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(2)Coleman cycle refrigeration system is given by---Where T, and T, are the temperature of air at the inlet and discharge of compressor respectively. Explain the working of this cycle. 8 Q.II Draw and write about all the air refrigeration system used in different air-aviation industry. A freezer of 20TR capacity has evaporator and condensor temperature of -30°C and 25°Crespectively. The refrigerant R-12 is sub-cooled by 4°C before it enters the expansion valve and is superheated by 5°C before leaving the evaporator. The compresion is isentropic and the value throttling and clearance are to be neglected. If a six cylinder, single acting compression with stroke equal to bore running at 1000 rpm is used, determine (a) C.O.P. of the refrigerating system (b) mass of refrigerant to be circulated per min, (c) theoretical piston displacement per minute, and (d) theoretical bore and stroke of the compressor. The speicific heat of liquid R-12 is 1,235KJ/Kgk

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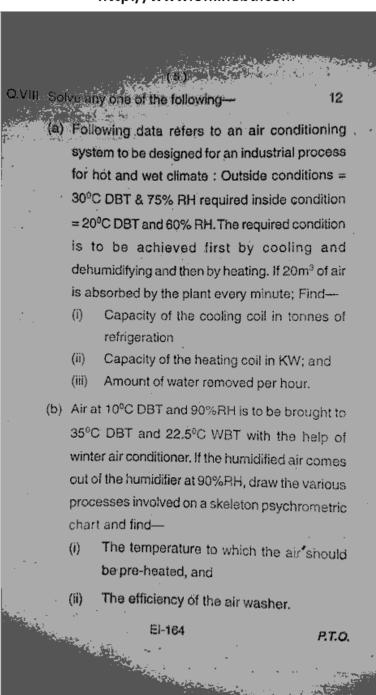
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Maximum capacity of plants using these refrigerants Types of heating, refrigerating and airconditioning application. (a) Draw a neat sketch and explain thermostatic expansion value. (b) Sketch and explain a cascade refrigeration sysetm. Draw cascade refrigeration cycle on temperature- entropy and pressure-enthalpy. diagrams. Q.VII (a) Draw the temperature-entropy and enthalpyentropy diagrams of a steam jet refrigeration system. What is the principle of a steam jet refrigeration system. (b) 800m3/min of recirculated air at 220C DBT and 10°C dew point temperature is to be mixed with 300m³/min of fresh air at 30°C DBT and 50% RH. Determine the enthalpy, specific volume, humidity ratio and dew point temperature of the mixture. El-164 Contd.

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An air conditioned auditorium is to be maintained at 27°C dry bulb temperature and 60% relative humidity. The ambient condition is 40°C dry bulb temperature and 30°C wet bulb temperature. The total sensible heat load is 100,000KJ/h and the total latent heat load is 40,000KJ/4.60% of the return air is re-circulated and mixed with 40% of make up air after the cooling coil. The condition of air leaving the cooling coil is at 18°C. Determine-Room sensible heat factor The condition of air entering the auditorium The amount of make-up air Apparatus dew point; and By-pass factor of the cooling coil. Show the processes on the psychrometric chart.

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