

Code No: A109212401

R09**Set No. 2**

II B.Tech I Semester Examinations, MAY 2011
AUTOMOBILE ENGINEERING
Automobile Engineering

Time: 3 hours**Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is the need of controlling generator output and explain the objections in the use of third brush generator? [15]
 (b) What is the necessity of employing a temperature compensator in the generator regulation system? [15]
2. (a) Explain the manufacture of leaf springs and mention the need of lubricating the springs. [15]
 (b) What are the advantages and disadvantages of rubber and plastic suspension? [15]
3. (a) What are the effects of camber, castor, on the steering characteristics of vehicle? [15]
 (b) What are the various elements in steering system, explain their functions? [15]
4. (a) Explain with a neat sketch the construction and working of distributor type fuel injection pump. [15]
 (b) Describe the working mechanism of fuel injector with a neat sketch. [15]
5. (a) Discuss the requirements and functions of ignition system of internal combustion engine. [15]
 (b) Explain with a neat sketch the construction & working of ignition coil. [15]
6. (a) What are the advantages of using computer feed back control in the three way convertor? [15]
 (b) What are the various areas of automobile emitting pollutants and name various pollutants in the Exhaust? [15]
7. (a) What are the various factors decide the life of a tyre and explain heat effect on tyre life? [15]
 (b) Differentiate between radial ply tyres and cross ply tyres and mention their advantages and disadvantages. [15]
8. (a) Give in detail the procedure for servicing the valve system in an engine. [15]
 (b) Describe the procedure of removing, servicing and re-installation of piston-connecting rod assembly. Mention various precautions to be observed. [15]

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R09**Set No. 4**

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Time: 3 hours**Max Marks: 75**

Answer any FIVE Questions
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1. (a) What are the advantages and disadvantages of multi plate clutch over single plate clutch?
 (b) Sketch a hydraulic clutch and explain its advantages over frictional clutch. [15]
2. (a) Describe the functions and construction of a leaf spring and show how it is mounted on rear and front axels in automobile.
 (b) What are the advantages and applications of helical coil springs and leaf springs? [15]
3. (a) Discuss common faults occurring in the engine cooling system and suggest suitable remedies.
 (b) How radiator leakage be tested and prevented, explain? [15]
4. (a) What are the advantages and disadvantages of balls in the re-circulating type steering gear?
 (b) What is the "backlash" in steering gear and mention its causes and effects and explain with sketches the methods of adjusting the backlash? [15]
5. (a) Differentiate between the Mechanical Electronic fuel injection systems used in petrol engines.
 (b) What is the need of super charging in petrol engines and indicate its location with the help of schematic diagram? [15]
6. (a) What factors control the consumption of lubricating oil in an engine?
 (b) Differentiate between pressurized and non-pressurized system of lubrication in engine. [15]
7. (a) Explain fuel system modifications required for LPG and CNG fuels compared to conventional automobile engines.
 (b) Explain the concept of hybrid vehicle? [15]
8. (a) Draw a simplified wiring circuit for lighting system of an automobile and indicate various parts.
 (b) Discuss the troubles commonly experienced in the lighting system of an automobile and suggest suitable remedies. [15]

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R09**Set No. 1**

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Time: 3 hours**Max Marks: 75**

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1. (a) Sketch and explain the constructional details of a shock absorber and mention its functions.
(b) What is the effect of aeration in the shock absorber and explain about gas-changed shock absorber? [15]
2. (a) Explain with a neat sketch the power transmission from engine to wheels.
(b) What is the need of gear box, when the engine speed can be varied with the help of accelerator? [15]
3. (a) Describe the procedure adopted to test the working of a generator-regulator system?
(b) What are the various factors that decide the output of an alternator? [15]
4. (a) Why should unleaded gasoline be used for engines employing catalytic converter?
(b) What does the amount of oxygen indicate in exhaust and explain its effects on pollutants? [15]
5. (a) Describe with a sketch the rack and pinion type manual steering gear and discuss its advantages and limitations.
(b) What is the need of placing the pinion in a tilted position to rack in rack and pinion type of steering gear? [15]
6. (a) Differentiate between common rail fuel injection system with individual pump fuel injection system.
(b) Sketch and explain the construction and working of fuel injection system used on diesel engine. [15]
7. (a) Explain about scraping, Oxygen method and chemical method of decarburing the parts.
(b) Describe the circumstances which necessitate the servicing of an automotive engine. [15]
8. (a) What is dwell and dwell angle as applied to contact breaking in ignition system?
(b) What factors to be considered in checking or setting the ignition timing? [15]

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R09**Set No. 3**

II B.Tech I Semester Examinations, MAY 2011
AUTOMOBILE ENGINEERING
Automobile Engineering

Time: 3 hours**Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain with sketches the methods of absorbing vertical shocks and side thrusts.
 (b) Bring out the advantages and applications of leaf springs, tapered leaf springs and helper springs. [15]
2. (a) Does the generator output vary with the engine speed, if so, how the constant voltage is supplied to battery?
 (b) Why cut-out relay is not required in case of an automotive charging system with an alternator? [15]
3. (a) What are the various approaches to reduce pollution from automobiles and explain about closed crank case ventilation?
 (b) What are the advantages of reducing the compression ratio of an engine? [15]
4. (a) Explain with a schematic diagram the working of individual pump system used on diesel engine.
 (b) What is anti-dribbling device which is used in fuel injector and explain its working? [15]
5. (a) What are the various methods used for gap setting on contact breaker and explain them?
 (b) What are the various factors affecting the ignition advance and discuss different methods used? [15]
6. (a) Sketch and explain the steering linkage for a vehicle with independent suspension.
 (b) What are the various types of steering gears in practice and explain about rack and pinion type steering gear? [15]
7. (a) What are the various factors to be considered in the design of tyre treads and mention their advantages?
 (b) What are the various problems encountered on wheels and tyres and how can they be eliminated? [15]
8. (a) Describe the inspection and repair procedure for the crankshaft of the engine.
 (b) How the ovality and taper of the cylinder bore is checked and explain the procedure of reboring? [15]
