

**Reg. No. :**

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**Question Paper Code: 39077**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Elective

Mechanical Engineering

01UME913 - REFRIGERATION AND AIR CONDITIONING

(Regulation 2013)

(Psychrometric chart, Refrigeration table may be permitted)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is one ton of refrigeration?
2. Define boot strap system.
3. What is a shell-and tube condenser?
4. What are the functions of thermostat?
5. Define GSHP.
6. What is total heat?
7. What factors affect the conditioning load?
8. List the different types of methods for determination of duct size.
9. What is meant by Pre-cooling fruits?
10. What are the methods for food freezing?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain in detail about multistage evaporator refrigeration system with neat sketch. (16)

Or

- (b) The theoretical piston displacement of the compressor and piston displacement per ton of refrigeration (iii) The theoretical horse power of the compressor and horse power per ton of refrigeration (iv) The heat rejected in the condenser (v) The Carnot and actual COP of the cycle. (16)

12. (a) Write short note on (i) Vapour Compression refrigeration system (ii) Reciprocating and Rotary compressors. (16)

Or

- (b) Describe the classifications of Evaporators according to their refrigerant flow pattern and their function. (16)

13. (a) Write short note on (i) By pass Factor (ii) Sensible Heat and Cooling Process. (16)

Or

- (b) Write short notes on (i) Air washers (ii) Year round air conditioning. (16)

14. (a) Explain about centralized air condition system with neat sketch. List the advantages and disadvantages. (16)

Or

- (b) Explain in detail about (i) Packaged air conditioning units (ii) Hermetic Centrifugal liquids chillier units. (16)

15. (a) Explain in detail about Steam jet refrigeration with barometric condenser. (16)

Or

- (b) What is the absorption system of refrigeration and what is the most common type of absorption system in use in industrial application and Explain about one type. (16)