slider crank mechanism is shown in the figure below. AB=400 mm, BC=600mm, AD=200 mm, CE=300 mm. Calculate the input torque for the static equilibrium of the mechanism

6. a) Explain in what way the gyroscopic couple affects the motion of an aircraft while taking a turn
    b) The turbine rotor of a ship has a mass of 2.2 tonnes and rotates at 1800 rpm clockwise when viewed from the front. The radius of gyration of the rotor is 320 mm. Determine the gyroscopic couple and its effect when (i) the Ship turns right at a radius of 250 m with a speed of 25km/hr, (ii) Ship pitches with the bow rising at an angular velocity of 0.8 rad/s, (iii) Ship rolls at an angular velocity of 0.1 rad/s

UNIT-IV

7. a) Compare between a cycloidal tooth form and an involute tooth form using necessary illustration
    b) Two 20^0 involute spur gears mesh externally and give a velocity ratio of 3. The module is 3 mm and the addendum is equal to 1.1 module. If the pinion rotates at 120 rpm, determine (i) Minimum number of teeth on each wheel to avoid interference (ii) Contact ratio

    (OR)

8. a) Differentiate between a simple gear train and a compound gear train? Explain with the help of sketches
    b) An epicyclic gear train is shown in the figure below. The number of teeth on A and B are 80 and 200. Determine the speed of the arm A, if (i) A rotates at 100 rpm (CW) and B at 50 rpm (CCW) (ii) If A rotates at 100 rpm (CW) and B is stationary
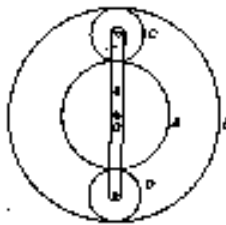
UNIT-V

9. a) What do you mean by a turning moment diagram? Explain the steps involved in drawing the turning moment diagram for a single cylinder double acting steam engine.
    b) The maximum and minimum speed of a fly wheel are 242 rpm and 238 rpm respectively. The mass of the flywheel is 2600 kg and radius of gyration is 1.8 m. Find (i) minimum speed of the fly wheel and minimum fluctuation of energy (iii) coefficient of fluctuation of speed.

    (OR)

10. a) How does a porter governer different from a watt governer? Explain with necessary illustrations.
    b) The mass of each ball of a proell governer is 7.5 kg and the load on the sleeve is 80 kg. Each of the arms is 300 mm long. The upper arms are provided on the axis of rotation whereas the lower arms are pivoted to links of 40 mm from the axis of rotation. The extensions of the lower arms to which the balls are attached are 100 mm long and are parallel to the governer axis at the minimum radius. Determine the equilibrium speeds corresponding to the extreme radii of 180 mm and 240 mm

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CODE: 16EC3014   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI (AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020
LINEAR IC APPLICATIONS
(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) Compare different configurations of differential amplifier.   6M
   b) Analyze the dual input balanced output configuration of differential amplifier using DC   8M

(OR)

2. a) Write and Explain about DC coupling and cascaded differential amplifier stages.   7M
   b) Explain the significance of level translator and give its importance in differential amplifier   7M

UNIT-II
3. a) Explain the need for frequency compensation and discuss about the various methods of frequency compensation?   8M
   b) Justify that the open loop configuration is not suitable for linear applications   6M

(OR)

4. a) An Op-amp has a slew rate of 2V/µ.sec with a gain of 60dB if this amplifier has to faithfully amplify sinusoidal signals from 0-20kHz without any distortion, what must be the maximum input signal level?   8M
   b) Prove that the gain of non-inverting amplifier is more than inverting amplifier. What configuration is preferred as voltage amplifier and why?   6M

UNIT-III
5. a) Sketch the circuit of op-amp summing amplifier to get Vout = -2v1+4v2-6v3.   7M
   b) Discuss about sample and hold circuit in detail   7M

(OR)

