QUESTION BANK

INTRODUCTION

1. Give the classification of prime mover. Explain with example.
2. Explain laws of thermodynamics.
3. Give definition. 1) extensive properties 2) intensive properties 3) enthalpy 4) entropy 5) temperature
4. Explain with example point function and path function.
5. Explain different types of systems with example.

ENERGY

1. Give the classification of energy sources and give the application.
2. Explain solar energy, wind energy and its application.
3. What is fossil fuel? explain its application.
4. Explain about global warming and ozone layer depletion.
5. Explain green house effect.

PROPERTIES OF GASES

1. Explain different types of laws of gases.
2. Prove Cp-Cv = R.
3. What is specific heat? Explain in brief.
4. Explain non-flow processes.
5. What is reversible adiabatic process? Prove $PV^{\gamma} = constant$.
6. Derive the equation of work done for reversible adiabatic process and polytrophic process.

PROPERTIES OF STEAM

1. Explain water Temperature- Enthalpy Diagram for water.
2. Dryness fraction of steam cannot have the value more than unity: Justify.
3. 1.5 kg of steam at a pressure of 10bar and temperature of 250°C is expanded until the pressure becomes 2.8bar. The dryness fraction of steam is then 0.9. Calculate change in Internal Energy.

HEAT ENGINE

1. What is heat engine? State kelvin-plank statement and Clausius statement for heat engine.
2. Explain carnot cycle and derive the equation for efficiency and work done.
3. what is need of rankine cycle? Explain with diagram.
4. Derive the equation of air standard efficiency for otto cycle.
5. Derive the equation of air standard efficiency for diesel cycle.

BOILER

1. What is the difference between boiler mounting and boiler accessories?
2. What is boiler mounting and boiler accessories? Give classification and explain in brief anyone.
3. Explain smoke tube internally fired horizontal type stationary boiler. (Lancashire boiler).
4. Explain Cochran boiler with neat sketch.
5. Explain babcock-wilcox boiler with neat sketch.

INTERNAL COMBSTION ENGINE

1. What is the difference between internal combustion engine and external combustion?
2. Define various terminology for the internal combustion engine.
3. Explain four stroke petrol engine with neat sketch.
4. Explain four stroke diesel engine with neat sketch.
5. The following readings were taken during the test on a single cylinder four stroke IC engine: Cylinder diameter : 270mm Stroke Length : 380mm Mean Effective Pressure : 6bar Engine speed : 250rpm Net load on brake : 1000N Effective mean diameter of brake : 1.5m Fuel used : 10kg/hr Calorific value of Fuel : 44400kJ/kg Calculate: (i) Brake Power (ii) Indicated Power (iii) Mechanical Efficiency (iv) Indicated thermal efficiency.
6. Explain two stroke petrol engine with neat sketch.
7. Give the difference between four stroke IC engine and two stroke IC engine.
8. Give the difference between petrol engine and diesel engine.

PUMP

1. Give the classification of pump.
2. Give the difference between reciprocating pump and centrifugal compressor.
3. Distinguished between reciprocating compressor and rotary compressor.
4. Discuss with neat sketch diaphragm pump.
5. Discuss with neat sketch single acting plunger type pump.

AIR CCOMPRESSOR

1. Give the classification of air compressor.
2. Derive an equation for the efficiency of air compressor for with and without work-done.
3. Why multi stage compression is required? give advantages of multi-staging compression.
4. Explain rotary compressor and axial compressor.

REFRIGERATION AND AIR CONDITIONING

1. With neat sketch explain construction and working of split air conditioner.
2. Give definition. 1) COP 2) 1-ton refrigeration 3) refrigerating effect
3. What is refrigerant? give the properties of refrigerant.
4. Explain vapour compression refrigeration system.
5. Explain vapour absorption refrigeration system.

ENGINEERING MATERIAL

1. Give the classification of engineering material.
2. Give the engineering properties of engineering material with definition.