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5th Sem./ Mechanical Engg.
Subject : Theory of Machines

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 In lower pairs, There is. (CO1)

a) A surface contact b) A point contact

c) A line contact d) None of the above

Q.2 Inversion of a double slider crank chain is. (CO1)

a) Oldhan's coupling b) Pendulum pump

c) Beam engine d) None of the above

Q.3 Practical application of cam are in (CO6)

a) Printing machines b) Sewing machines

c) Gear cutting machines d) All of the above

Q.4 Creep in belt drive is due to _____ (CO2)

a) Material of the pulley

b) Uneven extensions and contraction due to varying tension

c) Material of the belt

d) Larger size of the driver pulley

Q.5 The equation of rotation is (CO4)

a) T= Iw b) T = mk2

c) T = rw d) T = la

Q.6 With the increases of governor speed (CO6)

a) Radius of rotation and height of governor increase

b) Radius of rotation and heigh of governor decrease

c) Radius of rotation decreases, but height of governor increases

d) Radius of rotation increases, but height of governor decreases

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The vibrations caused in a body under the influence of external force, are knows as _____ vibrations.

Q.8 When one of the links of a kinematic chain is fixed, the chain is knows as _____.

Q.9 _____ is the ratio of the pitch circle diameter to the number of teeth.

Q.10 What is the coefficient of fluctuation of energy?

Q.11 What do you understand by isochronism of governor?

Q.12 To balance the reciprocating masses _____ and _____ must be balanced.

SECTION-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Define cam and follower and give its classification.

Q.14 List four harmful effects of vibrations on machines.

Q.15 Explain different types of constrained motion.

Q.16 Write a short note on dynamic balancing.

Q.17 Define vibration. What are its different types? Explain.

Q.18 Write the advantages of V-belts over flat belts.

Q.19 Differentiate between machine and structure.

Q.20 Discuss the various causes of vibrations.

Q.21 Drive the relationship between fluctuation of speed and energy.

Q.22 Explain the method of balancing a single rotating mass by another rotating mass in the same plane.

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 An engine fly wheel has a mass of 5 tons and the radius of gyration in 1.5 m. If the maximum and minimum speed are 150 rmp and 140 rpm respectively. Find the maximum fluctuation of energy.

Q.24 Explain the construction and working of the porter governor with the help of a neat sketch.

Q25 Explain gear nomenclature with help of neat sketch.