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Total Number of Pages : 02

B.Tech
FEEE6401

8th Semester Back Examination 2018-2019
POWER STATION ENGINEERING AND ECONOMY
BRANCH : EEE, ELECTRICAL
Max Marks : 70
Time : 3 Hours
Q.CODE : F093

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions : (2 x 10)**
- a) What are the requirements of fission process?
 - b) Define (i) connected load (ii) maximum demand
 - c) What are the advantages and disadvantages of hydropower plants?
 - d) Why E.S.P is required in thermal power plant?
 - e) A hydro electric power plant operates an effective head of 100 meter and a discharge of 90 m³/Sec. Determine the power developed assuming efficiency of the plant to be 85%?
 - f) Why the values of demand factor and load factor are always less than one?
 - g) What do you mean by load duration curve? What information's are obtained by a load duration curve?
 - h) State the materials used for (i) coolant (ii) shielding (iii) control rods.
 - i) Explain different classification of hydro power plant.
 - j) A turbine in Hydel Plant develops 2000Hp with a head of 300 feet. Determine Specific speed if it has to run at a speed of 700RPM.
- Q2 a) A hydroelectric station has an average available head of 100 meters and reservoir capacity of 50 million cubic meters. Calculate the total energy in kWh that can be generated, assuming hydraulic efficiency of 85% and electrical efficiency of 90% (5)**
- b) Explain the applications, advantages and disadvantages of diesel power plants? (5)**
- Q3 How are the turbines classified? What is the function of a hydraulic turbine? Explain anyone with a suitable sketch. (10)**
- Q4 A steam power station has an installed capacity of 120MW and a maximum demand of 100MW. The coal consumption is 0.4kg per kWh and cost of coal is Rs 80 per tonne. The annual expenses on salary bill of staff and other overhead charges excluding cost of coal are Rs 50X10⁵. The power station works at a load factor of 0.5 and capital cost of the power station is Rs 4X10⁵. If the rate of interest and depreciation is 10% determine the cost of generating per kWh. (10)**
- Q5 a) A Power Station has two 50 MW units each running for 8000 Hours a year and one 30MW unit running for 1500 Hours a year. The Energy produced per year is 750X10⁶kWh. Calculate: (i) Plant Load Factor (ii) Plant Use Factor (5)**
- b) How will you improve the diversity factor and load factor of a power station? (5)**

