

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

**FUELS AND COMBUSTION**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. List any two advantages of high volatile petrol fuel.
2. Write the names of combustion stages in SI engine.
3. What is the air-fuel ratio range in CI engine during combustion ?
4. What is meant by hybrid vehicle ?
5. What is meant by air swirl in diesel engine ?

(5×2 = 10)

**PART — B**

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. List any six combustion requirements of engine fuel.
2. Write a short note on duel fuel system.
3. Discuss why ignition lag is needed in SI engine.
4. What are the causes and effects of surface ignition ?
5. Discuss the effect of cetane number on diesel engine delay period.
6. Explain the various limitations of turbocharging.
7. Compare the supercharging in SI and CI engine.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

## UNIT — I

- III (a) Discuss various properties of SI engine fuel. 8  
 (b) Explain the parts and the working of L.P.G vehicle. 7

OR

- IV (a) Discuss the combustion performance of any two gaseous fuel. 8  
 (b) Explain the performance of alcohol as automobile engine fuel. 7

## UNIT — II

- V (a) With help of pressure-crank angle diagram, explain the combustion process in SI engine. 9  
 (b) Explain the knocking phenomenon in SI engine with sketch ? 6

OR

- VI (a) Discuss any four factors affecting the flame propagation. 8  
 (b) Explain the various effects of detonation. 7

## UNIT — III

- VII (a) With help of neat sketch explain the stages of combustion in CI engine. 9  
 (b) Explain the phenomenon of knocking in diesel engine. 6

OR

- VIII (a) Explain the various factors affecting on delay period. 9  
 (b) What are the methods of controlling diesel knock. 6

## UNIT — IV

- IX (a) Explain the working of electric vehicle with sketch. 9  
 (b) Discuss the objective of super charging. 6

OR

- X (a) With help of suitable sketch explain the methods of super charging. 8  
 (b) Explain with sketch the working of fuel cell vehicle. 7

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