

III B.Tech. II Semester Regular Examinations, April/May -2005
AUTOMOBILE ENGINEERING
(Mechatronics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why the frames are narrower at their fronts than at rear?
(b) What are the materials used for chassis frame and body?
(c) What is a four-wheel drive? Mention its advantages.
2. (a) Describe the types of carburetors based on the direction of mixture flow.
(b) Explain the salient features of CARTER carburetor.
3. (a) Explain the working of Evaporating Cooling System.
(b) Name the components of water cooling system and explain in detail.
4. (a) Describe with a neat sketch of Magneto-ignition system of a four-cylinder engine.
(b) Compare Battery ignition system with Magneto-ignition system.
5. (a) Name the various electrical components used in an automobile & give their functions.
(b) Explain the working of a starter switch.
6. (a) Explain the working of cone clutch used in an automobile with a neat sketch.
(b) How a single plate clutch is better compared to cone clutch.
7. (a) Explain the working of a Hoatch kiss diagram.
(b) Explain the working differential in an automobile.
8. Describe the Ackermann and Davis Steering Mechanisms. What are their relative merits?

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1. What are the important basic components of an IC engine? Explain them briefly.
2. (a) What are the requirements of a diesel injection system.
(b) Describe the working of a fuel feed system in diesel engines.
3. (a) Explain the working of Dole thermostat.
(b) What are the advantages of water cooling system over air cooling system.
4. (a) Briefly discuss the various factors which will affect the ignition timing.
(b) Briefly discuss the main factors before deciding the optimum firing order of an engine.
5. (a) Describe the working of a fuel gauge.
(b) Explain the working of a Horn cutout relay.
6. (a) List out the functions to be performed by the transmission system of an automobile.
(b) Explain the arrangements by which engine power is transmitted to the wheels.
7. (a) About what gear reduction is obtained in the differential on passenger cars and on commercial vehicles? Does it vary from one vehicle to other.
(b) Explain the semi floating.
(c) What is the purpose of universal joint?
8. (a) What is wheel alignment explain?
(b) Describe the cam and roller type of Steering Gear.

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1. (a) Give classification of Internal Combustion engines.
(b) How does a two-stroke engine differ from a four-stroke engine?
2. (a) State the difference between vaporization and atomization.
(b) How the speed of the engine is controlled by throttle?
(c) Describe the equipment used for petrol injection.
3. (a) What are the advantages of air cooling system over water cooling system.
(b) Describe the working of can type thermostat.
4. (a) Explain with a neat sketch of capacitance discharge ignition system.
(b) Discuss the effect of spark advance on pressure-crank angle diagram.
5. Draw and explain the wiring circuit for a passenger car and give the function of each component circuit.
6. (a) Explain the construction and working of synchromesh type gear engagement with a sketch and list out its advantages.
(b) Describe the working of a gear selector mechanism.
7. (a) What is a differential lock? Describe its operation with the neat sketch.
(b) Describe the working of a three Quarter floating type rear axle.
8. Describe the Ackermann and Davis Steering Mechanisms. What are their relative merits?

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1. (a) What are the sources of noise pollution from an automobile? How can it be controlled?
(b) What is the mechanism of smoke formation?
2. (a) Describe the types of carburetors based on the direction of mixture flow.
(b) Explain the salient features of CARTER carburetor.
3. (a) Describe with a neat sketch the working of air cooled system and what are its applications?
(b) Discuss the following;
 - i. Cooling fins
 - ii. Baffles
4. Write notes on the :
 - (a) Troubles of ignition system
 - (b) Explain the working vacuum advanced mechanism.
5. (a) Explain the construction and working of a wind screen wiper with a simple sketch.
(b) Write short notes about panel board instruments used in an automobile.
6. (a) What is the purpose of a gearbox?
(b) Discuss the common troubles in the functioning of clutches and suggest suitable remedies.
(c) What are materials used for clutch facings.
7. (a) Sketch the sectional view of the tyre and explain its various parts.
(b) Discuss the constructional details of a cross ply tyre.
(c) What are the functions of tyres?
8. (a) What are the requirements of automobile brakes?
(b) Describe any type of mechanical brake with the help of a neat sketch.
