GTU MID SEM-DOM(3151911)-AY 2021-22 - C02- PART 2

Subject: Dynamics of machinery (3151911)
AcademicYear: 2021-22 (Odd)
Class: 5th Semester
Time : 30 minutes

Maximum 10 Marks will be count (all questions can be attempted)

Q.1 and Q.2 : Attempt any one
Q.3 to Q. 9: Attempt any 3

* Required

* This form will record your name, please fill your name.

1

The static balancing issatisfactory for low-speed rotors but with increasing speeds, dynamic balancingbecomes necessary. This is because the *
(1 Point)

- (a) unbalanced couples are caused only at higher speeds
- (b) unbalanced forces are not dangerous at higher speeds
- (c) effects of unbalances are proportional to the square of the speed
- (d) effects of unbalances are directly proportional to the speed

2

Let thedisturbing mass be 100 kg and the radius of rotation be 20 cm and the rotationspeed is 50 rad/s, then calculate the centrifugal force in kN.
*

(1 Point)

- 50
- 25
- 250
- 500

3

Whichof the following statements are associated with the complete dynamic balancingof rotating systems?
1.Resultant couple due to all inertia forces is zero.
2.Support reactions due to forces are zero but not due to couples.
3. Thesystem is automatically statically balanced.
4.Centre of masses of the system lies on the axis of rotation. *
(3 Points)

- (a) 1, 2, 3 and 4
- (b) 1, 2, and 3 only
- (c) 2, 3, and 4 only
- (d) 1, 3, and 4 only

4

From the given data,calculate the unbalanced centrifugal force in N s2
Distance from shaft = 0.2 m
Mass = 100 kg
Rotating speed = 1000 rpm. *
(3 Points)

- a) 20
- b) 2×107
- c) 200
- d) 20000

5

Let the disturbing mass be50 Kg, with radius of rotation = 0.1m, if one of the balancing mass is 30 Kg ata radius of rotation 0.1m then find the other balancing mass situated at adistance of 0.2m. *
(3 Points)

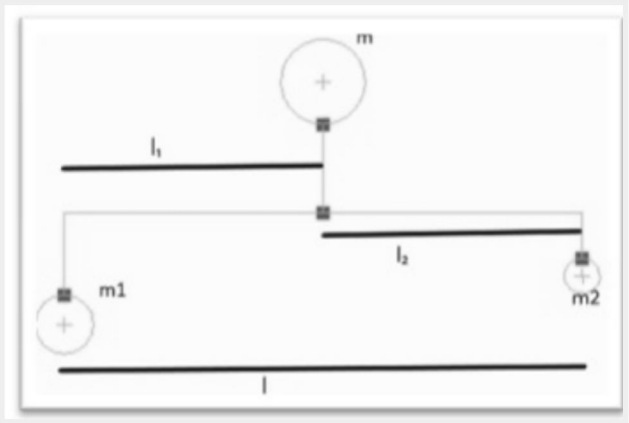
- a) 80
- b) 40
- c) 20
- d) 10

6

In a system two masses areused to balance the unbalanced forces. Find the mass of the balancing masswhich has to be situated at a distance of 20cm, if the disturbing mass is of100 Kg having radius of rotation of 0.1m. One of the balancing mass is 30 Kgwith RoR of 10cm. *
(3 Points)

- a) 70
- b) 35
- c) 20
- d) 10

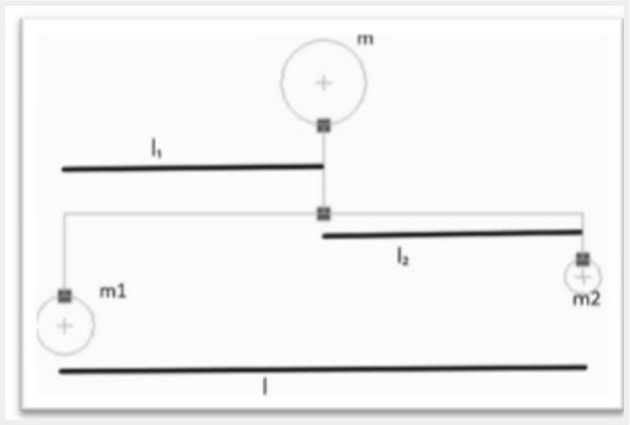
7



In the given figure, m1=10 Kg, m2=30Kg and m=50 Kg, if r=0.3m, l=1m, find l2 = 0.5m, find r1 in m. *
(3 Points)

- a 1.5
- b) 0.75
- c) 3
- d) 6

8



In the given figure,m1=10, Kg m2=30Kg and m=50 Kg, if r1=0.2m and r=0.3m, l=1m, find l2. *
(3 Points)

- a) 0.26m
- b) 0.52m
- c) 1.04m
- d) 0.13m