

Code No: A109212401

**R09****Set No. 2****II B.Tech I Semester Examinations, November 2010****AUTOMOBILE ENGINEERING****Automobile Engineering****Time: 3 hours****Max Marks: 75****Answer any FIVE Questions****All Questions carry equal marks**

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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) What are the various faults occurring in the generator and explain the method of detecting the faults and rectification?  
(b) What is thermister? Explain its function in the alternator regulator. [15]
3. (a) Compare the merits and demerits of frameless construction with those of conventional framed construction in automobile body building.  
(b) Describe with a schematic diagram the layout of the power transmission from engine to wheels of rear wheel driven car. [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) 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]
6. (a) Describe the construction and working of inline fuel injection pump and mention the fuel supply control in it.  
(b) Differentiate between in-line fuel injection pump and distributor type fuel injection pump. [15]
7. (a) What are the advantages of electronic ignition system over the conventional ignition system?  
(b) Describe with a simplified diagram, the working of electronic ignition system. [15]
8. (a) Differentiate between master and wheel cylinders used in hydraulic braking system.  
(b) Explain the working principle of power brakes. [15]

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1. (a) Sketch and explain the pump circulation system of cooling system of the engines.  
(b) What are the advantages and applications of pump circulation system over thermo-syphon system? [15]
2. (a) What are the functions of coasting air valve and air switching valve and mention their contribution on emission control?  
(b) Why should EGR valve remain closed at idle and at full throttle and explain its effects? [15]
3. (a) Explain with a Schematic diagram the lay out of an air suspension system and also the importance of air springs.  
(b) What is the purpose of using anti-roll device in the suspension system and explain its functions? [15]
4. (a) Discuss the relative advantages of various lubricants and explain about blending and compounding.  
(b) What is decarbonising of engine? Why it is required in automobile engines. [15]
5. (a) Sketch and explain the construction and working of compression spring type Bendix drive.  
(b) What are the advantages of rubber spring type Bendix drive over compression spring type bending drive? [15]
6. (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 tilted position to rack in racks pinion type of steering gear? [15]
7. (a) What are the various factors decide the life of a tyre and explain heat effect on tyre life?  
(b) Differentiate between radial ply tyres and cross ply tyres and mention their advantages and disadvantages. [15]
8. (a) What are the various air cleaners used in diesel engine and explain the construction & working of light duty air cleaner?

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- (b) What is the need of cold starting device in a diesel engine and explain relative merits of various cold starting devices used in diesel engines? [15]

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FIRSTRANKER

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

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1. What are the advantages & limitations of
  - (a) Throttle return check
  - (b) Automatic mixture control.
  - (c) Float chamber [15]
2. (a) Differentiate between independent suspension over the rigid axle suspension mentioning their advantages and applications.  
(b) What is the function of an anti - roll device in vehicles and explain its usage in actual practice? [15]
3. (a) What are the advantages and disadvantages of Petrol and Diesel engines used on Automobiles?  
(b) What are the various factors to be considered in selecting the capacity of engine for a particular automobile? [15]
4. (a) What are the advantages of using computer feed back control in the three way convertor?  
(b) What are the various areas of automobile emitting pollutants and name various pollutants in the Exhaust? [15]
5. (a) Explain with a sketch the construction and working of Folio-thru starting drive.  
(b) Bring out the differences between standard Bendix drive and compression spring type Bendix drive. [15]
6. (a) Describe how octane selector method is used in manual ignition advance.  
(b) Sketch and explain the construction and working of magneto ignition system. [15]
7. (a) What is power steering system used in automobiles and how it is different from the conventional steering system?  
(b) Explain various steering troubles and mention suitable remedies. [15]
8. (a) Describe with the help of suitable sketches the constructional details of various disc type wheels.  
(b) What are the advantages and limitations of using light alloy wheels? [15]

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**R09****Set No. 3**

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1. (a) What are the effects of steering axis inclination and toe-in on the performance of steering of the vehicle?  
(b) Name important angles of steering geometry and explain the function of "King Pin". [15]
2. (a) Discuss the advantages and disadvantages of synchromesh gear box over other type of gear boxes.  
(b) What is the function of a clutch and explain various factors affecting the torque transmission in a Clutch? [15]
3. (a) Discuss clearly the need of triple venturi system in carburetor.  
(b) Explain with neat sketch the importance of main Jet & compensating Jet used in carburetor. [15]
4. (a) What is crankcase ventilation and how can it be achieved in an engine?  
(b) Discuss different oil filters used on automotive system with neat sketches. [15]
5. (a) What is the function of distribution system and explain with a sketch, the construction & working mechanism.  
(b) What is "ignition advance" and on what factors does it depend? [15]
6. (a) What is an interconnected suspension system and explain its constructional details with a layout mentioning its advantages over other systems?  
(b) Bring out the advantages and disadvantages of Hydrogas interconnected system over plastic suspension. [15]
7. (a) Discuss the common troubles occurring in the starting system of automobile and mention suitable remedies.  
(b) What are the various lights used on automobile and mention the importance of each one of them? [15]
8. (a) Explain fuel system modifications required for LPG and CNG fuels compared to conventional automobile engines.  
(b) Explain the concept of hybrid vehicle? [15]

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