

- k) What is addendum?
- l) Stability
- m) What do you mean by a Kinematic chain?
- n) What is crowing of pulleys?
- o) Define creep.
- p) Define pivot.
- q) What is angle of contact in open and cross belts?
- r) What is horse power and its units?

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

- Q.2
- i) Draw an involute teeth of gear.
 - ii) Advantages of v-belt over flat belt.
 - iii) What is epicyclic gear train.
 - iv) Differentiate between static and dynamic balancing.

- v) Classify pulleys.
- vi) Explain watt indicator mechanism.
- vii) Explain hartnell governor.
- viii) If a rotating mass $m = 100\text{kg}$ at $r = 180\text{mm}$, is to be balanced by two masses b_1, b_2 at radius of 300mm each separated by a distance of 0.5m on both side of the mass. Calculate b_1, b_2 .
- ix) What is the difference between simple and compound gear train?
- x) Explain types of gears.
- xi) Write short note on materials of belt.
- xii) What is the condition for maximum power transmission? Drive the formula.
- xiii) Effect of centrifugal tension on belts.
- xiv) Give any five terms of gear nomenclature.
- xv) Why one side of belts is tight side and other slack side? Explain.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 Explain causes, remedies and harmful effects of vibrations.
- Q.4 Two pulleys of diameter 400mm and 800mm mounted on two parallel shafts 1.5m apart are connected by leather open belt 150mm wide. If the safe tension is 14N/mm width, determine the maximum power transmitted assuming speed of the belt as 540m/min and coefficient of friction as 0.25.
- Q.5 Show the kinematic pairs with examples depending upon relative motion.
- Q.6 A flywheel having a mass of 4 tonnes has a radius of gyration of 2m. What amount of energy this flywheel will store in it in changing its speed from 460rpm to 462rpm?
- Q.7 Explain for which balancing is more easy to do - rotary masses or reciprocating masses and why? Drive the method for balancing the rotary masses.

**5th Sem. / Mech/Prod./CAD/CAM/
MT/T&D/CNC**
Subject : Theory of Machines

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1
- a) Define Slip in belts.
 - b) What is circular pitch in gears?
 - c) Define dynamics.
 - d) Resistant body.
 - e) Kinematic pair
 - f) What is constrained motion?
 - g) Mechanism
 - h) Function of flywheel
 - i) Coefficient of speed
 - j) Equilibrium speed