

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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R07**Set No. 4**

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) 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]
- 2.(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]
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) 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]
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) What is the testing procedure of injector nozzle?
 (b) Explain the main advantage of pintle nozzle? [8+8]
7. 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 27^oC . 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]
8. (a) What are the advantages of port fuel injection system?
 (b) Explain the working procedure of D- MPFI system. [8+8]

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R07**Set No. 1**

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 is the need of oil filter for lubrication system?
 (b) Discuss various types of oil filters used in lubrication system. [8+8]
2. (a) What is the testing procedure of injector nozzle?
 (b) Explain the main advantage of pintle nozzle? [8+8]
3. (a) What are the advantages of port fuel injection system?
 (b) Explain the working procedure of D- MPFI system. [8+8]
4. (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]
5. 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 27°C . 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]
6. (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]
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 (b) What are the measures to be taken to rectify the defects observed? [8+8]
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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R07**Set No. 3**

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) 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]
2. (a) What are the advantages of port fuel injection system?
 (b) Explain the working procedure of D- MPFI system. [8+8]
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 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 27°C . 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]
6. (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]
- 7.(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]
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]
