

**IV B.Tech I Semester Supplementary Examinations, February 2008**  
**AUTOMOBILE ENGINEERING**

( Common to Mechanical Engineering and Production Engineering)

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) What is cam? How does it operate an engine valve? [2+2]  
(b) Sketch an engine valve and name its different parts. [4+4]  
(c) What is tappet clearance? Why is it necessary? [2+2]
2. (a) Define carburetion. What are the factors that affect carburetion? [4+4]  
(b) Explain the terms:
  - i. rich mixture [2]
  - ii. lean mixture [2]
  - iii. chemically correct mixture [2]  
(c) What are the mixture requirements for different loads? [2]
3. (a) What are the advantages of liquid cooling systems and what its limitations? [4+4]  
(b) Explain the working of thermosyphan cooling system. [4+4]
4. (a) What are the requirements of an ignition system. [6]  
(b) What are the types of ignition system and describe the working of Battery ignition system. [5+5]
5. (a) Explain briefly the lighting system provided in a car and functions of each unit [4+4]  
(b) Explain clearly the operation of the turn signal light unit [4+4]
6. (a) Describe the constructional features of a clutch disc. [4+4]  
(b) Explain the working of a centrifugal clutch. [4+4]
7. (a) What are the types of suspension system. [4]  
(b) Sketch and explain the construction and working of wishbone type independent front suspension used on any Indian vehicle [6+6]
8. (a) What are the various materials used for brake lining. [4]  
(b) Explain the methods of fastening brake lining to the shoes. [5]  
(c) How does an external contracting brake differ from an internal expanding brake. [7]

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1. (a) What are the sources of noise pollution from an automobile? How can it be controlled? [4+4]  
(b) What is the mechanism of smoke formation? [8]
2. (a) Describe the methods of fuel feed systems in petrol engines. [8]  
(b) Explain the difference in method of supply fuel in S I and C I engines. [4+4]
3. (a) Explain the working of pressure search radiation cap. [4+4]  
(b) What are the general troubles with water cooling system. [4+4]
4. (a) What are the advantages of Battery ignition system one magneto coil ignition system. [8]  
(b) Explain the difference between hot plug & cold plug. [8]
5. Explain the constructional differences and working of DC generator and an alternator. Discuss the relative merits of them in automobile applications. [8+8]
6. (a) Explain the construction and working of synchromesh type gear engagement with a sketch and list out its advantages. [4+4+4]  
(b) Describe the working of a gear selector mechanism. [4]
7. (a) What are the objectives of employing a suspension system on an automobile? [8]  
(b) Explaining the connecting of telescopic shock absorption. [8]
8. (a) What is wheel alignment explain? [8]  
(b) Describe the cam and roller type of Steering Gear. [4+4]

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1. (a) What are the sources of noise pollution from an automobile? How can it be controlled? [4+4]  
(b) What is the mechanism of smoke formation? [8]
2. (a) What are the requirements of a diesel injection system. [8]  
(b) Describe the working of a fuel feed system in diesel engines. [4+4]
3. Explain the various types of engine cooling systems and compare them. [8+8]
4. (a) Describe with a neat sketch of Magneto-ignition system of a four-cylinder engine. [5+5]  
(b) Compare Battery ignition system with Magneto-ignition system. [6]
5. (a) Describe the working of a fuel gauge. [4+4]  
(b) Explain the working of a Horn cutout relay. [4+4]
6. (a) List out the functions to be performed by the transmission system of an automobile. [8]  
(b) Explain the arrangements by which engine power is transmitted to the wheels. [8]
7. (a) What are the types of suspension system. [4]  
(b) Sketch and explain the construction and working of wishbone type independent front suspension used on any Indian vehicle [6+6]
8. Describe the Ackermann and Davis Steering Mechanisms. What are their relative merits? [8+8]

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1. (a) Give classification of Internal Combustion engines. [6]  
(b) How does a two-stroke engine differ from a four-stroke engine? [10]
2. (a) What are the advantages and disadvantages of petrol injection system? [4+4]  
(b) Describe the throttle body petrol injection system. [4+4]
3. (a) Explain the reason for cooling an IC engine. [4]  
(b) What are the various characteristics of an efficient cooling system. [4]  
(c) Draw a sketch of cooling water system and name the various parts. [4+4]
4. (a) Explain with a neat sketch of capacitance discharge ignition system. [4+4]  
(b) Discuss the effect of spark advance on pressure-crank angle diagram. [8]
5. (a) What is the need for controlling the generator out put. [6]  
(b) How do you control the generator output in the automobiles. For the purpose of charging the battery. [5+5]
6. (a) List out the functions to be performed by the transmission system of an automobile. [8]  
(b) Explain the arrangements by which engine power is transmitted to the wheels. [8]
7. (a) Explain the working of a Hoatch kiss diagram. [4+4]  
(b) Explain the working differential in an automobile. [4+4]
8. Describe the Ackermann and Davis Steering Mechanisms. What are their relative merits? [8+8]

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