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MULTIPLE CHOICE

1. In order to have a low cost of electrical generation,

    a. The load factor and diversity factor are high.

    b. The load factor should be low but the diversity factor should be high.

    c. The load factor should be high but the diversity factor should be low.

    d. The load factor and the diversity factor should be low.

    Ans: a

    ANS: A   PTS: 1

2. A power plant having maximum demand more than the installed

    capacity will have utilization factor:

    a. Less than 100%.

    b. Equal to 100%.

    c. More than 100%.

    d. None of these.

    Ans: c

    ANS: A   PTS: 1

3. The choice of number and size of units in a station are governed

    by best compromise between:

    a. A plant load factor and capacity factor.

    b. Plant capacity factor and plant-use factor.

    c. Plant load factor and use factor.

    d. None of these.

    Ans: b

    ANS: A   PTS: 1

4. If a plant has zero reserve capacity, the plant load factor always:

    a. Equals plant capacity factor.

    b. Is greater than plant capacity factor.

    c. Is less than plant capacity factor.

    d. None of these.

    Ans: a

ANS: A   PTS: 1

5. If some reserve is available in a power plant,

    a. Its use factor is always greater than its capacity factor.

    b. Its use factor equals the capacity factor.

    c. Its use factor is always less than its capacity factor.

    d. None of these.

        Ans: a

ANS: A   PTS: 1

6. A higher load factor means:

    a. Cost per unit is less.

    b. Less variation in load.

    c. The number of units generated are more.

    d. All of these.

        Ans: d

ANS: A   PTS: 1

7. The maximum demand of two power stations is the same. If the daily load factors of the stations are 10 and 20%, then the units generated by them are in the ratio:

    a. 2:1.

    b. 1:2.

    c. 3:3.

    d. 1:4.

        Ans: b

ANS: A   PTS: 1

8. A plant had an average load of 20 MW when the load factor is 50%. Its diversity factor is 20%. The sum of max. demands of all loads amounts to:

    a. 12 MW.

    b. 8 MW.

    c. 6 MW.

    d. 4 MW.

        Ans: b

ANS: A   PTS: 1

9. A peak load station:

a. Should have a low operating cost.

b. Should have a low capital cost.

c. Can have a operating cost high.

c. (a)and (c).

d. (b)and(c).

Ans: e

ANS: A   PTS: 1

10. Two areas A and B have equal connected loads; however the load diversity in area A is more than in B, then:

a. Maximum demand of two areas is small.

b. Maximum demand of A is greater than the maximum demand of B.

c. The maximum demand of B is greater than the maximum demand of A.

d. The maximum demand of A more or less than that of B.

Ans: c

ANS: A   PTS: 1

11. The area under the daily load curve gives

a. The number of units generated in the day.

b. The average load of the day.

c. The load factor of the day.

d. The number of units generated in the year.

Ans: a

ANS: A   PTS: 1

12. The annual peak load on a 60-MW power station is 50 MW. The power station supplies loads having average demands of 9, 10, 17, and 20 MW. The annual load factor is 60%. The average load on the plant is:

a. 4,000 kW.

b. 30,000 kW.

c. 2,000 kW.

d. 1,000 kW.

Ans: b

ANS: A   PTS: 1

13. A generating station has a connected load of 40 MW and a maximum demand of 20 MW. The demand factor is:

a. 0.7.

b. 0.6.

c. 0.59.

d. 0.4.

Ans: c

ANS: A   PTS: 1

14. A 100 MW power plant has a load factor of 0.5 and a utilization factor of 0.2. Its average demand is:

a. 10 MW.

b. 5 MW.

c. 7 MW.

d. 6 MW.

Ans: a

ANS: A   PTS: 1

15. The value of the demand factor is always:

a. Less than one.

b. Equal to one.

c. Greater than one.

d. None of these.

Ans: a

ANS: A   PTS: 1

16. If capacity factor = load factor, then:

a. Utilization factor is zero.

b. Utilization capacity is non-zero.

c. Utilization factor is equal to one.

d. None of these.

