

32143 – AUTOMOBILE ENGINES

1. ENGINES PRINCIPLES & FUNDAMENTALS

Part – A

1. List two types of heat engines?
2. What is clearance volume?
3. What is stroke?
4. What is compression ratio?
5. What is a square engine?
6. What is firing order?
7. What is the firing order of the four cylinder engine?
8. What is the firing order of 8 cylinder engine?
9. Write down the 6 cylinder engine firing order?

Part –B

1. Define automobile?
2. What is a engine?
3. What is a heat engine?
4. Compare Otto cycle and diesel cycle?
5. What are two stroke petrol engines?
6. What is meant by scavenging?
7. What are the advantages of two stroke engines?
8. What are the merits and demerits of S.I engine over C.I engine?
9. What is valve timing diagram?
10. What is port timing diagram?

Part –C

1. Briefly explain the various terms used in I.C engine?
2. Give the classification of an I.C engines?
3. Briefly explain various types of engines?
4. Explain the working of a 2 stroke petrol (S.I) engine with neat sketches?
5. Explain the working of a 2 stroke diesel (C.I) engine with neat sketches?
6. Explain the working of a 4 stroke diesel (C.I) engine with neat sketches?
7. Explain the two types of scavenging in two stroke engines?
8. Explain the value timing diagram of four stroke petrol engines?
9. Explain the port timing diagram of two stroke petrol and diesel engines?
10. Explain automotive gas turbine with neat sketches?
11. Explain the working of wankel engine?

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2. CONSTRUCTIONAL DETAILS OF ENGINE COMPONENTS

Part – A

1. What is a piston?
2. What is a gasket?
3. What is a cylinder liner?
4. What is the commonly used material for piston?
5. What is the function of cam shaft?
6. What is a vibration damper?
7. What is connecting rod?
8. What is the functions of the valves?
9. What is a poppet valve?
10. Enlist advantages of L head valve?
11. Where the sodium cooled valves used in I.C engine?
12. What are wet liners?
13. How does the fly wheel work?
14. Name two types of cylinder liner?

Part –B

1. What is cylinder block?
2. What is crank case?
3. What are the functions of piston rings?
4. What are the functions of compression rings?
5. What is a piston pin?
6. What is the valve guide?
7. What is valve clearance?
8. Compare wet and dry lines?
9. What are all the functions of the piston?
10. What is the function of oil ring?
11. What is a push rod?
12. What is the main function of muffler?
13. What is the main function of inlet and exhaust manifolds?
14. Briefly explain the function of the poppet valve with a sketch?

Part – C

1. Explain briefly the engine components with neat sketches?
2. Write in briefly about arrangement of valves used in petrol engine?
3. Explain the construction of a mushroom valve?
4. Describe any 2 valve gear operating mechanism?
5. Write in briefly about arrangement of valves used in petrol engines?
6. Explain the construction and working of hydraulic valve lifter?
7. What is the function of muffler and types?
8. What are the functions of the inlet and exhaust manifold?
9. Describe variable valve timing technology?
10. Briefly explain the various valve train components?
11. Explain sodium cooled and poppet valves?

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3. PETROL ENGINE FUEL SYSTEM

Part – A

1. What is petrol?
2. What are the properties of a petrol?
3. Define air fuel ratio?
4. What is a choke?
5. What is a fuel filter?
6. What is the function of the float chamber?
7. What are the types of air cleaners?
8. What is a rich mixture?
9. What do you mean by a lean mixture?
10. What is carburetion?
11. What is the function of oxygen sensor?

Part – B

1. Write the function of air filter?
2. Define carburetor?
3. What are the functions of carburetor?
4. What is petrol injection system?
5. What is throttle body injection?
6. What is MPFI?
7. What are the advantages of petrol injection (or) MPFI?
8. What is DTSI?
9. What is PGMFI?
10. Explain the theory of detonation in S.I engine?
11. Define octane number?

Part – C

1. Briefly explain the combustion stages in petrol engines?
2. Write a briefly note on various types of combustion chambers in petrol engines?
3. Write in briefly about electrical fuel pump?
4. Briefly explain the various types of fuel filter?
5. Briefly explain air filter and their functions?
6. Explain the working principle of mechanical fuel pump?
7. Explain the zenith carburetor with neat sketch?
8. Explain the S.U carburetor with neat sketch?
9. Explain the simple carburetor with neat sketch?
10. Explain the solex carburetor with neat sketch?
11. Briefly about the DTSI and CCVTI?
12. Explain working principles of MPFI system with neat line sketch?
13. Explain the classification of petrol injection systems?
14. Compare carburetor and MPFI system?

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4. DIESEL ENGINE FUEL SYSTEM

Part – A

1. What is cetane number?
2. Name the stages of combustion in four stroke engine?
3. Define ignition delay?
4. What is CRDI?
5. What is a fuel heater?
6. What is glow plug?
7. What is the function of the FIP?
8. What are all the functions of nozzles?

Part – B

1. What is diesel knock (knocking)?
2. Enlist the methods of preventing knocking?
3. What factors affect the delay period?
4. What is the meaning of direct injection?
5. What is pre combustion chamber?
6. Define turbo charger?
7. What is super charging?
8. What is governor?
9. What is pintaux nozzle?
10. What is pintle nozzle?
11. What are the requirements of fuel injection system?
12. What is the specialty of a pintle nozzle?
13. What is air injection system?

Part – C

1. Explain combustion in diesel fuel?
2. What is diesel Knocking? Explain the various methods used to prevent diesel knock?
3. What are the different types of combustion chamber used in C.I engine and explain any one?
4. Compare direct and indirect combustion chamber?
5. Write a brief note on alternate fuels for automobile engines?
6. Explain the various types of nozzles used in the injector?
7. What are the function of a governor in an injection pump?
8. Describe the working the distributor type fuel?
9. Explain the construction and working of jerk type fuel injection pump?
10. Draw the layout of fuel supply system for diesel engine and explain it?
11. Explain types of governor with neat diagram?
12. Explain different types of injector nozzle and their merits and demerits?
13. Explain briefly about CRDI system and their merits?
14. Briefly explain types of superchargers with neat sketch?
15. What is supercharging and other objectives?
16. What is turbo charger? Explain briefly with line diagram?
17. Describe the construction and working of single acting fuel feed pump?

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5. ENGINE COOLING AND LUBRICATION SYSTEM

Part – A

1. What is the purpose of anti-freeze solution in the cooling system?
2. What is the purpose of the fins on the cylinders of an air cooled engine?
3. What is a radiator?
4. What do you mean by SAE?
5. What is the classification of SAE oils?
6. What is the function of an oil filter?
7. What is the purpose of cooling system?
8. What is the function of the thermostat valve in the cooling systems?
9. What is oil cooler?

Part – B

1. Give the desirable properties of good lubricating oil?
2. List the advantages of water cooling system?
3. Write the principle of crank case blow by? What is positive crank case ventilation?
4. What are the main purposes of lubrication?
5. What is the function of oil pressure regulating valve?
6. What is the components of water cooling system?
7. What is the classification and identification of SAE oils?
8. What are the types of oil filters?

Part – C

1. Briefly explain the necessity of engine cooling?
2. What is the necessity of using thermostat in the engine cooling system?
3. With Sketch explain the types of thermostat?
4. With neat sketch explain water pump?
5. What are the functions of a radiator?
6. Explain thermosphon and pump circulation system?
7. Describe the operation of pressure lubrication system?
8. Write in briefly about anti-freeze solution?
9. Name and explain the different types of lubrication system?
10. Explain the construction and working of different types of oil pumps?
11. Explain with neat sketch of pressure relief valve?