

Printed Pages : 3



EAG-502

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 180509

Roll No.

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B. Tech.(SEM. V) (ODD SEM.) THEORY
EXAMINATION, 2014-15**REFRIGERATION AND AIR CONDITIONING**

Time : 2 Hours]

[Total Marks : 50

Note : The question paper is divided into three sections.
Attempt each section. Required charts must be provided.

SECTION-A

- 1 Attempt the following short answer type questions : **5×2=10**
- What is the principle of refrigeration?
 - What is the second law of thermodynamics applied to refrigeration?
 - What should be the desired properties of refrigerants.?
 - What do you understand by defrosting.?
 - List only the components of mechanical refrigeration.

SECTION-B

- 2 Attempt any three parts of the following : **5×3=15**
- What do you understand by desiccants? Briefly explain drying agents used in refrigeration plant.
 - Discuss the impact of sub – cooling on the vapour compression refrigeration cycle with the help of T-S diagram.
 - Discuss about the simple vapour compression cycle. What are the types of air conditioners? Give the applications of each of them.
 - Describe the thermoelectric refrigeration system.

SECTION-C

- 3 Attempt any five questions : **5×5=25**
- Explain the 'Carnot cycle' OR 'Reverse Carnot cycle' with the help of neat diagram.
 - A cold storage chamber for vegetables, operating on open air cycle, is required to produce 20 tonnes of refrigeration with a cooler pressure of 12 kg/cm² and a refrigeration pressure of 1.0 kg / cm². The temperature of air leaving the cooler is 20°C and the air leaves the room at -1°C. Assuming a theoretical cycle with entropic expansion and polytropic compression with no compressor clearance and no losses.
Determine: (i) weight of air circulated/hour.
(ii) Coefficient of performance.
 - Write short note on (i) Ventilation load and (ii) Condenser pressure.

- (d) Describe the unit of refrigeration in food industry by giving a example.
 - (e) Write short note on :
 - (i) Psychometry.
 - (ii) Wet bulb tempreture.
 - (f) Draw a neat layout of a typical ice plant. What procedure is used for making of ice plant.? Which type of condensing unit does the ice cube makers consists of ?
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