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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

**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 links
- d) 3 links

(1)

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(2)

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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?

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.