

Code No: 07A42401

R07

Set No. 2

**II B.Tech II Semester Examinations, APRIL 2011
AUTOMOTIVE ENGINES
Automobile Engineering**

Time: 3 hours

Max Marks: 80

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

1. (a) What are the advantages of port fuel injection system?
(b) Explain the working procedure of D- MPFI system. [8+8]
2. A simple jet carburettor has to supply 5kg of air per minute. The air is at a pressure of 1.013 bar and at a temperature of 27⁰C . Calculate the throat diameter of the choke for air flow velocity of 90 m/s. Take velocity coefficient to be 0.8. Assume the flow is compressible and isentropic. For air adiabatic index $\gamma = 1.4$, specific heat at constant pressure $C_P = 1005 \text{ J/kg-K}$ and gas constant $R = 287 \text{ J/kg-K}$. [16]
3. (a) What is the need of oil filter for lubrication system?
(b) Discuss various types of oil filters used in lubrication system. [8+8]
4. (a) What is the testing procedure of injector nozzle?
(b) Explain the main advantage of pintle nozzle? [8+8]
5. (a) Discuss the relative merits and demerits of Internal Combustion Engines and External Combustion Engines.
(b) How SI engines and CI engines are further sub-classified? [8+8]
6. (a) C.I. Engine does not start in cold conditions. State the probable reasons relating to fuel feed system.
(b) What are the measures to be taken to rectify the defects observed? [8+8]
7. (a) Sketch various types of main bearings for an automotive engine. Mention the materials used for them.
(b) How are the crankshafts are manufactured? Explain. [9+7]
8. (a) Explain the scavenging process in two-stroke engine. What is meant by blow down?
(b) What are the advantages of two-stroke CI engine.
(c) What is meant by valve overlap? Why high valve overlap is undesirable? [8+4+4]

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