Ans: c

ANS: A   PTS: 1

17. If capacity factor = load factor, then the plant's

a. Reserve capacity is maximum.

b. Reserve capacity is zero.

c. Reserves capacity is less.

d. None of these.

Ans: b

ANS: A　　　　　　　PTS: 1

18. Installed capacity of power plant is:

　　a. More than the maximum demand.

　　b. Less than the maximum demand.

　　c. Equal to the maximum demand.

　　d. Both and.

　　　　Ans: d

ANS: A　　　　　　　PTS: 1

19. In an interconnected system, diversity factor determining:

　　a. Decreases.

　　b. Increases.

　　c. Zero.

　　d. None of these.

　　　　Ans: b

ANS: A　　　　　　　PTS: 1

20. The knowledge of diversity factor helps in determining:

　　a. Plant capacity.

　　b. Reserve capacity.

　　c. Maximum demand.

　　d. Average demand.

　　　　Ans: a

ANS: A　　　　　　　PTS: 1

21. A power station has an installed capacity of 300 MW. Its capacity factor is 50% and its load factor is 75%. Its maximum demand is:

　　a. 100 MW.

　　b. 150 MW.

　　c. 200 MW.

　　d. 250 MW.

　　　　Ans: c

ANS: A　　　　　　　PTS: 1

22. The connected load of a consumer is 2 kW and his/her maximum demand is 1.5 kW. The load factor of the consumer is:

    a. 0.75.

    b. 0.375.

    c. 1.33.

    d. none of these.

    Ans: d

    ANS: A   PTS: 1

23. The maximum demand of a consumer is 2 kW and his/her daily energy consumption is 20 units. His/her load factor is:

    a. 10.15%.

    b. 41.6%.

    c. 50%.

    d. 52.6%.

    Ans: b

    ANS: A   PTS: 1

24. In a power plant, a reserve-generating capacity, which is not in service but in operation is known as:

    a. Hot reserve.

    b. Spinning reserve.

    c. Cold reserve.

    d. Firm power.

    Ans: a

    ANS: A   PTS: 1

25. The power intended to be always available is known as:

    a. Hot reserve.

    b. Spinning reserve.

    c. Cold reserve.

    d. Firm power.

    Ans: d

    ANS: A   PTS: 1

26. In a power plant, a reserve-generating capacity, which is in service but not in operation is:

    a. Hot reserve.

b. Spinning reserve.

c. Cold reserve.

d. Firm power.

Ans: c

ANS: A   PTS: 1

27. Which of the following is a correct factor?

a. Load factor = capacity × utilization factor.

b. Utilization factor = capacity factor × load factor.

c. Utilization factor = load factor/utilization factor.

d. Capacity factor = load factor × utilization factor.

Ans: c

ANS: A   PTS: 1

28. If the rated plant capacity and maximum load of generating station are equal, then:

a. Load factor is 1.

b. Capacity factor is 1.

    d. Load factor and capacity factor are equal.

c. Utilization factor is poor.

Ans: c

ANS: A   PTS: 1

29. The capital cost of plant depends on:

a. Total installed capacity only.

b. Total number of units only.

c. Both and.

d. None of these.

Ans: a

ANS: A   PTS: 1

30. The reserve capacity in a system is generally equal to:

a. Capacity of the largest generating unit.

b. Capacity of two largest generating units.

c. The total generating capacity.

d. None of the above.

Ans: d

31. The maximum demand of a consumer is 5 kW and his/her daily energy consumption is 24 units. His/her % load factor is:

    a. 5.

    b. 20.

    c. 24.

    d. 48.

    Ans: c

32. If load factor is poor, then:

    a. Electric energy produced is small.

    b. Charge per kWh is high.

    c. Fixed charges per kWh is high.

    d. All of the above.

    Ans: c

33. If a generating station had maximum loads for a day at 100 kW and a load factor of 0.2, its generation in that day was:

    a. 8.64 MWh.

    b. 21.6 units.

    c. 21.6 units.

    d. 2,160 kWh.

