Symbol of Secularism & National Integration

ANJUMAN-I-ISLAM'S

KALSEKAR TECHNICAL CAMPUS, NEW PANVEL

School of Engineering & Technology

DEPARTMENT OF MECHANICAL ENGINEERING

CLASS:- TE ME1&2 SEM:- V

SUBJECT:- Internal Combustion Engines DATE:-16/09/2016

DURATION:- **60 min.** MARKS:- **20**

CLASS TEST 01

Q.01 Attempt any two: (10 Marks)

a) Derive expression for Air Standard Efficiency of Otto Cycle.

b) Compare SI and CI Engines.

c) Explain working of Battery Ignition System with neat sketch.

Q.02 Attempt any one: (10 Marks)

a) A carburetor is required to supply 6 Kg/min of air and 0.45 Kg/min of fuel.Ambient Temperature and Pressure=27 degree C and 1.013 bar respectively,Fuel density= 740 Kg/m3, Air Velocity at throat= 92 m/s,Cdv=0.8,Cdn=0.6,pressure drop across orifice is 75% of that of the choke.Calculate throat diameter and orifice diameter.

b) An ideal air-standard Diesel cycle engine has a compression ratio of 18 and a cutoff ratio of 2. At the beginning of the compression process, the working fluid is at 100 kPa, 27°C . Determine the temperature and pressure of the air at the end of each process, the net work output per cycle [kJ/kg], and the thermal efficiency.

Note: for air at 27°C, C_P = 1.00 kJ/kg.K, C_v = 0.717 kJ/kg.K,and Y = 1.4