6. a) For an integrator with R=100 ohms and C=1 Micro Farad, an input of 2 sin 1000t is applied. Determine the output voltage   7M
   b) Design a Practical Op-amp differentiator to differentiate an input signal that varies in frequency from 100Hz to about 10kHz.   7M

UNIT-IV
7. a) Design a band pass filter for fL=100Hz and fh=1KHz.Also calculate the quality factor?   7M
   b) Design a Wien Bridge oscillator using Op-Amp   7M

(OR)

8. a) Explain the operation of successive approximation ADC   7M
   b) Explain the operation of R-2R ladder DAC   7M

UNIT-V
9. a) Mention the important aspects of PLL and derive the expression for Lock range and Capture range?   6M
   b) In a PLL circuit if RT=10 Kohms, CT=0.005uF, C=10uF and +V and –V are 10 and -10 respectively then, calculate the free running frequency, lock range and capture range and plot the relationship between fout, fL and fC.   8M

(OR)

10. a) Explain in detail about frequency multiplication and frequency translation.   7M
    b) Discuss the operation of LM 317 regulator with line and load regulation modes.   7M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

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)	Describe the data format in various layers of OSI.	7M
	b)	How TCP/IP is different from OSI? Explain each layer in TCP/IP.	7M
		(OR)	
2.	a)	Explain the components of data communication with a diagram	7M
	b)	Explain the categories of networks and topologies.	7M

UNIT-II

3.	a)	Describe Carrier Sense Multiple Access – collision free protocol	7M
	b)	Explain 1-bit sliding protocol illustrating different scenarios	7M
		(OR)	
4.	a)	Write a short notes on the following error detection methods (i) Check Sum (ii) Cyclic Redundancy Check	7M
	b)	What are the services provided to the Network Layer by Data Link Layer? Identify the relationship between a packet and a frame.	7M

UNIT-III

5.	a)	Explain count to infinity problem with suitable example.	7M
	b)	Explain congestion prevention policies.	7M
		(OR)	
6.	a)	Compare the virtual circuit and datagram subnets.	7M
	b)	Draw and explain IPV4 header format.	7M

UNIT-IV

7.	a)	What are the services providing by transport layer to application layer?	7M
	b)	What are the general socket primitives for transport layer?	7M
		(OR)	
8.	a)	Describe the flow control procedure for Transport layer.	7M
	b)	Explain UDP operations and its uses.	7M

UNIT-V

9.	a)	What are the different categories of message headers in HTTP protocol	7M
	b)	Explain HTTP Transaction with an example.	7M
		(OR)	
10.	a)	Explain in detail about SNMP.	7M
	b)	Explain in detail about DNS	7M

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PART-A

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

1.   a) Explain the term stiffness of a member at a joint
      b) List out the assumptions made in substitute frame method in the analysis of a multistoried building
      c) What will be the value of sum of rotation factor at a joint
      d) What is the basic principle involved in slope deflection method
      e) What do you mean by balancing moment
      f) Write the slope deflection equations for a continuous beam
      g) What is the effect of ridge shortening in arches
      h) Define carry over factor and distribution factor
      i) Dedifferentiate between static and kinematic indeterminacy?
      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 5KN/m on the left half of the span and also a concentrated load of 40KN 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 cantilever method.
      b)   Using the portal method, analyze the building frame subjected to horizontal forces shown in figure 1.sketch the bending moment diagram.
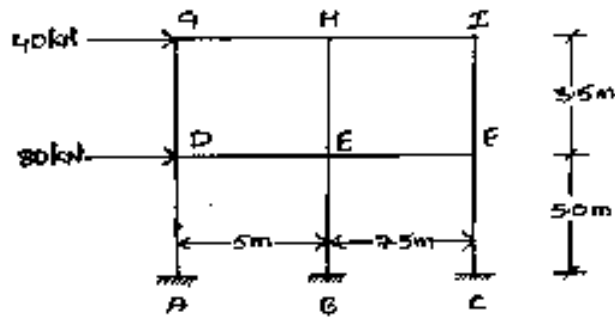
Fig (t)

