

313339

12526

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

-
- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer 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. Attempt any FIVE of the following: 10
- a) Define soft water and hard water.
- b) Define ton of refrigeration.
- c) State different types of steam.
- d) Write down the types of plant maintenance
- e) Name the salt which causes the temporary and permanent hardness in water.
- f) Write down four boiler mounting.
- g) Define relative humidity and adabatic saturation temperature.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- Explain hot line soda process for water treatment.
 - Give advantage of thermic fluid over steam.
 - List down selection criteria of refrigerants.
 - What is refrigeration? Give the schematic diagram with label of vapour compression cycle.
- 3. Attempt any THREE of the following: 12**
- Explain the ion exchange process for water treatment.
 - A refrigerator is working on reverse carnot cycle between the temperature of 28°C to -5°C with a capacity of 10 ton's find COP and heat rejected per hour from system.
 - What are the primary and secondary refrigerants? Give two example of each.
 - Define :-
 - Dry bulb temperature
 - Wet bulb temperature
 - Dew point temperature
 - Humidity.
- 4. Attempt any THREE of the following: 12**
- Explain boiler act with respect to :-
 - Boiler repair
 - Boiler registration.
 - Explain carnot refrigeration cycle.
 - A barometer reads 750 mm of Hg. The dry bulb temperature is 33°C and wet bulb temperature is 23°C determine :-
 - Relative humidity
 - Dew point temperature.
 - Explain the online maintenance with suitable example.
 - Write down the advantage of preventive maintenance over the shut down or break down maintenance.

313339

[3]

Marks

5. Attempt any TWO of the following:

12

- a) Give the reaction that take place with hard water with lime soda process. (Any six points)
- b) Differentiate between water tube boiler and fire tube boiler.
- c) Write down duties and responsibility of plant maintenance department.

6. Attempt any TWO of the following:

12

- a) Explain Zeolite process for water treatment with neat diagram.
 - b) Draw the neat diagram of Babcock and Wilcox boiler and labelled all parts, mounting and accessories.
 - c) Write down the different classification of cooling tower and explain forced draft cooling tower with neat diagram.
-