Code No: 07A42401 **R07** **Set No. 2**

II B.Tech II Semester Examinations,December 2010
AUTOMOTIVE ENGINES
Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) How do you classify the IC engines with respect to cylinder arrangement?
   (b) Discuss in detail the applications of various types of IC engines. [8+8]
2. (a) What is petrol injection? Name different petrol injection systems used in SI engine.
   (b) What are the disadvantages of carburettor system when it is used for multi cylinder engine.
   (c) What is the function of choke and throttle valve. [6+4+6]
3. (a) What is the purpose of diesel fuel injection nozzle?
   (b) State the differences between single hole nozzle and multi hole nozzle? [6+10]
4. (a) What are the different stages of combustion in I.C. Engines?
   (b) Explain in detail about the stage of controlled combustion. [6+10]
5. (a) What is a air cleaner in I.C. Engine?
   (b) Write short note on wet type air cleaner and dry type air cleaner. [6+10]
6. (a) Explain various parts of a cylinder block with a diagram.
   (b) What is the function of the cylinder liner? State the materials used for cylinder liners.
   (c) State the materials used for inlet and exhaust manifolds. [8+4+4]
7. (a) Discuss the applications of Wankel rotary combustion engine.
   (b) Discuss the geometry of rotary engine.
   (c) What are the various seals used in rotary Wankel combustion engine? What are their function? [6+6+4]
8. (a) What is crank case dilution?
   (b) How it effects the performance of an engine?
   (c) Differentiate between crank case dilution and crank case ventilation. [4+6+6]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A42401 **R07** **Set No. 4**

II B.Tech II Semester Examinations,December 2010
AUTOMOTIVE ENGINES
Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Discuss various valve troubles, their causes and steps to avoid their occurrence.
   (b) Describe the function and materials used for piston pin.
   (c) What is a cam? How does it operates an engine valve. [8+4+4]
2. (a) What are the sources from which pollutants are emitted from S.I. Engines
   (b) Explain in detail about crank case dilution. [8+8]
3. (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]
4. (a) What are the disadvantages of carburetion?
   (b) Discuss the advantages and disadvantages of petrol injection in automotive engines. [7+9]
5. (a) C.I. Engines have starting problem. State the probable reasons relating to fuel feed system.
   (b) What are the measures to be taken to rectify the defects observed? [8+8]
6. (a) Explain in detail as to how spray formation takes place, when fuel is forced through nozzle.
   (b) What are the factors determine the penetration of spray? [8+8]
7. (a) How mixing of additives can improve the lubricating properties of an oil?
   (b) Explain viscosity index and how viscosity rating is given? [8+8]
8. (a) What do you understand by scavenging process? Discuss ideal scavenging and perfect mixing type scavenging process.
   (b) What do you understand by cross scavenging method? List out its disadvantages. [9+7]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A42401 **R07** **Set No. 1**

II B.Tech II Semester Examinations,December 2010
AUTOMOTIVE ENGINES
Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) What are the functional requirements of an injection system in C.I. Engine
   (b) What are the main functions of the fuel injection system? [8+8]
2. (a) Compare four-stroke and two-stroke cycle engines.
   (b) What is meant by scavenging? [12+4]
3. (a) What is the delay period or injection lag in I.C. Engines?
   (b) How engine variables will affect the delay period? [8+8]
4. (a) Explain in detail as to how the air fuel mixture effects the exhaust emission in S.I .Engines.
   (b) Explain the relationship between mixture strength and combustion product characteristics with a help of a diagram. [6+10]
5. (a) Give procedure for carburettor service and adjustment. How do you recognize the mixture strength?
   (b) What are the major requirements for an ideal carburettor. [8+8]
6. (a) What are the advantages of using Aluminum alloy as cylinder liner material?
   (b) Classify the cylinder head based on the valve and port layout and explain any one cylinder head with neat sketch.
   (c) How is the inlet manifold of SI engine is arranged to ensure preheating of the air fuel mixture. [4+8+4]
7. (a) Explain the working system of wet sump lubrication with a suitable sketch.
   (b) What are the advantages of wet sump lubrication over dry sump lubrication? [8+8]
8. (a) Describe any one method of supercharging with a neat sketch
   (b) Explain briefly the thermodynamic cycle of supercharged engine on P-V diagram for an ideal Otto cycle. [8+8]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: 07A42401 **R07** **Set No. 3**

II B.Tech II Semester Examinations,December 2010
AUTOMOTIVE ENGINES
Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Explain the working of sleeve engine valve with a neat diagram.
   (b) Explain the working of rotary engine valve with a neat diagram. [8+8]
2. (a) Explain the working of an automotive gas turbine with neat sketch.
   (b) What are the advantages and disadvantages of automotive gas turbine. [8+8]
3. (a) Explain air cooling system with a help of diagram.
   (b) Where this system is used and why? [8+8]
4. (a) What are the advantages of port fuel injection system?
   (b) Explain the working procedure of D- MPFI system. [8+8]
5. (a) Explain constructional details of diesel fuel injection pump.
   (b) How the helical groove of plunger controls fuel delivery? [6+10]
6. (a) Draw a sketch of pintaux nozzle and explain its construction and working.
   (b) Discuss its merits over pintle nozzle. [8+8]
7. (a) Explain the working of Zenith carburettor with a neat diagram.
   (b) State the advantages of Zenith carburettor over the other carburettors.[12+4]
8. (a) What is the function of scavenging pump in two-stroke engine?
   (b) Explain the working any two types of scavenging pumps used in two-stroke engine with the help of neat sketch. [4+12]

⋆ ⋆ ⋆ ⋆ ⋆