

KERALA AGRICULTURAL UNIVERSITY
B.Tech (Agrl.Engg) 2014 Admission
IIIrd Semester Final Examination-January -2016

Cat. No: Fpme 2107

Marks: 50

Title: Thermodynamics and Heat Engines (2+1)

Time: 2 hours

I Answer all questions

(10 x 1=10)

1. The unit of pressure in SI system is
2. Valves are provided in type of engine
3. A mixture of water and steam is called steam
4. The ratio of specific heats of air at constant pressure and at constant volume is
5. The characteristic equation of a gas is
6. Heat and work are
7. Cochran boiler is a boiler
8. Ignition quality of petrol is represented by
9. Gas turbine plant is an example for
10. A centrifugal fan forms system

II Answer any Five questions

(5 x 2=10)

1. Explain the macroscopic and microscopic aspects of *thermodynamics*
2. Enumerate the boiler accessories and explain
3. Explain the working of a single stage compressor
4. Differentiate between fire tube boiler and water tube boiler
5. Differentiate between reversible and irreversible processes
6. List the desirable properties of working fluid used for power plants
7. Differentiate hypothetical and actual indicator diagram

III Answer any Five questions

(5 x 4=20)

1. Explain the working of a Cochran boiler with neat sketch
2. Explain the working of a carnot cycle with a PV diagram and state the assumptions made
3. Derive an expression for air standard efficiency of Otto cycle
4. Explain the different gas laws and laws of thermodynamics
5. Explain the working of a diesel cycle and derive its efficiency
6. What is a constant volume process and explain with the help of PV and TS diagram

7. Describe the construction of mollier diagram and explain the importance of it in actual practice

IV Answer any one question

(1 x 10=10)

1. a) Explain the heating and expansion of vapour in non-flow process
b) Classification of steam boilers and explain the boiler mountings
2. a) Explain the kelvin Planck and Clausius statements
b) Explain the measurement of IP, BP and heat balance