

Code No: 07A50301

R07

Set No. 2

III B.Tech I Semester Examinations, May 2011
AUTOMOBILE ENGINEERING
Mechanical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. How many types of heaters are available for cars? Explain the principle of each type and discuss the hot water type of heater. [16]
2. Describe a hydraulically operated clutch in detail with the help of a simple diagram. [16]
3. With the help of simplified diagram explain the construction and working of fuel gauge. [16]
4. Discuss how various defects are caused in the braking system of the automobiles. Suggest also suitable remedies. [16]
5. (a) Explain briefly the factors which effect the formation of NO_x.
(b) What are the sources of HC formation in the petrol engine? Explain various factors which effect the HC formation. [8+8]
6. Discuss various types of special steering columns for safety and ease of operation. [16]
7. State the functions which a piston in an automobile engine cylinder is required to perform. Discuss various methods used to avoid piston slap. [16]
8. Enlist various spark plug defects. Explain their probable causes and suggest suitable remedies in each case. [16]

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Set No. 4

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AUTOMOBILE ENGINEERING
Mechanical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain clearly the type of regulation required in the alternator and describe various types of regulators for the same. Discuss in particular the principle of an electronic regulator for alternators. [16]
2. How does a compensation jet in a carburettor work? Explain clearly. [16]
3. Describe in detail various considerations which have to be kept in view while designing an automobile for safety. [16]
4. Write a comprehensive note on liquid cooling and explain its advantages over water cooling systems. [16]
5. What do you mean by total emission control packages? Describe with neat sketch two types of total emission control packages. [16]
6. Sketch front axle of a car showing how it is connected with the stub axle. [16]
7. Describe with the help of neat diagrams how automatic adjustments in case of both drum and disc types of brakes are done. [16]
8. What is the epicyclic gear box? Describe its principle with the help of neat sketch. [16]

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Set No. 1

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AUTOMOBILE ENGINEERING
Mechanical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Name the two types of the alkaline batteries. Explain any one of them. Explain in detail. [16]
2. Explain with the help of neat sketch the construction of propeller shaft. [16]
3. Which type of water circulation pump is used in an engine cooling system. Describe its construction and explain its working. [16]
4. Explain the merits and demerits of a down-draught types carburettor over the other types. [16]
5. Discuss the emissions from diesel engines. On what factors this emission depend. [16]
6. What is the function of a stabilizer? Give the simplified diagrams of the independent front suspension system. [16]
7. Discuss different tyre carcass types and the materials used for them. Compare the radial and the bias ply type carcass tyres. [16]
8. Make a neat sketch showing the components of a dry sump method of engine lubrication. Explain its working. [16]

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Set No. 3

III B.Tech I Semester Examinations, May 2011
AUTOMOBILE ENGINEERING
Mechanical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. What is the main difference between the battery and electronic systems? Explain in detail. [16]
2. Describe in detail various types of gear selector mechanisms used in automobiles. Discuss also the advantages and disadvantages and state what the modern trend is. [16]
3. Explain briefly the triple venturi system in carburettor. [16]
4. Explain briefly the following:
 - (a) Three way catalytic converter
 - (b) Two way catalytic converter .
 - (c) Noble metal catalytic converter. [16]
5. Discuss in detail various factors affecting tyre life. [16]
6. What is an inter connected suspension system? Discuss the main constructional features of any such system and also its working? [16]
7. Discuss thoroughly the constructional details of a distributor, explaining the functions of its various components and the materials used for the same .Describe also the drive for the distributor. [16]
8. (a) What is the effect of weight of vehicle and passengers on the frame side members?
(b) What type of stresses are produced in the side members of vehicle body while cornering? [8+8]
