Roll No. ....

4th Sem. / Mechanical Engg.
Subject : Thermodynamics - II

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. **(6x1=6)**

Q.1 The terms TDC and BDC are applicable for

a) Vertical engines b) Horizontal engines

c) Inclined engines d) Rotary engines

Q.2 The Brake power is the power available at

a) Inside the cylinder b) Thermal Power of fuel

c) The shaft of the engine d) None of the above

Q.3 Which has better thermal efficiency?

a) Petrol engine b) Diesel engine

c) Steam engine d) 2 stroke petrol engine

Q.4 The following is the property of a good lubricant

a) High viscosity b) Thermal stability

c) Corrosion prevention d) All of the above

Q.5 The T-S diagram stands for

a) Temperature space diagram

b) Temperature - Entropy diagram

c) Temperature-Stroke diagram

d) None of the above

Q.6 Compression ratio is the ratio of

a) Stroke vol, clearance vol

b) Clearance vol, stroke vol

c) Clearance vol, total vol

d) Total vol, clearance vol

Section-B

Note: Objective/Completion type questions. All questions are compulsory. **(6x1=6)**

Q.7 Find the Otto cycle efficiency if CR is 6.

Q.8 Function of thermostat in water cooling is _____.

Q.9 Morse test is used for _____ cylinder engines.

Q.10 Name any one major pollutant in SI engines.

Q.11 Governing of steam turbines is _____.

Q.12 Expand MPFI.

Section-C

Note: **Short answer type Question. Attempt any eight questions out of Ten Questions.** **(8x4=32)**

Q.13 Draw and explain common rail system.

Q.14 Explain the working of 2 stroke petrol engine with a net diagram.

Q.15 Explain the working and limitations of simple carburetor.

Q.16 Write four advantage of air cooling system over water cooling system.

Q.17 Write short note on heat balance sheet.

Q.18 Compare cooling pond and cooling towers giving one example of each.

Q.19 Write the expression for indicated power in terms of mean effective pressure & explain the terms involved for 2 stroke and 4 stroke.

Q.20 Describe the general layout of open-cycle gas turbine with its PV diagram.

Q.21 Explain the working principle of reaction steam turbine with its diagram.

Q.22 Fine brake power is net brake load is 1500N, effective diameter of brake drum 1.82m and the speed is 400 r.p.m.

Section-D

Note: **Long answer questions. Attempt any two question out of three Questions.** **(2x8=16)**

Q.23 In a test of 4 cylinder engine the brake power measured with all cylinders working, with cyl. no 1 cut-out with cly. no 2 cut-out with cyl. no 3 cut-out, with cyl. no 4 cut-out were 15.6kw, 11.1kw, 11.03kw, 10.88kw and 10.66kw respectively. Find the mechanical efficiency of the engine.

Q.24 Draw a neat sketch of fuel injection pump and explain its working.

Q25 Describe various lubrications system of engine with the help of sketch.