Question bank

1) What do you understand by Depreciation?
2) What is the purpose of charging depreciation?
3) Write short notes on :
   (a) Straight Line Method. (b) Sinking Fund Method
4) In a steam power plant the capital cost of power generation equipment is Rs. 25×10^5. The useful life of the plant is 30 years and salvage value of the plant to Rs. 1×10^5. Determine by sinking fund method the amount to be saved annually for replacement if the rate of annual compound interest is 6%.
5) Define: load factor, utility factor, plant operating factor, capacity factor, demand factor and diversity factor.
6) What is the difference between demand factor and diversity factor?
7) What is 'diversity factor'? List its advantages in a power system.
8) Prove that the load factor of a power system is improved by an increase in diversity of load.
9) What is meant by load curve? Explain its importance in power generation.
10) What are the principal factors involved in fixing of a tariff?
11) What do you understand by power plant economics? Explain the fixed cost and operating Cost of a power station.
12) What are the factors to be considered while selecting a site for hydroelectric power plant?
13) Write short note on tariffs
14) What are base load and peak load plants.
15) Describe various methods for determination of economic power factor.
16) What is the type of tariff common for domestic consumer
17) What is spot prizing? Why it is important?
18) Write short note on:
   (i) Aquatic impact of power plant
   (ii) Method used for computing the generation Schedule in a combined hydrothermal system
   (iii) Topping and Bottoming cycle.
19) Write and explain any two benefits of cogeneration.
20) Load on a Power Plant on a typical day is as under:

Time	12 midnight-5 am	5-9 am	9am-6pm	6-10pm	10pm-12 midnight
Load(MW)	20	40	80	100	20

Plot the chronological load curve and load duration curve of the plant. Find the load factor of the plant.

21) Explain the most economic power factor when KW demand is constant.
22) What is short term load forecasting
23) The annual load duration of hydro plant shows 500 MWh of energy during the year. It is peak load plant 25% annual load factor. Find station Capacity. If the plant capacity factor is 20 %, find the reserve capacity.
24) Derive an expression for load sharing between two thermal plants when transmission line is lossless.
25) Write the objective function expression of hydro-thermal scheduling problem.
26) What is lagrangian multiplier?
27) What is heat rate?
28) Write short note on : Organization of power sector in India
29) Explain the term spinning reserve.
30) Discuss resistive and mechanical load.
31) The area under the load curve represents _____

a. the average load on power system
b. maximum demand
c. number of units generated
d. load factor

32) Which of the following is equal to the maximum demand?
a. The ratio of area under curve to the total area of rectangle
b. The ratio of area under curve and number of hours

c. The peak of the load curve
d. The area under the curve

33) Load duration curve indicates _____
a) the variation of load during different hours of the day
b) total number of units generated for the given demand
c) total energy consumed by the load
d) the number of hours for which the particular load lasts during a day

34) During which time the demand of electrical energy is maximum?
a) 2 A.M. to 5 A.M.
b) 5 A.M. to 12 P.M.
c) 12 P.M. to 7 P.M.
d) 7 P.M. to 9 P.M

35) Size and cost of installation depends upon _____
a) average load
b) maximum demand
c) square mean load
d) square of peak load

36) What is Demand factor?
a) Ratio of connected load to maximum demand
b) Ratio of average load to connected load
c) Ratio of maximum demand to the connected load
d) Ratio of kilowatt hour consumed to 24 hours

37) What is the difference between two part tariff and maximum demand tariff?
a. A separate meter is used.
b. A separate maximum demand meter is used.
c. Semi fixed charges are also included.
d. All of these.

38) The most suitable location for the power factor improvement device is
a. Near the electrical appliance which is responsible for the poor power factor.
b. At the sending end.
c. At the receiving end in case of transmission lines.
d. Both (a) and (c).
e. None of the above

39) The water pollution prevention and control act was formed in the year.
a. 1986
b. 1974
c. 1981
d. 1980

40) The Indian electricity rules of 1956 cover
a. Inspections of electric installations
b. Licensing
c. General safety precautions
d. Only b and c
e. All of these

41) Energy conservation act was formed in the year
a. 1998
b. 1999
c. 2000
d. 2001

42) Out of the following which one is not a unconventional source of energy ?
a. Tidal power
b. Geothermal energy
c. Nuclear energy
d. Wind power.

43) Which one of the following can cause thermal pollution?
a. Residential houses
b. Power plants
c. Death of marine organisms
d. Oil spill

44) What is the main effect of thermal pollution to the oxygen solubility in water bodies?
a. They increase the solubility of oxygen in water bodies
b. They maintain the solubility of oxygen in water bodies
c. They reduce the solubility of oxygen in water bodies
d. They don't cause any affect in solubility of oxygen to the water bodies

45) Which of the following is the main reason for thermal pollution?
a. Bio fuels
b. Organic farming
c. Eco friendly vehicles
d. Power plants

46) The following is the correct order of energy conversion in thermal power plants
a. Chemical energy – Mechanical energy – Electrical energy
b. Mechanical energy – Chemical energy – Electrical energy
c. Wind energy – Mechanical energy – Electrical energy
d. Heat energy – Electrical energy – Mechanical energy

47) Which is not fundamental element of cogeneration plant?
a. Prime mover
b. Electricity generator
c. Heat recovery system
d. Power factor improvement system

48) Which of the following industries will consume maximum power per tonne of product?
a. Zinc
b. Aluminum
c. Alloy steel
d. Cement

49) The value of diversity on
a. Less than one
b. Greater than one
c. Equal to one
d. Any one of the above

50) Cogeneration
a. involves instruments like heat pumps that can generate heating and cooling
b. combines passive solar and active solar technologies
c. involves both electricity and natural gas
d. uses waste heat to produce electricit
e. uses heat from the earth to produce electricity