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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(AE) (2011 Onwards) (Sem.-6)**  
**COMPUTER AIDED AUTOMOTIVE DESIGN**  
Subject Code : BTAE-601  
M.Code : 71217

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****1. Answer briefly :**

- a) What are design variables which effects its performance?
- b) List various cylinder arrangements used in automotive.
- c) What are the applications of V-belt in vehicles?
- d) Brief about rocker arm.
- e) What is function of piston skirt?
- f) What stresses are produced on king pin bearing?
- g) Show the curve for typical mechanical efficiency at different vehicle speed.
- h) Define driving force.
- i) Write note on power curve.
- j) What typical problems are faced in grad-ability of gears?

**SECTION-B**

- Q.2. What specifications must be considered for computer aided automotive design?
- Q.3. Illustrate details of design of bearing housing.
- Q.4. Derive gear ratio for forward motion for six speed gear box.
- Q.5. Describe about driving force against vehicle speed.
- Q.6. What is roll of value gear mechanism in engine design?

**SECTION-C**

- Q.7. Discuss in detail about design for centre crankshaft for automobiles.
- Q.8. A pulley of 0.9 diameter revolving at 200 rpm is to transmit 7.5 kW. Find the width of a leather belt if the maximum tension is not to exceed 145 N in 10 mm width. The tension in the tight side is twice that in the slack side. Determine the diameter of the shaft and the dimensions of the various parts of the pulley, assuming it to have six ms. Maximum shear stress is not to exceed 63 MPa.
- Q.9. Write note on :
- a) Rear axle ratio
  - b) King pin Bearing

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**