UNIT-II

4) Determine the support moments for the continuous beam shown in figure 2.if the support 'B' sinks by 3.50mm .for all members moment of inertia is 4.00×10^7 mm^4, young's modulus of elasticity is 200KN/mm^2
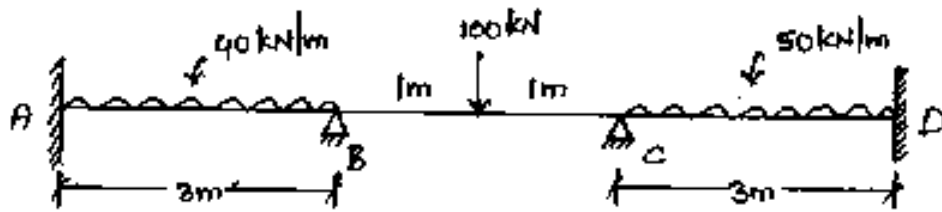

fig (e)

(OR)

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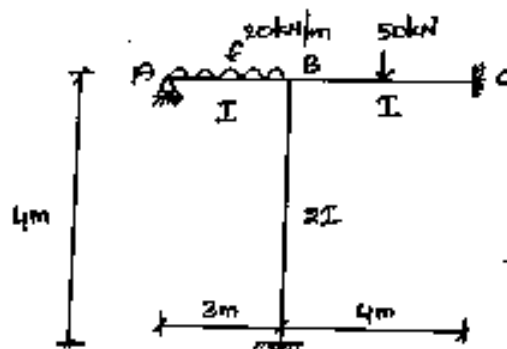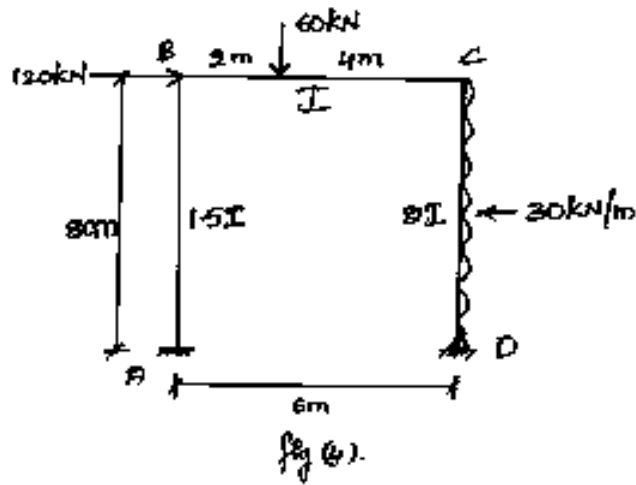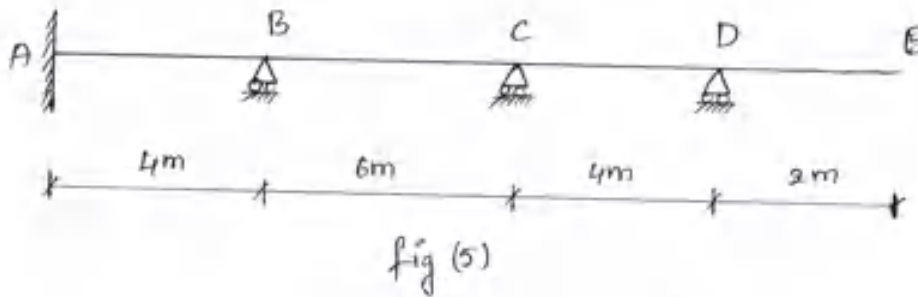

fig (3)

UNIT-III

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

fig (4).

