

**COLLEGE OF ENGINEERING, PUNE**  
(AN AUTONOMOUS INSTITUTE OF GOVT. OF MAHARASHTRA)  
**END SEMESTER EXAMINATION**  
(ILE) AUTOMOBILE ENGINEERING  
Program: SYB. Tech (All Branches)

[Time: 3 Hours]

[Max.Mark:50]

- Instructions to candidates:
1. All questions are compulsory.
  2. Neat Diagrams must be drawn where ever necessary.
  3. Assume suitable data if necessary.
  4. Use of non programmable electronic calculators is allowed.
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**Q.1 Answer any two. (10 marks)**

- a) Explain the principle of operation of 2-stroke cycle engine with neat sketch.
- b) Classify automobiles from 8 different aspects, naming important manufacturers in India.
- c) State the advantages & disadvantages of rear & central engine drive vehicles.

**Q.2 Answer any two. (10 marks)**

- a) What are the functions of a clutch? Classify them and describe a single plate clutch with a neat sketch.
- b) What are the advantages of constant mesh gear box over a sliding mesh gear box? Describe a simple constant mesh gear box with a neat sketch.
- c) Describe a synchromesh gear box with a neat sketch.

**Q.3 Answer any two. (10 marks)**

- a) What is the purpose of independent suspension? Explain various methods to achieve the same in front & rear axle cars.
- b) Classify various types of automotive fuels. Why there is need of searching alternative fuels for future use? List them.
- c) Explain the necessity of power steering in an automobile. Sketch any one power steering system and explain its working.

**Q.4 Answer any two. (10 marks)**

- a) Explain recirculating ball steering with neat sketch and compare it with usual steering.
- b) Explain construction of tires from tire cord, tire ply & tire tread design points of views.
- c) Which materials are used for tires? Explain with reasons. Compare tubeless tires with tube type tires.

**Q.5 Answer any two (10 marks)**

- a) What are different functions of a battery? Describe with neat sketch the working principle of a battery.
- b) What are the important components in an automobile battery? Explain with functions.
- c) Explain in detail construction, operation & maintenance of lead acid batteries.