Code No: R09222401 | R09 | SET-1

B.Tech II Year - II Semester Examinations, April-May, 2012
AUTOMOTIVE ENGINES
(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 various types of engines used in practice and explain their differences?
b) How the spark ignition engines are classified and mention their applications? [15]

2.a) Draw the port-timing diagram of two stroke C.I engine and explain importance of each of the salient points.
b) What is the effect of scavenging on the overall performance of I.C. engine and explain the method of finding scavenging efficiency? [15]

3.a) What is the importance of Gudgeon pin and explain the materials used and sequence of operations involved in the manufacture in pin?
b) What are the advantages of oil sump in IC engines and mention the materials used and method of making them? [15]

4.a) Describe the principle of carburetion in S.I. Engines and mention its defects.
b) What are the various factors to be considered in firing of size of throat and Jet diameter in the carburetor? [15]

5.a) Describe on the air, fuel ratio requirements of a petrol engine from no load to full load.
b) Describe the advantages of cylinder port and manifold injection systems used in petrol engine. [15]

6.a) What is the need of fuel filter in C.I. engines and explain its effect on the performance of engine?
b) Describe with a neat sketch the construction and working of fuel pump in C.I. engine. [15]

7.a) What are the various factors to be considered in the selection of nozzle orifice?
b) What are the effects of spary direction and injection timing on the performance of engine? [15]

8.a) How the Lubricating oils are classified and explain their properties & applications?
b) Describe the dry-sump lubrication system used in I.C. engines. [15]

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Code No: R09222401 | R09 | SET-2

B.Tech II Year - II Semester Examinations, April-May, 2012
AUTOMOTIVE ENGINES
(Automobile Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Discuss the merits and demerits of internal combustion engines over external combustion engines.
b) How the compression ignition engines are classified and mention their applications? [15]

2.a) What are the various methods used for scavenging in two-stroke engines and explain about scavenging efficiency?
b) Explain the diagram of four stroke diesel engine. [15]

3.a) What are the advantages of Camshaft and Crankshaft used in the I.C. engine?
b) How the valve Lapping is done to have air-tight contact between valve and valve seat? [15]

4.a) What are the various adjustments to be made for idling and acceleration?
b) Sketch and explain the construction and working of Zenith carburetor. [15]

5.a) What are the advantages of petrol injection and explain the method of petrol injection system in the manifold?
b) Differentiate between multipoint fuel injection system and direct injection system used in S.I. engines. [15]

6.a) What are the requirements of a fuel injection system in C.I. Engine?
b) What are the various injection systems used in C.I. engine and explain about air injection? [15]

7.a) What is the need of Governor and explain with a neat sketch the working of porter governor?
b) Describe the construction & working of pintle nozzle used in C.I. Engines. [15]

8.a) What is the need of oil filters in the lubrication systems and explain the improvement in the performance by using oil filters?
b) Differentiate between air-cooling and water cooling system used on C.I. engines. Mention their advantages and applications. [15]

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Code No: R09222401 | R09 | SET-3

B.Tech II Year - II Semester Examinations, April-May, 2012
AUTOMOTIVE ENGINES
(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 various Automotive power plants used in industries and mention their applications?
b) What is the need of super charging and explain its impact on the overall performance of engines? [15]

2.a) Sketch and explain the construction and working of wankle variable cmpression ratio engines.
b) Describe the working of variable valve-timing engines and mention its merits and demerits. [15]

3.a) What are the advantages of piston rings and oil rings and explain the materials used and method of manufacture?
b) Why connecting rods have I-section and explain the sequence of operations involved in making connecting rod? [15]

4.a) What is air fuel ratio and mention its variations based on acceleration, decleration & idling speeds?
b) What are the various carburettors used in S.I. engines and mention their relative advantages? [15]

5.a) Why there is maldistribution of air fuel mixtures in multi-cylinder engine?
b) What is the need of rich mixture during idling of petrol engine? [15]

6.a) Describe the variation of presure, temperature and heat release pattern during fuel, injection in C.I. engine.
b) What are the various fuel injection systems used in C.I. engines and explain about solid injection systems? [15]

7.a) What are the various types of governing methods used in C.I. engines and explain about working of pneumatic governor?
b) Describe fuel injection system in multi-hole and pintaux nozzles. [15]

8.a) What are the various properties to be considered in the selection of lubricant for an engine?
b) What are the various lubricating systems used in I.C. engines and explain about wet sump lubrication system. [15]

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Code No: R09222401 | R09 | SET-4

B.Tech II Year - II Semester Examinations, April-May, 2012
AUTOMOTIVE ENGINES
(Automobile Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks

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1.a) What is the effect of compression ratio on the performance of S.I. and C.I. engines?
b) Explain with a neat sketch the construction and working of Automotive engines. [15]

2.a) Differentiate between four-stroke and two-stroke engines and mention their advantages and applications.
b) Explain with a sketch the working of four stroke spark-ignition engine. [15]

3.a) What materials are used for pistons and cylinderheads? Explain the methodology of manufacture?
b) What is the need of fly wheel in the engine and explain the functions to be considered in the design of size and weight of fly wheel? [15]

4.a) What are the various factors which affect the process of carburetion?
b) How the power and efficiency of S.I. engine vary with air fuel ratio at full load and at part load? [15]

5.a) What are the various factors to be considered for reducing emission in S.I. engines?
b) Differentiate between timed and continous injection systems used in S.I. engines. [15]

6.a) What are the various injectors used in C.I. engines and explain about blast injectors?
b) Differentiate between single hole nozzle and multi-hole nozzle and mention their advantages & applications. [15]

7.a) Differentiate between governors used in minimum speed governors used in Automotive engines.
b) Describe the fuel spray characteristics in C.I. engine and its performance on the efficiency of engine. [15]

8.a) What are the additives used in the lubricants to improve the performance?
b) What are the various cooling systems used in I.C. engines and explain about forced or pump cooling? [15]

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