Scheme-G

Sample Test Paper- I

Course Name :-Diploma in Production Engineering

Course Code :-PG/PT **17406**

Semester :-Fourth

Subject Title :-Heat Engineering

Marks :- 25 **Time:- 1 hour**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q1. Attempt any THREE **(09 Marks)**

a) State Zeroth Law of Thermodynamic.

b) Define' Renewable source of energy'. Give their two examples.

c). Explain the working principle of Hydrelectric power plant with neat sketch.

d). Give the detail classification of boiler.

e). Differentiate between impulse and reaction turbine.

Q2. Attempt any TWO **(08 Marks)**

a). Explain with neat sketch solar flat plate collector.

b). Define extensive and intensive properties of the system with example

c). State two statement of second law of Thermodynamic.

Q3. Attempt any TWO **(08 Marks)**

a). Plot Following process on PV and TS diagram.

a) Isobaric b) Isochoric c) Isentropic d) Isothermal

b). 4State Charle's law and Boyle's Law.

c). Differentiate between Heat and Work. (Any 4 points)

Scheme-G

Sample Test Paper-II

Course Name :- Diploma in Production Engineering

Course Code :-PG/PT **17406**

Semester :-Fourth

Subject Title :-Heat Engineering

Marks :- 25 **Time:- 1 hour**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q1. Attempt any THREE **(09 Marks)**

a) Define I. C. Engine, How these engines are classified.

b) Give the classification of compressor.

c) Mention the application of compressed air.

d) Define coefficient of performance of refrigeration and what is the unit or refrigeration.

e) Describe with neat sketch the working of two stroke petrol engine

Q2. Attempt any TWO **(08 Marks)**

a) What is the components of vapour compression cycle, and gives the applications of vapour compression cycle

b) Explain winter air conditioning system with neat sketch.

c) What are the advantages of two stage compression over single stage compression for the same pressure ratio.

Q3. Attempt any TWO **(08 Marks)**

a) Classify the vapour cycles and explain any one of them.

b) Differentiate between four stroke and two stroke engine.

c) Explain construction and working of centrifugal compressor, what are its applications.

Scheme-G

Sample Question Paper

Course Name :- Diploma in Production Engineering

Course Code :-PG/PT **17406**

Semester :-Fourth

Subject Title :-Heat Engineering

Marks :-100 **Time:- 3 hour**

Instructions:

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

Q1 A. Attempt any SIX **(12 Marks)**

a) Define I.C.Engine, How these engines are classified.

b) Define' Renewable source of energy'. Give their two examples.

c) State Zeroth Law of Thermodynamic.

d) State the value of Characteristics Gas constant for Air. Also States its unit.

e) Define dryness fraction of a steam? What is its value for dry saturated steam?

f) Give the classification of compressor.

g) Mention the application of compressed air.

h) Define coefficient of performance of refrigeration and what is the unit or refrigeration.

Q1 B. Attempt any TWO **(08 Marks)**

a) Explain the working of four stroke diesel engine with theoretical and actual valve timing diagram for the engine.

b) Define extensive and intensive properties of the system with example.

c) Plot Following process on PV and TS diagram.

i) Isobaric ii) Isochoric iii) Isentropic iv) Isothermal

Q2. Attempt any FOUR **(16 Marks)**

a) Differentiate between four stroke and two stroke engine.

b) Explain with neat sketch solar flat plate collector.

c) Explain types of system with a suitable example for each.

d) State Charle's law and Boyle's Law.

e) Explain single stage reciprocating compressor with P-V diagram

f) Differentiate between an isothermal and isentropic process.(Any 4 points)

Q3. Attempt any FOUR **(16 Marks)**

a) State first law of thermodynamic and Irreversibility.

b) Describe with neat sketch the working of two stroke petrol engine

c) State the advantages and limitation of solar energy.

d) What are the advantages of two stage compression over single stage compression for the same pressure ratio.

e) What is polytrophic process? Sketch on P-V and T-S diagram.

f) Give the classification of boiler

Q4. Attempt any TWO **(16 Marks)**

a) Classify the vapour cycles and explain any one of them.

b) Explain Otto cycle with P-V and T-S diagram and derive the expression for air standard efficiency

c) Explain construction and working of centrifugal compressor, what are its applications.

Q.5.Attempt any TWo **(16 Marks)**

a) 1Kg of Ideal gas is heated from 18^0C to 95^0C.Assuming R=0.264Kj/Kgk and r=1.18 for the gas. Find a) Specific Heat b) Change in internal energy c) Change in Enthalpy.

b) Draw labeled sketch of Babcok-wilcox boiler. Show the path of water, steam and air-flue gases.

c) Explain winter air conditioning system with neat sketch.

Q 6. Attempt any FOUR **(16 Marks)**

a) State two statement of second law of Thermodynamic.

b) Explain the construction and working of impulse turbine.

c) Differentiate between Heat and Work. (Any 4 points)

d) Attempt the following

i). Define Enthalpy .States its unit.

ii) Define heat and work.

e) Explain the working principle of Hydrelectric power plant with neat sketch.

f) What is the components of vapour compression cycle, and gives the applications of vapour compression cycle