17554

21819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. (A) Attempt any SIX of the following : **12**

(a) Give the classification of energy sources.

(b) Draw a neat sketch of flat plate collector.

(c) Write the first Law of Thermodynamics.

(d) Draw a T-H diagram for steam generation.

(e) Draw any one boiler accessory with neat sketch.

(f) Define Dalton's law of partial pressure.

(g) Draw P-V and T-S diagram for Carnot cycle.

(h) What is mean by parallel flow heat exchanger ?

(i) Draw a neat sketch of cross flow heat exchanger.

(B) Attempt any TWO of the following : **8**

(a) What is Geothermal Energy ? Explain.

(b) Define Extensive and Intensive Property.

(c) Give complete classification of boilers.

2. Attempt any FOUR of the following : **16**

(a) How does the Hydraulic Power plant works ?

(b) Define point function and path function.

(c) Explain with neat sketch the Cochran boiler.

(d) Give complete classification of the turbines.

(e) Give complete classification of IC Engines.

(f) How the compact type heat exchanger works ? Explain.

3. Attempt any FOUR of the following : **16**

(a) What is PMM1 and PMM2 ?

(b) Differentiate between Boiler mountings & accessories.

(c) Define steam nozzle ? Give its types.

(d) Differentiate Heat Engine and Heat Pump.

(e) How the Impulse turbine works ?

(f) Explain working of two stroke petrol engine.

4. Attempt any FOUR of the following : **16**

(a) Differentiate between Heat Pump and Refrigerator.

(b) Write Kelvin Planks and Clacius statement of second law.

(c) Draw P-H and T-S diagram for constant pressure and constant volume process of steam.

(d) Draw a neat sketch of Lamount boiler.

(e) Differentiate between Impulse and Reaction turbine.

(f) Explain construction and working of 4 stroke diesel engine.

5. Attempt any FOUR of the following : **16**

(a) Write a SFEE for boiler and turbine and write meaning of each term.

(b) Draw a neat sketch of throttling calorimeter.

(c) Write complete classification of condensers.

(d) Explain with neat sketch the surface condensers.

(e) Draw a valve timing diagram for two stroke and four stroke engine.

(f) List different fuels and give their advantages.

6. Attempt any FOUR of the following : **16**

(a) Differentiate between heat and work.

(b) Write different mountings of boiler and explain any one.

(c) Define condenser and vacuum efficiency.

(d) Write a note on supercharging.

(e) Define :

(i) Preignition

(ii) Detonation

(f) Explain with neat sketch shell and tube type heat exchanger.
