14ME803 (A)

**Hall Ticket Number:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **July, 2021** | **Mechanical Engineering** | | |
| **Eighth Semester** | **Power Plant Engineering** | | |
| **Time:** Three Hours | | **Maximum:** 60 Marks | |
| *Answer ALL Questions from PART-A.* | | | (12X1 = 12 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | (4X12=48 Marks) |
| **Part – A** | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. | Answer all questions | | (12X1=12 Marks) | |
|  | a) | Define run-off. | |  |
|  | b) | Define hydrograph. Give its importance. | |  |
|  | c) | What is spillway? | |  |
|  | d) | Define pulverization. | |  |
|  | e) | Make comparison between unit and central system of pulverized coal firing. | |  |
|  | f) | Write the function of a cooling tower in a power plant. | |  |
|  | g) | Make a comparison between Base Load & Peak Load Power Plants | |  |
|  | h) | List the various components of Fixed Cost. | |  |
|  | i) | Define Diversity factor. | |  |
|  | j) | List various types of Solar Collectors. | |  |
|  | k) | Give the principle of Tidal Power Plant. | |  |
|  | l) | Name different types of wind mills. | |  |
| **Part - B** | | | | |
| 2. | a) | What is Hydrological Cycle? Explain in brief about flow duration curves & Mass curves. | | 6M |
|  | b) | Compare gas turbine power plant with diesel power plant. | | 6M |
|  | | | | |
| 3. | a) | Enumerate and explain briefly the factors which should be considered while selecting the site for hydro-electric power plant. | | 6M |
|  | b) | Draw a neat line diagram of a diesel power plant showing all the systems. | | 6M |
|  | | | | |
| 4. | a) | Explain the Principle used in forced and induced draught. Discuss the advantages of forced draught over induced draught. | | 6M |
|  | b) | Discuss coal handling in a Thermal Power Plant with flow diagram. | | 6M |
|  | | | | |
| 5. | a) | Name the various methods of ash handling. Describe the pneumatic system of ash handling. | | 6M |
|  | b) | With a neat sketch explain the operation of an Electrostatic precipitator. | | 6M |
|  | | | | |
| 6. | a) | With a neat sketch explain the working of BWR. Give its advantages and disadvantages. | | 6M |
|  | b) | Write an Essay on thermal & solid waste pollution from power plants. Explain any one method of control of pollution. | | 6M |
|  | | | | |
| 7. | a) | Draw neat diagram of nuclear reactor and explain the functions of different components. | | 6M |
|  | b) | The peak load on a power station is 30 MW. The loads having maximum demands of 25 MW, 10 MW, 5MW and 7MW are connected to the power station. The capacity of the power station is 40 MW and annual load factor is 50%. Find  i) Average load on the station ii) energy supplied per year  iii) Demand factor iv) Diversity factor | | 6M |
|  | | | | |
| 8. | a) | List out various methods of solar energy storage and write a brief note on solar pond. | | 6M |
|  | b) | Explain the working of any one type of OTEC Power System. | | 6M |
|  | | | | |
| 9. | a) | With a neat sketch, explain the working of any one type of fuel cell. | | 6M |
|  | b) | What is the principle of MHD Power Plant? Explain the working of any one type of MHD Plants. | | 6M |

****