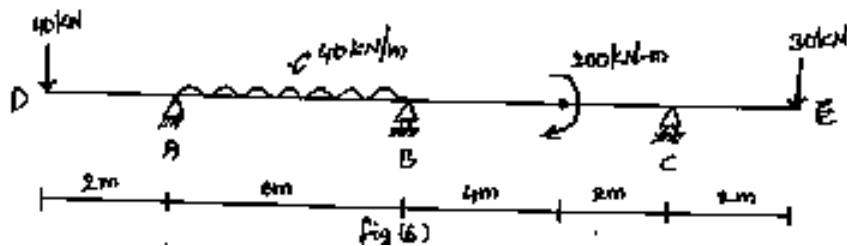**(OR)**

7) Analyze the continuous beam shown in figure 5 using moment distribution method, if the support B sinks by 12mm. given $E=200KN/mm^2$ and $I= 20x\ 10^6 mm^4$.

fig (5)

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

fig (6)

(OR)

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

Fig 7)
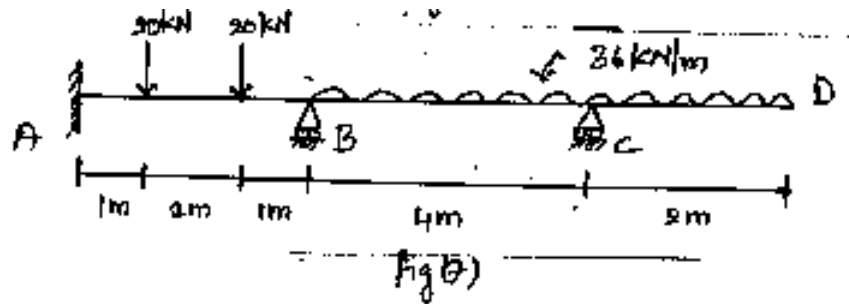
10)   Analyze the frame shown in figure 8 by stiffness method. Also, draw the SFD and BMD.

Fig 8)

(OR)

11)   Analyze The Continuous Beam As Shown In The Figure 9 By Stiffness Method.

fig (9)

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CODE:**13ME3013**   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020
DYNAMICS OF MACHINERY
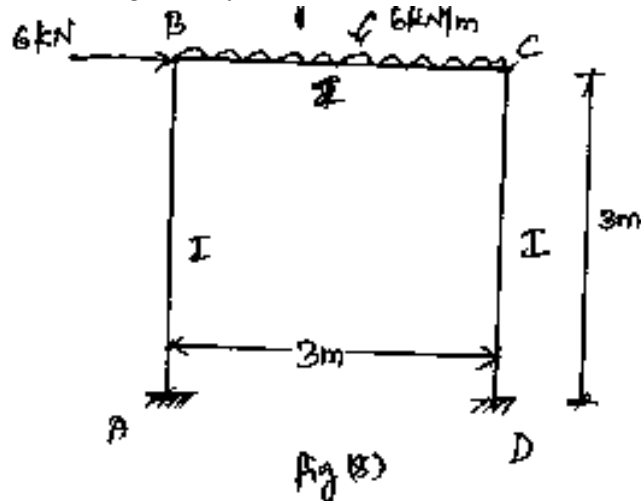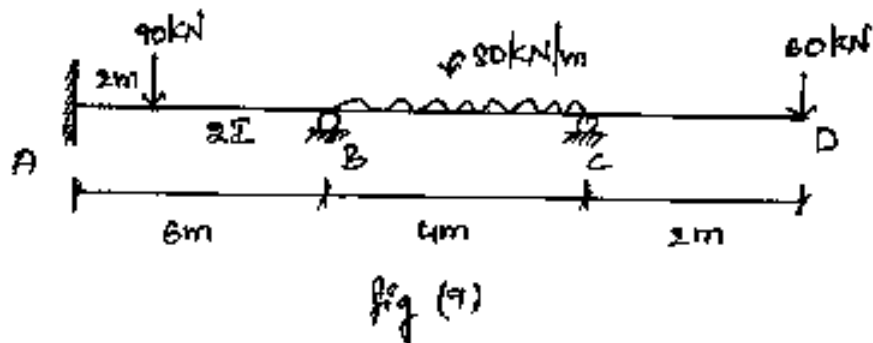**(Mechanical Engineering)**

