

**B.Tech. – VIEP – MECHANICAL ENGINEERING
(BTMEVI)**

00832

Term-End Examination

December, 2017

BIMEE-023 : COMBUSTION ENGINEERING

Time : 3 hours

Maximum Marks : 70

*Note : Attempt any **five** questions. All questions carry equal marks.*

1. (a) Describe the various phases of combustion in a CI engine.
- (b) Define Delay in a CI engine. Differentiate between physical delay and chemical delay. 7+7
2. (a) Explain the following :
 - (i) Octane number
 - (ii) Pre-ignition
- (b) Describe the phenomenon of Knocking in an SI engine. Discuss the factors influencing the knocking. 7+7

3. (a) What are the two major reasons for incomplete combustion ? Name the major pollutants emitted from the exhaust due to incomplete combustion.
- (b) How is the analysis of products done for complete combustion of acetylene (C_2H_2) with 200 percent stoichiometric air ? 7+7
4. (a) Why is spark advance required in SI engines ? Discuss the factors affecting the ignition timing.
- (b) What is detonation in IC engines ? Discuss the effect of the following variables on detonation :
- (i) Compression ratio
- (ii) Mixture of inlet temperature 7+7
5. (a) Describe the basic methods of generating air swirl in combustion chambers of CI engines.
- (b) Explain the combustion phenomenon in SI engines. 7+7

6. (a) Discuss the advantages and disadvantages of gaseous fuels over liquid fuels.
- (b) What are the essential requirements for a fuel injection system in a CI engine ? What are the injection systems used in multi-cylinder diesel engines ? 7+7
7. (a) Explain how smoke is formed in a diesel engine.
- (b) With a neat sketch, explain a magneto-ignition system. 7+7
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