

No. of Printed Pages : 4

Roll No. ....

121754/031751

5th Sem. / Mech

Subject : Theory of Machines

Time : 3 Hrs.

M.M. : 100

### SECTION-A

**Note:** Objective type questions. All questions are compulsory (10x1=10)

- Q.1 Define machine.
- Q.2 Define belt.
- Q.3 State law of belting.
- Q.4 Define sprocket.
- Q.5 Define pitch circle.
- Q.6 Write equation of rotation
- Q.7 Write function of a governor.
- Q.8 Define balancing.
- Q.9 Write types of balancing.
- Q.10 Define resonance.

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### SECTION-B

**Note:** Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

- Q.11 How a kinematic chain is converted into a mechanism? <http://www.hsbteonline.com>
- Q.12 What is degree of freedom?
- Q.13 Name different types of pulleys for flat belt.
- Q.14 Define slip in case of belt.
- Q.15 What are helical gears.
- Q.16 Name different form of gear teeth.
- Q.17 What is turning moment diagram?
- Q.18 Define stability of a governor.
- Q.19 Name two types of governors.
- Q.20 Define reference plane.
- Q.21 Name different types of free vibrations.
- Q.22 Describe torsional vibrations.

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## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. 8x5=40

- Q.23 Discuss inversions of a mechanism. Explain any one with example.
- Q.24 Explain different types of constrained motion.
- Q.25 Differentiate between open & crossed belt drives.
- Q.26 Explain any two types of gears with their applications in brief.
- Q.27. Differentiate the working of governor and flywheel.
- Q.28 Explain portell governor.
- Q.29 Write a short note on centrifugal governor.
- Q.30 Explain the method of balancing a single rotating mass by another mass in same plane.
- Q.31 Write a short note on dynamic balancing.
- Q.32 List five harmful effects of vibrations on machines.

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## SECTION-D

**Note:** Long answer type questions. Attempt any three questions out of four questions. 3x10=30

- Q.33 Draw sketch of spur gear with complete nomenclature.
- Q.34 Describe Flywheel and give its uses. Derive relationship for the coefficient of fluctuation of speed in terms of maximum fluctuation of energy and the kinetic energy of the flywheel at mean speed.
- Q.35 Explain principle, construction & working of Hartnell governor with neat sketches.
- Q.36 Classify vibrations and explain each type briefly.

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