Time : 3 hours   Maximum Marks: 70

PART - A

ANSWER ALL QUESTIONS   **(1 X 10 = 10 M)**

1. a) Define piston effort.
   b) What is the function of a flywheel?
   c) Explain about the influence of friction in the porter governor.
   d) What is the gyroscope effect on rolling of navel ship.
   e) What is the difference between brakes and clutches.
   f) What is absorption type dynamometer.
   g) What is the major difference between balancing of in-line and V-engines.
   h) Define variation of tractive effort in locomotives.
   i) What is the need of vibration isolation.
   j) Define critical speed or whirling speed.

PART – B

Answer one question from each unit   **(5 X 12 = 60 M)**

UNIT-I

2. A vertical petrol engine 100 mm diameter and 125 mm stroke has a connecting rod 250 mm long. The weight of the piston is 12 N. The speed is 2000 rpm. On the expansion stroke, with a crank 20^0 from top dead center, the gas pressure is 700 kN/m^2. Determine:
   (i) net force on the piston
   (ii) Resultant load on the gudgeon pin
   (iii) crank pin effort
   (iv) thrust on the cylinder walls
   (v) speed above which other things remaining same, the gudgeon load would be reversed in direction.

(OR)

3. A certain machine requires a torque of $(5000 + 500 \sin \theta)$ N-m to drive it, where θ is the angle of rotation of shaft measured from certain datum. The machine is directly coupled to an engine which produces a torque of $(5000 + 600 \sin 2\theta)$ N-m. The flywheel and the other rotating parts attached to the engine have a mass of 500 kg at a radius of gyration of 0.4 m. If the mean speed is 150 r.p.m., find: 1. the fluctuation of energy, 2. the total percentage fluctuation of speed, and 3. the maximum and minimum angular acceleration of the flywheel and the corresponding shaft position.

UNIT-II

4. a) Sketch the Hartnell governor and describe its function and deduce a relation to find the stiffness of the spring.
   b) In a Hartnell governor, the extreme radii of rotation of the balls are 40 mm and 60 mm, and the corresponding speeds are 210 rpm and 230 rpm. The mass of each ball is 3kg. The length of the ball and the sleeve arms are equal. Determine the initial compression and the constant of the central spring.

5. A trolley car with a total mass of 2700 Kg runs on rails 1m apart with a speed of 30 KMPH. The track is curved with a radius of 40m towards the right side of the driver. The car has four wheels of diameter 700 mm and the total moment of inertia of the wheels and the axle is 15 Kg-m^2. The car is driven by a motor running in the direction opposite to the wheels at a speed five times the speed of rotation of the wheels. The motor and gear pinion has a moment of inertia 10 Kg-m^2. The rails are at the same level and the height of the center of mass of the car is 1m above the rail level. Calculate the vertical force exerted by each wheel on the rails.

UNIT-III

6. What is the advantage of an internal expanding shoe brake? Derive the relation for the friction torque for such a brake.

(OR)

7. A friction clutch is used to rotate a machine from a shaft rotating at a uniform speed of 250 rpm. The disc-type clutch has both of its sides effective, the co-efficient of friction being 0.3. The outer and inner diameters of the friction plate are 200 mm and 120 mm respectively. Assuming uniform wear of the clutch, the intensity of the pressure is not to be more than 100 kN/m^2. If the moment of inertia of the rotating parts of the machine is 6.5 kg.m^2, determine the time to attain the full speed by the machine and the energy lost in slipping of the clutch. What will be the intensity of pressure if the condition of uniform pressure of the clutch is considered? Also, determine the ratio of power transmitted with uniform wear to that with uniform pressure.

UNIT-IV

8. Four masses A, B, C, and D carried by a rotating shaft at radii 80 mm, 100 mm, 160 mm, and 120 mm respectively are completely balanced. Masses B, C and D are 8 kg, 4 kg and 3 kg respectively. Determine the mass A and the relative angular positions of the four masses if the planes are spaced 500 mm apart.