    Ans: a

34. The knowledge of maximum demand is important as it helps in determining:

    a. Installed capacity of the plant.

    b. Connected load of the plant.

    c. Average demand of the plant.

    d. Either (a) or(b).

    Ans: b

35. A power station is connected to 4.5 and 6 kW. Its daily load factor was calculated as 0.2, where its generation on that day was 24 units. Calculate the demand factor.

    a. 2.6.

    b. 3.1.

    c. 3.0.

    d. 0.476.

      Ans: d

ANS: A   PTS: 1

36. A 50-MW power station had produced 24 units in a day when its maximum demand was 50 Mw. Its plant load factor and capacity factor that day in % were:

    a. 1 and 2.

    b. 2 and 3.

    c. 2 and 2.

    d. 4 and 3.

      Ans: a

ANS: A   PTS: 1

37. Load curve of a power generation station is always:

    a. Negative.

    b. Zero slope.

    c. Positive.

    d. Any combination of (a), (b), and (c).

      Ans: a

ANS: A   PTS: 1

38. Load curve helps in deciding the:

    a. Total installed capacity of the plant.

    b. Size of the generating units.

    c. Operating schedule of the generating units.

    d. All of the above.

      Ans: c

ANS: A   PTS: 1

39. The load factor for domestic loads may be taken:

    a. About 85%.

b. 50-60%.

c. 25-50%.

d. 20-15%.

Ans: c

ANS: A   PTS: 1

40. Governors of controlling the speed of electric-generating units normally provide:

a. A flat-speed load characteristic.   b. An increase in speed with an increasing load.

b. A decrease in speed with an increasing load.   d. None

Ans: c

ANS: A   PTS: 1

41. KE and frequency of a synchronous machine are related as:

a. KE = f.   b. KE = 1/f.

b. KE = f .   d. None of these.

Ans: b

ANS: A   PTS: 1

42. Input signals to an ALFC loop is _____.

a. ÄP

b. ÄP   c. Both (a) and (b).   d. None of these.

Ans: c

ANS: A   PTS: 1

43. The speed regulation can be expressed as

a. Ratio of change in frequency from no-load to full load to the rated frequency of the unit.

b. Ratio of change in frequency to the corresponding change in real-power generation.

c. (a) and (b).

d. None of these.

Ans: c

ANS: A   PTS: 1

44. _____ is the basic control mechanism in the power system.

a. LFC.   b. Voltage.

a. Both.

b. None of these

ANS: A   PTS: 1

45. Setting of speed-load characteristic parallel to itself is known as _____ and its adapted as on-line control.

   a. Primary control.

   a.   Supplementary control.   c. Basic.

   b.   All of these.

ANS: A   PTS: 1

46. The basic function of LFC is:

   a.   To maintain frequency for variations in real-power demand.

      b. To maintain voltage for variations in reactive power demand.

   b.   To maintain both voltage and frequency for variations in real-power demand.

      d. To maintain both voltage and frequency for variations in real-power demand.

ANS: A   PTS: 1

47. The LFC system _____ in the system.

   a.   Does consider the reactive power flow.   b. Does not consider the reactive power flow.

   b.   Does not consider the real-power flow.

ANS: A   PTS: 1

48. The objective of Q–V controller is to transform the:

   a.   Terminal voltage error signal into a reactive power control signal, ÄQ .

      b. Terminal voltage error signal into a real-power control signal, ÄP

      c. Frequency error signal into a real-power control signal, ÄP .

   b.   None of these.

ANS: A   PTS: 1

49. The active power P is:

   a.   Mainly dependent on the internal torque angle, ä.

      b. Almost independent of the voltage magnitude.

      c. totally dependent on both the torque angle and the voltage.

b. Mainly dependent on voltage and independent of torque angle, ä.

    a. (a) and (d). b. (b) and (c). c. (a) and (b). d. Only (d).

