Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14ME3013** | **Duration :** | **3hrs** |
| **Sub. Name :** | **Solar Refrigeration and Airconditioning** | **Max. marks :** | **100** |

*Use of approved refrigeration charts and tables are permitted*

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | With the help of schematic, pressure enthalpy and temperature entropy plot, explain the working principle of a vapour compression cycle. | CO1 | **20** |
| **(OR)** | | | | |
| 2. | a. | Explain the construction and working of a concentrating type solar collector with a neat sketch. List out its merits and demerits. | CO1 | **20** |
| 3. | a. | Determine the coefficient of performance of a solar operated water lithium bromide absorption cooling system for Ta = 25ºC, Tc = 25 ºC, Te = 5ºC, Tg = 80ºC, mss = 1 kg/s, €SHX = 60%. |  | **20** |
| **(OR)** | | | | |
| 4. | a. | Determine the coefficient of performance of a water lithium bromide absorption cooling system for Ta = 25ºC, Tc = 25ºC, Te = 5ºC, Tg = 80ºC, mr= 1 kg/s, €SHX = 80%. | CO2 | **20** |
| 5. | a. | Determine the coefficient of performance of an aqua ammonia absorption refrigeration system for the operating conditions; Ta = 25ºC, Tc = 25ºC,  Te = -10ºC, Tg = 120ºC, mss= 1 kg/s, €SHX = 70%. | CO2 | **20** |
| **(OR)** | | | | |
| 6. | a. | Determine the coefficient of performance of a solar operated aqua ammonia absorption refrigeration system for the operating conditions; Ta = 25ºC, Tc = 25ºC, Te = -10ºC, Tg = 120ºC, mr= 1 kg/s, €SHX = 90%. | CO2 | **20** |
| 7. | a. | With neat schematic discuss the working principle and operation of a diffusion absorption refrigeration system. | CO2 | **20** |
| **(OR)** | | | | |
| 8. | a. | Explain the salient features of a two stage aqua ammonia absorption cooling system. | CO2 | **20** |
|  | | **Compulsory:** |  |  |
| 9. | a. | Describe the construction and working of solar operated thermoelectric cooling system. | CO3 | **20** |

ALL THE BEST