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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 The smaller and generally the driving gear of a pair of mated gears is called _____
- a) Pitch b) Module
c) Rack d) Pinion
- Q.2 Which one of the following is a Dead weight type governor?
- a) Porter Governor
b) Hartnell Governor
c) Wilson-Hartnell Governor
d) Hartung Governor

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- Q.3 When there is a reduction in amplitude over every cycle of vibration, then the body is said to have
- a) free vibration b) damped vibration
c) forced vibration d) none of above
- Q.4 The distance between the corresponding points on adjacent teeth measured on the pitch circle is called _____
- a) helical pitch b) normal pitch
c) gear pitch d) circular pitch
- Q.5 Unbalance in rotating part may be due to
- a) un-machined portion of casting
b) lack of homogeneity in the material
c) non symmetry of parts
d) all of the above
- Q.6 A simple mechanism has _____
- a) 4 links b) 2 links
c) 1 link d) 3 links

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SECTION-B

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

- Q.7 Power transmitted by a belt is given by formula _____.
- Q.8 What is the coefficient of fluctuation of energy?
- Q.9 Oldham's coupling is an inversion of mechanism. (True/False)
- Q.10 Cam is rotating machine element which provides reciprocating motion to another element known as _____.
- Q.11 When the particles of a shaft move approximately perpendicular to the axis of the shaft, the vibrations are said to be _____ vibrations.
- Q.12 Define inversion of mechanism.

SECTION-C

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

- Q.13 Explain the terminology for radial or disc cam with the help of a neat sketch.
- Q.14 Define coefficient of fluctuation of speed and coefficient of fluctuation of energy.
- Q.15 Write the advantages of gear drives over belt drive.
- Q.16 What is the difference between simple and compound gear train?

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Q.17 Define the following terms:

- a) Resonance
- b) Frequency

- Q.18 What is the function of a flywheel ? Why is rim type of flywheel preferred over disc type
- Q.19 Define free vibration. Explain different types of free vibration.
- Q.20 Differentiate between flywheel and governor.
- Q.21 Define following :
- a) creep of belt
 - b) Crowning of pulleys
- Q.22 Write short note on static & Dynamic Balancing.

SECTION-D

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

- Q.23 Explain principle, construction & working of Hartnell governor with neat sketches.
- Q.24 Discuss in detail any two inversions of a double slider crank chain mechanism with the help of neat sketches.
- Q.25 Explain the various causes, harmful effects and remedies of vibrations.

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