    Ans: d

ANS: A   PTS: 1

50. AVR loop is _____ control mechanism.

   a. Slow.

     b. Faster.

     c. Slow in some cases and faster in some other cases.

   b. None of these.

     Ans: c

ANS: A   PTS: 1

51. Which of the following indicates the large-signal analysis of power system dynamics?

   a. Large and sudden variations in the system variables due to sudden disturbances.

   b. Mathematical model is a set of non-linear differential equations.

   c. Mathematical model is a set of linear differential equations.

   d. Small and gradual variations of system variables.

   a. (a) and (b).   b. (b) and (c).

   b. (c) and (d).   d. None of these.

     Ans: c

ANS: A   PTS: 1

52. In a signal area system, all generators working remain in synchronism maintaining their relative power angles; such a group of generators is called _____.

   a. Swing group.   b. Synchro group.

   b. Coherent group.

   c. None of these.

     Ans: a

ANS: A   PTS: 1

53. The heart of the speed governor system, which controls the change in speed is:

   a. Linkage mechanism.

   b. Fly-ball speed governor.

   c. Speed changer.

   d. Hydraulic amplifier.

Ans: b

ANS: A   PTS: 1

54. In a hydraulic amplifier:

a. High-power-level pilot valve moment is converted into low-power-level main piston movement.

b. Low-power pilot valve moment is converted into low-power-level piston movement.

c. Low-power-level pilot valve moment is converted into high-power-level piston movement.

d. Low-power-level pilot valve moment is converted into high-power-level pilot valve moment.

Ans: d

ANS: A   PTS: 1

55. Linkage mechanism provides:

a. The moment of control valve in propositional to the inlet steam.

b. The feedback from the control valve moment.

a. Both (a) and (b).

b. None of these.

Ans: c

ANS: A   PTS: 1

56. The position of the pilot valve can be affected through linkage mechanism in _____ way.

a. Directly by the speed changer.

b. Indirectly through feedback due to position changes of the main system.

c. Indirectly through feedback due to position changes of the linkage point E resulting from a change in speed.

d. All of these.

Ans: c

ANS: A   PTS: 1

57. In reheat type of steam turbine,

a. Steam at high pressure with low temperature is transformed into steam at low pressure with higher temperature.

a. Steam at low pressure with higher temperature is transformed into steam at high pressure with low temperature.

b. Steam at low pressure with low temperature is transformed into steam at high pressure with higher temperature.

c. None of these.

Ans: c

ANS: A   PTS: 1

58. Transfer function of reheat type of steam turbine is of _____ order.

   a. First. b. Second.

   a. Third.

   b. None of these.

      Ans: c

ANS: A   PTS: 1

59. The surplus power (ÄP – ÄP) can be absorbed by a system:

   a. By increasing the stored K ª of the system at the rate

      b. By motor loads.

   b. There is no absorption of surplus power by the system.

      d. Both (a) and (b).

      Ans: a

ANS: A   PTS: 1

60. The voltage of the power supply at the consumer's service must be held substantially _____

   a. Constant.

   b. Smooth variation.

   c. Random variation.

   d. None of these.

      Ans: a

ANS: A   PTS: 1

61. Low voltage reduces the _____ from incandescent lamps.

   a. Power output.

   b. Power input.

   c. Light output.

   d. Current.

      Ans: c

ANS: A   PTS: 1

62. Motors operated at below normal voltage draw abnormally _____ currents.

   a. Low.

   b. High.

c. Medium.

d. None of these.

Ans: b

ANS: A   PTS: 1

63. Permissible voltage variation is _____.

a. ± 10%.

b. ± 20%.

c. ±50%.

d. ± 5%.

Ans: d

ANS: A   PTS: 1

64. By drawing high currents at low voltages, the motors get _____.

a. Overheated.

b. Cool.

c. Constant heat.

d. None of these.

Ans: a

ANS: A   PTS: 1

65. Domestic circuits' supply voltage is _____.

a. 230 V.

b. 110 V.

c. 240 V.

d. 220 V.

