

Total No. of Questions : 8]

SEAT No. :

**P9069**

[Total No. of Pages : 2

[6178]-4

**F.E.**

**SYSTEMS IN MECHANICAL ENGINEERING**  
**(2019 Pattern) (Semester - I/II) (102003) (Credit System)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Course Outcome :*

*CO 3 : List down the types of road vehicles and their specifications.*

*CO 4 : Illustrate various basic parts and transmission system of a road vehicle.*

*CO 5 : Discuss several manufacturing processes and identify the suitable process.*

*CO 6 : Explain various types of mechanism and its application.*

*Instructions to the candidates:*

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 Q.7 or Q.8*
- 2) Assume/suitable data if necessary.*
- 3) Figures to the right indicate full marks.*

**Q1) a)** List the specifications of vehicle and explain any four specifications of Light Motor Vehicle (LMV) **[10]**

**b)** Explain Electric Vehicle with neat diagram. **[8]**

OR

**Q2) a)** Explain with neat sketch the various components in SI engine. **[10]**

**b)** Classify Automobile and Compare specification of LMV and Heavy motor vehicle (HMV). **[8]**

**Q3) a)** Explain steering system with neat diagram. **[10]**

**b)** Explain with neat sketch the differential gearbox **[7]**

OR

**Q4) a)** Explain antilock braking system in vehicle with neat diagram. **[10]**

**b)** Explain with neat sketch the working of Disc brake. **[7]**

**P.T.O.**

**Q5) a)** Explain with neat sketch the forging process. State its advantages and disadvantages. [10]

b) Explain with neat sketch drilling, chamfering, grooving, and taper turning operations. [8]

OR

**Q6) a)** Explain with neat sketch piercing, lancing, perforating, deep drawing, and embossing sheet metal operations. [10]

b) Explain with neat sketch sand casting. [8]

**Q7) a)** Explain with neat sketch the working of air conditioner. [10]

b) Explain with neat sketch the working of water purifier. [7]

OR

**Q8) a)** Explain with neat sketch solar water heater. State its advantages. [10]

b) Explain the working of electric geyser. [7]