

**DIPLOMA - VIEP - MECHANICAL  
ENGINEERING (DMEVI)**

**Term-End Examination**

**June, 2015**

00946

**BIMEE-031 : I.C. ENGINES**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** Answer any *five* questions. All questions carry equal marks. Use of scientific calculator is permitted.

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1. (a) Compare the relative advantages and disadvantages of four-stroke and two-stroke cycle engines. 7
- (b) The efficiency of an Otto cycle is 50% and  $\gamma$  is 1.5. What is the compression ratio? 7
2. (a) What is compression ratio ? How is it important? 7
- (b) What are the main functions of the nozzle in a diesel injection system ? Describe the most common types of nozzles used. 7

3. (a) Why are there lubrication and cooling systems in an engine ? Discuss briefly. 7
- (b) State the advantages and disadvantages of a battery ignition system. 7
4. (a) What are the different types of ignition systems ? Explain with a neat diagram of any one of them. 7
- (b) What is the reason that a two-stroke engine is not used in cars even though it develops theoretically double the power than a four-stroke engine ? 7
5. (a) Explain the following terms as applied to I.C. engines : 7
- (i) Bore
  - (ii) Stroke
  - (iii) T.D.C.
  - (iv) B.D.C.
  - (v) Clearance volume
  - (vi) Swept volume
  - (vii) Piston speed
- (b) Explain the following terms as applied to S.I. engines : 7
- (i) Pre-Ignition
  - (ii) Detonation
  - (iii) Octane number

6. (a) What is supercharging ? Enumerate the main objectives of supercharging. 7
- (b) What are the main pollutants emitted by petrol engines ? Discuss the effects of emissions on human health. 7
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