Ans: d

ANS: A   PTS: 1

66. The voltage may normally vary between the limits of _____.

a. 210 and 230 V.

b. 230 and 240 V.

c. 230 and 520 V.

d. 210 and 235 V.

Ans: a

ANS: A   PTS: 1

67. Above normal voltages reduces the _____ of the lamps.

   a. Life.

   b. Strength.

   c. Lighting.

   d. Color.

      Ans: a

ANS: A   PTS: 1

68. The voltage at the bus can be controlled by the injection of _____ power of the correct sign.

   a. Real.

   b. Reactive.

   c. Complex.

   d. Both real and reactive.

      Ans: b

ANS: A   PTS: 1

69. General methods of voltage control are _____.

   a. Use of tap-changing transformer.

   b. Synchronous condensers.

   c. Static capacitors.

   d. All of these.

      Ans: d

ANS: A   PTS: 1

70. Use of thyristor-controlled static compensators is _____.

   a. Voltage control.

   b. Power control.

   c. Current control.

   d. None of these.

      Ans: a

ANS: A   PTS: 1

71. An overexcited synchronous machine operated as generator or motor generates _____

   a. kVA.

b. kVAr.

c. kW.

d. kI.

    Ans: b

ANS: A   PTS: 1

72. Synchronous motor running at no-load and overexcited load is known as _____

a. Synchronous condenser.

b. Shunt capacitor.

c. Series capacitor.

d. None of these.

    Ans: a

ANS: A   PTS: 1

73. The excitation-control method is only suitable for _____ lines.

a. Short.

b. Medium.

c. Long.

d. All of these.

    Ans: a

ANS: A   PTS: 1

74. It is _____ to maintain the same voltage at both ends of transmission lines by the synchronous-condenser method.

a. Economical.

b. Not economical.

c. Difficult.

d. Easy.

    Ans: b

ANS: A   PTS: 1

75. Shunt capacitors and reactors are used across lightly loaded lines to absorb some of the leading _____ again to control the voltage.

a. VArs.

b. VA.

c. VBRS.

    d. None of these.

       Ans: a

ANS: A   PTS: 1

76. Disadvantages of shunt capacitors are _____.

    a. Fall of voltage.

    b. Reduction in VArs.

    c. Reduction in effectiveness.

    d. All of these.

       Ans: d

ANS: A   PTS: 1

77. _____ reduces the inductive reactance between the load and the supply point.

    a. Shunt capacitor.

    b. Shunt reactor.

    c. Series capacitor.

    d. Transformer.

       Ans: c

ANS: A   PTS: 1

78. The disadvantage of a series capacitor is that it produces _____ voltage across the capacitor under short-circuit condition.

    a. Low.

    b. High.

    c. Very low.

    d. Either (a) or (b).

       Ans: b

ANS: A   PTS: 1

79. A spark gap with a high-speed contactor is the _____ used for shunt capacitor.

  a. Protective device.

  b. Control.

  c. Fuse.

  d. Circuit breaker.

  Ans: a

107. The different types of tap-changing transformers are _____.

a. Off-load.

b. On-load.

c. Both (a) and (b).

d. Either (a) or (b).

Ans: c

ANS: A   PTS: 1

80. The purpose of using booster transformers is _____ the voltage.

a. Transforming.

b. Bucking.

c. Boosting.

d. Bucking and boosting.

Ans: d

ANS: A   PTS: 1

81. More expensive, less efficient, and take more floor area are the disadvantages of the _____ transformer.

a. Off-load tap.

b. On-load.

c. Booster.

d. Induction.

Ans:c

ANS: A   PTS: 1

82. If a synchronous machine gets overexcited, takes lagging Vars from the system when it is operated as a _____.

a. Synchronous motor.

b. Synchronous generator.

c. Either (a) or (b).

d. Synchronous phase modifier.

Ans: d

ANS: A   PTS: 1

83. For a synchronous phase modifier, the load angle is _____.

a. 0°.

b. 25°.

c. 30°.

d. 50°.

Ans: a

ANS: A   PTS: 1