DIPLOMA IN MECHANICAL ENGINEERING R & AC

CENTRALIZED QUESTION BANK

4221651 - Design of R&AC System Practical

DIRECTORATE OF TECHNICAL

EDUCATIONGOVERNMENT OF

TAMILNADU

DIPLOMA END SEMESTER / YEAR EXAMINATION – 2023

Course : Mechanical Engineering R & AC

Subject : Design of R&AC System Practical   **QP Code :** 4221651

Time : 3 Hours   **Date :**   **Session:**   **Max Marks:** 100

ANSWER ALL THE QUESTIONS

1.   a) Explain the natural and forced convection heat transfer in detail

Aim	05 Marks
Detailed description/sketch	30 Marks
Result	05 Marks

   (b) Determine range,approach and Efficiency of the Cooling tower.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

2.   (a) Explain the heat transfer through different types of fins in detail.

Aim	05 Marks
Detailed description/sketch	30 Marks
Result	05 Marks

   (b) Measure the air flow in a duct using Anemometer

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

3.   (a) Explain in detail the steps involved in the design of Evaporator .

Aim	05 Marks
Design steps	30 Marks
Result	05 Marks

   (b) Determine the overall heat transfer coefficient of counter flow heat exchanger

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

4.   (a) Explain in detail the selection steps for cooling tower and study the cooling tower .

Aim	05 Marks
Design steps/sketch	30 Marks
Result	05 Marks

(b) Determine the heat transfer through composite wall.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

5.   (a) Determine the capacity of the water cooled condenser.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	25 Marks
Result	05 Marks

 (b) Determine the effectiveness of cross flow heat exchanger.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

6.   (a) Determine the capacity of the air cooled condenser.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	25 Marks
Result	05 Marks

 (b) Determine the overall heat transfer coefficient of parallel flow heat exchanger

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

7.   (a) Explain the natural and forced convection heat transfer in detail

Aim	05 Marks
Detailed description/sketch	30 Marks
Result	05 Marks

(b) Measure the air flow in a duct using Anemometer

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

8.   (a) Explain the heat transfer through different types of fins in detail.

Aim	05 Marks
Detailed description/sketch	30 Marks
Result	05 Marks

(b) Determine range,approach and Efficiency of the Cooling tower.

Aim and Procedure	10 Marks
Observation/Tabulation/Calculation	35 Marks
Result	05 Marks
Viva voce	10 Marks

9.   (a) Determine the capacity of the water cooled condenser.

             Aim and Procedure   10 Marks

             Observation/Tabulation/Calculation   25 Marks

             Result   05 Marks

       (b) Determine the heat transfer through composite wall.

             Aim and Procedure   10 Marks

             Observation/Tabulation/Calculation   35 Marks

             Result   05 Marks

             Viva voce   10 Marks

10.   (a) Determine the capacity of the air cooled condenser.

             Aim and Procedure   10 Marks

             Observation/Tabulation/Calculation   25 Marks

             Result   05 Marks

       (b) Determine the overall heat transfer coefficient of parallel flow heat exchanger

             Aim and Procedure   10 Marks

             Observation/Tabulation/Calculation   35 Marks

             Result   05 Marks

             Viva voce   10 Marks