

COMPUTER AIDED AUTOMOTIVE DESIGN
SUBJECT CODE - BTAE -601
PAPER ID A-2380

Time : 03 hours

Maximum marks : 60

Instruction to the candidates:

1. Section -A is compulsory consisting of ten questions carrying Two marks each.
2. Section -B contains Five questions carrying Five marks each.
3. Section -C contains Three questions carrying Ten marks each.

Section-A

Q1.

- a) Explain the concept of minimum number of teeth on a sprocket.
- b) What is Specific advantage of worm and worm wheel?
- c) What is meant by sproket for a chain?
- d) How bearing are classified ?
- e) Explain Valve trains.
- f) Why the area of inlet valve port is made larger than the area of exhaust valve port?
- g) How are timing gear lubricated?
- h) What do you mean by interference in involute gear?
- i) What is belt rating?
- j) Why taper roller bearings are used in a pair?

Section-B

- Q2. Discuss different types of wear failure and breakage failure of gear tooth due to static and dynamic loads.
- Q3. Give step by step procedure for the selection of flat belt from manufacturer's catalogue for given application. Provide all other information and recommendations needed in selection.
- Q4. What conditions must be satisfied in order that a pair of spur gears may have a constant velocity ratio ? Discuss.
- Q5. Explain the various stresses induced in connecting rod.
- Q6. What is meant by nipping of leaf springs and derive its formula.

Section -C

- Q7. Discuss the procedure of design of lubrication system for crank shaft.
- Q8. Two pulleys of diameters 450mm and 150 mm are mounted on two parallel shafts 2m apart and are connected by a flat belt drive . Find the which can be transmitted by the belt when larger pulley rotates at 180rpm. The maximum permissible tension in the belt is 1 kN, and the coefficient of friction between belt and pulley is 0.25. also find the length of the cross belt required and the angle of arc of contact between belt and the pulleys.
- Q9. A chain drive is used for reduction of speed from 240rpm to 120 rpm . The number of teeth on drive sprocket is 24. Find the number of teeth on the driven sprocket. If the pitch circle diameter of the driven sprocket is 600mm and centre distance is 1 m. Determine the pitch and length of the chain.