(OR)

9. The cranks of two-cylinders, uncoupled inside cylinder locomotive, are at right angles and are 325 mm long. The cylinders are 675 mm apart. The rotating mass per cylinder is 200 kg at the crank pin and the mass of the reciprocating parts per cylinder is 240 kg. The wheel center lines are 1.5 m apart. The whole of the rotating and two-third of the reciprocating masses are to be balanced and the balance masses are to be placed in the planes of the rotation of the driving wheels at a radius of 800 mm. Find:
   (i)   The magnitude and direction of the balancing masses
   (ii)   The magnitude of the hammer blow
   (iii)   Variation of the tractive effort
   (iv)   Maximum swaying couple at a crank speed of 240 rpm

UNIT-V

10. A shaft of negligible weight 6 cm diameter and 5 meters long is simply supported at the ends and carries four weights 50 kg each at equal distance over the length of the shaft. Find the frequency of vibration by Dunkerley's method. Take E = 2 x 10^6 Kg/cm^2

(OR)

11. A shaft 1.5 m long, supported in flexible bearings at the ends carries two wheels each of 50 kg mass. One wheel is situated at the centre of the shaft and the other at a distance of 375 mm from the centre towards left. The shaft is hollow of external diameter 75 mm and internal diameter 40 mm. The density of the shaft material is 7700 kg/m^3 and its modulus of elasticity is 200 GN/m^2. Find the lowest whirling speed of the shaft, taking into account the mass of the shaft.

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
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) How is op-amp different from a normal amplifier?
   b) Give the relation between slew rate and maximum frequency in case of op-amp as voltage follower for sine wave input .
   c) Why op-amp has to be frequency compensated ?
   d) In which configuration op-amp acts as a voltage follower?
   e) What are the main sources of offset in an OP-Amp?
   f) What is the significance of CMRR?
   g) What are the application of Astable multi vibrator?
   h) Give one application of all-pass filter.
   i) Draw a logarithmic operational amplifier.
   j) What is unity gain bandwidth product of Op-Amp IC 741.

PART-B

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

UNIT-I

2. a. Perform DC analysis of dual input balanced output configuration of differential   6M
      amplifier.
   b. List six characteristics of an ideal op-amp.
   (OR)
3. a. Why is RE replaced by a constant current bias circuit in a differential amplifier?
   b. Explain the difference between constant current bias and current mirror.

UNIT-II

4. a. How is input offset voltage compensated ?
   b. Explain about the meaning of compensating an op-amp?
   (OR)
5. a. List and explain the parameters that are important for ac applications.
   b. If the gain-bandwidth product of an op-amp is 1MHz, what is its bandwidth when connected as a voltage follower?

UNIT-III

6. a. Draw and explain the circuit of V/I converter if the load is (i) Floating (ii) Grounded
   b. Sketch the circuit of op-amp summing amplifier to get Vout = -2v1+4v2-6v3.
   (OR)
7. a. What is an instrumentation amplifier? Draw a system whose gain is controlled by an adjustable resistor.
   b. Draw the circuit of a clipper which will clip the input signal below a reference voltage.

UNIT-IV

8. a. Design a notch filter for fo=8KHz and Q=10.Choose C=500 pF.
   b. Explain the operation of R-2R ladder DAC

(OR)

9. a. Design a second order Butterworth low-pass filter having upper cut-off frequency 1KHz also determine its frequency response.
   b. Explain the operation of a Dual-slope ADC.

UNIT-V

10. a. Design a square waveform generator of frequency 100Hz and duty cycle of 70% using a 555 timer.
    b. Give the block diagram of IC566 VCO and explain its operation.

(OR)

11. a. Explain the functionality of following inputs in IC 555 timer : (i)Reset pin (ii) Control input (iii) Discharge pin
    b. List and explain some of the applications of a PLL.