ARYAN

# ARYAN SCHOOL OF ENGINEERING & TECHNOLOGY

| Dicipline: Mechanical | Semester: 5th | Name of the Teaching Faculty: Shashanka Sekhar Panda | |
|---|---|---|---|
| Subject: Refrigeration & Air Conditioning | No of Days/Week Class Allotted: 1 | Semester From date: 01.10.21 To date 18.01.22 | No.of Weeks: 15 |

| WEEK | Class Day | Theory Topics |
|---|---|---|
| 1st | 1st | Defination of refrigeration & unit of refrigeration |
| | 2nd | Defn of COP, Refrigerating effect (R.E). |
| | 3rd | Principle of working of open & air & closed air system of refn. |
| | 4th | Calculation of cop of Bell-Coleman cycle & numerical on it. |
| | 5th | |
| 2nd | 1st | Solve numericals on above. |
| | 2nd | Schematic diagram of simple vapours compression refrigeration system. |
| | 3rd | Types of VCRS. |
| | 4th | Cycle with dry saturated vapours after Compression. |
| | 5th | |
| 3rd | 1st | Cycle with wet vapours after compression. |
| | 2nd | Cycle with superheat vapours after compression. |
| | 3rd | Cycle with superheated vapours before compression. |
| | 4th | Cycle with sub-cooling of refrigerant. |
| | 5th | |

| WEEK | Class Day | Theory Topics |
|---|---|---|
| 4th | 1st | Representation of above cycle on temp entropy & pressure enthalpy diagram. |
| | 2nd | Continuing temperature enthalpy & pressure enthalpy diagram. |
| | 3rd | Solve Numericals on above. |
| | 4th | Simple vapour absorption refrigeration system. |
| | 5th | |
| 5th | 1st | Continuing Simple vapour absorption ref? system. |
| | 2nd | Practical vapour absorption system. |
| | 3rd | Continuing practical vapour absorption system. |
| | 4th | COP of an ideal vapour absorption ref? system |
| | 5th | |
| 6th | 1st | Continuing COP of vapour absorption ref? system. |
| | 2nd | Numericals on COP. |
| | 3rd | Refrigerant Compressors. Its Principle of working. |
| | 4th | Important terms in Compressors. |
| | 5th | |

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| Dicipline: Mechanical | Semester: 5th | Name of the Teaching Faculty: Shashanka Sekhar Panda | |
|---|---|---|---|
| Subject: Refrigeration & Air-Conditioning | No of Days/Week Class Allotted: 4 | Semester From date: 01.10.21 To date 18.01.22 | No.of Weeks: 15 |

| WEEK | Class Day | Theory Topics |
|---|---|---|
| 7th | 1st | Pamaple of working & constructional details of condenser. |
| | 2nd | Heat rejection ratio. |
| | 3rd | Cooling tower and spray pond. |
| | 4th | Pamaple of working & constructional details of an evaporator. |
| | 5th | |
| 8th | 1st | Types of evaporator. |
| | 2nd | Bare tube coil evaporator, finned evaporator shell & tube evaporator. |
| | 3rd | Expansion valves (Capilary, automatic & thermostatic). |
| | 4th | Classification & properties of refrigerants. |
| | 5th | |
| 9th | 1st | Designation of refrigerant. |
| | 2nd | Thermodynamic & chemical properties of refrigerants. |
| | 3rd | R-11, R-12, R-22, R-134a, R-717. |
| | 4th | Substitute for CFC. |
| | 5th | |

| WEEK | Class Day | Theory Topics |
|---|---|---|
| 10th | 1st | cold storage. (Appln). |
| | 2nd | Dairy refrigeration. |
| | 3rd | Ice plant & water coolers. |
| | 4th | frost free refrigerator. |
| | 5th | |
| 11th | 1st | Psychometric terms. |
| | 2nd | Adiabatic saturation of air by evaporation of water. |
| | 3rd | Psychometric Chart and use. |
| | 4th | Sensible heating and cooling. |
| | 5th | |
| 12th | 1st | cooling & dehumidification. |
| | 2nd | Heating & humidification. |
| | 3rd | Total heating of cooling process. |
| | 4th | SHF, BPF & Adiabatic mixing. |
| | 5th | |

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| WEEK | Class Day | Theory Topics |
|---|---|---|
| 13th | 1st | Solve problems on above. |
| | 2nd | Effective temperature & comfort chart. |
| | 3rd | Factors affecting comfort air conditioning. |
| | 4th | Equipment used in air-conditioning. |
| | 5th | |
| 14th | 1st | Classification of air-conditioning system. |
| | 2nd | Continuing classification of air-conditioning system |
| | 3rd | Winter air-conditioning system. |
| | 4th | Continue winter air-conditioning system. |
| | 5th | |
| 15th | 1st | Summer air-conditioning system. |
| | 2nd | Solve numericals on above. |
| | 3rd | Doubt clearing class. |
| | 4th | Class test & question answer discussion. |
| | 5th | |