

IV B.Tech I Semester Supplementary Examinations, November 2007
AUTOMOBILE ENGINEERING

(Common to Mechanical Engineering and Production Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is pressure lubrication system? Explain with a neat sketch. [3+5+4]
(b) Indicate the difference between 'Pressure feed' and 'Splash' type of lubrication. [4]
2. (a) What are the types of fuel pumps used to pump petrol from the tank to carburetor? Sketch them. [4+4]
(b) Explain the constructional details of a heavy-duty type (oil bath type) air filter. [4+4]
3. (a) Explain the purpose of a radiator. [4]
(b) Describe the types of radiator cores. [8]
(c) Explain the details of servicing of radiator. [4]
4. (a) Briefly discuss the various factors which will affect the ignition timing. [8]
(b) Briefly discuss the main factors before deciding the optimum firing order of an engine. [8]
5. (a) What is the principle of a generator? Give its constructional details [4+4]
(b) Explain the working of a cutout relay as used in the charging circuit [8]
6. (a) With the help of a neat sketch, explain the construction and operation of a constant mesh gearbox. [4+4]
(b) What do you mean by double-declutching? Explain how and why it is done? [4+4]
7. (a) Explain the working of a Hoatch kiss diagram. [4+4]
(b) Explain the working differential in an automobile. [4+4]
8. (a) Explain clearly how the King-Pin inclination produces directional stability? [4]
(b) Explain why do the front wheels have to toe-out in turns? [4+4]
(c) Explain what is meant by center point steering. [4]

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1. (a) On a hilly track, performance of a rear wheel driven vehicle is superior compared to front wheel drive vehicle. Explain the reason. [7]
(b) Describe different types of chassis frames. [4+5]
2. (a) Explain the working of S.U. Electrical Fuel pump. [4+4]
(b) Describe the three tests to be performed to assess the performance of petrol engine fuel pumps. [4+4]
3. (a) What are the types of temperature indicators and explain them. [4+4]
(b) Discuss the clogged cooling system. [8]
4. (a) Explain the term Modern Ignition Systems and mention the types. [4+4]
(b) Explain with a neat sketch the working of Transistorized coil system and name the various parts. [4+4]
5. (a) Discuss about the torque and speed requirement for engine starting. [6]
(b) Explain clearly the over running clutch drive type-starting mechanism with a neat sketch. [5+5]
6. (a) Explain the working of a multi plate clutch with a suitable sketch. List out the advantages of it over single plate clutches. [4+4+4]
(b) Explain the principle of clutch. [4]
7. (a) Explain the working of a Hoatch kiss diagram. [4+4]
(b) Explain the working differential in an automobile. [4+4]
8. Write notes for the following:
 - (a) Hill-holder [4]
 - (b) Leading and trailing shoes. [4]
 - (c) Requirements of break fluid [4]
 - (d) Break shoe material. [4]

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1. (a) What is the main reason for the development of two stroke engines? Classify two stroke engines. [3+3]
(b) In what respects CI engine differ from SI engine. [7]
(c) Define the term scavenging. [3]
2. (a) What are the limitations of simple carburetor. [8]
(b) How the starting difficulty with simple carburetor can be over come? [8]
3. (a) Explain the working of Evaporating Cooling System. [4+4]
(b) Name the components of water cooling system and explain in detail. [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) Explain the working of a multi plate clutch with a suitable sketch. List out the advantages of it over single plate clutches. [4+4+4]
(b) Explain the principle of clutch. [4]
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. [4+4]
(b) Explain the semi floating. [4]
(c) What is the purpose of universal joint? [4]
8. (a) Explain clearly the working of the giriling mechanical brakes. [4+4]
(b) Explain the working of wheel cylinder. [4+4]

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1. (a) Compare the merits of front wheel drive vehicles with rear engine wheel drive vehicles. [8]
(b) What is frameless construction? What are its advantages? [4+4]
2. (a) State the difference between vaporization and atomization. [4+4]
(b) How the speed of the engine is controlled by throttle? [4]
(c) Describe the equipment used for petrol injection. [4]
3. Explain the various types of engine cooling systems and compare them. [8+8]
4. (a) Briefly discuss the various factors which will affect the ignition timing. [8]
(b) Briefly discuss the main factors before deciding the optimum firing order of an engine. [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) 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 is a differential lock? Describe its operation with the neat sketch. [4+4]
(b) Describe the working of a three Quarter floating type rear axle. [8]
8. (a) What is the effect of slip angle, inflation pressure on the cornering force. [4+4]
(b) Sketch the construction and explain the working of a Davis steering mechanism. [4+4]
