

KADI SARVA VISHWAVIDHYALAYA
B.E MECHANICAL Semester-VI

Subject: Internal Combustion Engine
Subject Code: ME605

Date: 06/05/2015
Time: 10:30 – 1:30
Total Marks: 70

Instructions:

1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

SECTION-I

- Que:1** (A) Describe the different phases of spray formation with neat sketches. [5]
- (B) Explain with the help of suitable sketches Common Rail Direct injection system. [5]
- (C) Explain the following terms: 1. Ignition limits 2. Rich mixture 3. Stoichiometric mixture 4. lean mixture [5]

OR

- (C) Explain the effect of different parameter on Delay Period in CI engine. [5]
- Que:2** (A) What do you understand by solid injection system? What are its advantages over air injection system? [5]
- (B) Explain with neat sketch the Valve timing diagram of four stroke Petrol engine. [5]

OR

- (A) What are turbochargers? Explain different types of methods of turbo charging. [5]
- (B) With the help of P- θ diagram explain the combustion phenomena in SI engine. [5]
- Que:3** (A) What do you understand by abnormal combustion? Explain in brief about pre combustion. [5]
- (B) Describe with sketches the working principle of Wankel rotary combustion engine. [5]

OR

- (A) Explain the M type of combustion chamber in CI engine. [5]
- (B) Explain with sketches the working principle of stirling engine. [5]

SECTION-II

- Que:4 (A) What do you understand by carburetion? Also explain Solex carburetor. [5]
- (B) A petrol engine consumes 6.8 kg/hr. The choke diameter of the engine carburetor is 2 cm. The density of the fuel used is 700 kg/m^3 and A:F Ratio of the mixture supplied by the carburetor is 15:1. Determine the carburetor jet diameter if the top of jet is 5 mm above petrol level in float chamber. Take $R=287 \text{ Nm/kgK}$. The Ambient pressure and temperature are 1 bar and 32 °C. Take $C_{da}=0.9$, $C_{df}=0.7$ [5]
- (C) Enlist the methods of measurement of Power. Explain Morse test method in detail. [5]

OR

- (C) Enlist the methods of governing. Write a short note on hit and miss governing. [5]
- Que:5 (A) How do you define volumetric efficiency of an I.C engine? Explain the effect of various factors on volumetric efficiency. [5]
- (B) Explain the working of battery operated ignition system with neat sketch. Also explain advantages and disadvantages. [5]

OR

- (A) Explain the scavenging process in two stroke engine. Discuss various scavenging processes used in two stroke engine. [5]
- (B) What do you understand by supercharging? Also Explain its limitations. [5]
- Que:6 (A) Enlist the advantages and disadvantages of bio-gas as a fuel. [5]
- (B) What are the main sources of pollutants from petrol engine? Explain in brief. [5]

OR

- (A) Enlist the advantages and disadvantages of alcohol as a fuel. [5]
- (B) Discuss about the air pollution from IC engine. [5]

Best of luck