Power Plant Engineering MCQ PDF

1. Within the boiler, the steam has highest temperature in

(b) water tubes.

(a) super-heater

(c) water walls.

(d) water drum.

Answer: (a) super-heater

2. Which of the following enters the superheater ?

(a) Superheated steam.

(b) Wet steam.

(c) Hot water.

(d) Cold water.

Answer: (b) Wet steam.

3. Superheated steam is always

(a) at a pressure more than that of the boiler steam.

(b) at a pressure lower than the maximum cycle pressure.

(c) at a temperature higher than the temperature of saturation corresponding to the steam pressure.

(d) none of the above.

Answer: (b) at a pressure lower than the maximum cycle pressure.

4. Steam is superheated in order to

(a) improve Rankine cycle efficiency.

(b) reduce initial condensation losses.

(c) avoid too high temperature in the last stage of the turbine.

(d) all of the above.

Answer: (d) all of the above.

5. The function of the economizer is to

(a) heat up the incoming water with exhaust steam.

(b) heat up the pulverized fuel by exhaust gases.

(c) heat up the incoming air by exhaust gases.

(d) heat up the incoming water by exhaust gases.

Answer: (d) heat up the incoming water by exhaust gases.

6. The main function of economizer of a boiler plant is to

(a) increase steam production.

(b) reduce fuel consumption.

(c) increase steam pressure.

(d) increase life of the boiler.

Answer: (b) reduce fuel consumption.

6. In a steam power plant heat from the flue gases is recovered in

(a) a condenser.

(b) a chimney.

(c) economizer and air preheated.

(d) a de-super-heater.

Answer: (c) economizer and air preheated.

7. Economizer in a steam power plant

(a) improves the boiler efficiency by 10-12%.

(b) saves fuel consumption by 5-15%.

(c) becomes a necessity for pressure exceeding 70 kg/cm2.

(d) all of the above.

Answer: (d) all of the above.

8. The advantage of reheating of steam in a turbine is that

(a) it increases the efficiency of the turbine.

(b) it reduces the wears on the blades.

(c) it increases the work-done through the turbine.

(d) all of the above advantages.

Answer: (d) all of the above advantages.

9. Air pre-heater in a steam power plant

(a) recovers the heat from the flue gases leaving the economizer.

(b) improves combustion rate.

(c) raises the temperature of the furnace gases.

(d) all of the above.

Answer: (d) all of the above.

10. Condensers in thermal power plants are for condensing

(a) steam to water.

(b) water to ice.

(c) hydrogen gas to liquid gas.

(d) carbon dioxide to dry ice.

Answer: (a) steam to water.

11. A condenser in a steam power plant condenses steam coming out of

(a) turbine.

(b) boiler.

(c) economizer.

(d) super-heater.

Answer: (a) turbine.

12. In a steam power plant water is used for cooling purposes in

(a) economizer.

(b) condenser.

(c) super-heater.

(d) electrostatic precipitator.

Answer: (b) condenser.

13. In a steam turbine cycle, the lowest pressure occurs in

(a) condenser.

(b) turbine inlet.

(c) boiler.

(d) super-heater.

Answer: (a) condenser.

14. Increase in condenser back pressure will lead to a

(a) loss.

(b) gain.

(c) none of these.

Answer: (a) loss.

15. In which part of the thermal power plant, the steam pressure is less than that of atmosphere ?

(a) Boiler.

(b) Turbine.

(c) Super-heater.

(d) Condenser.

Answer: (d) Condenser.

16. The major function of the condenser is to

(a) remove the condensate for boiler feed water.

(b) condense steam.

(c) reduce the back pressure so that maximum heat energy can be extracted from steam.

(d) provide a closed cycle.

Answer: (c) reduce the back pressure so that maximum heat energy can be extracted from steam.

17. The function of a condenser in a steam power plant is to

(a) condense the large volume of steam to water to be used as boiler feed water.

(b) receive the large volume of steam exhausted from the steam turbine.

(c) maintain pressure below atmospheric so that maximum heat energy can be extracted from steam.

(d) all of the above.

Answer: (d) all of the above.

18. Evaporative type of condenser has

(a) steam in pipes surrounded by water.

(b) water in pipes surrounded by steam outside.

(c) steam and cooling water mixed to give condensate.

(d) none of the above.

Answer: (a) steam in pipes surrounded by water.

19. In a jet type condenser

(a) steam passes through tubes and cooling water surrounds them.

(b) water passes through tubes and steam surrounds them.

(c) steam and cooling water mix.

(d) none of the above.

Answer: (c) steam and cooling water mix.

20. In a shell and tube surface condenser

(a) steam passes through the tubes and cooling water surrounds them.

(b) cooling water passes through the tubes and steam surrounds them.

(c) steam and water mix to give condensate.

(d) none of the above.

Answer: (b) cooling water passes through the tubes and steam surrounds them.

21. In a regenerative surface condenser

(a) there is no pump to remove condensate and the condensate gets removed by gravity.

(b) there is only one pump for removing air and condensate.

(c) there are two pumps to remove air and condensate.

(d) there are three pumps to remove air, condensate and vapor.

Answer: (c) there are two pumps to remove air and condensate.

22. In a surface condenser, on removal of air

(a) absolute pressure of condenser is reduced.

(b) absolute pressure of condenser is increased.

(c) absolute pressure of condenser remains unaffected.

(d) temperature of condensed steam is increased.

Answer: (a) absolute pressure of condenser is reduced.

23. The purpose of the boiler feed pump is to

(a) pump hot air into the boiler.

(b) pump pulverized coal into the boiler.

(c) pump out steam from the boiler.

(d) pump water into the boiler.

(e) none of the above.

Answer: (d) pump water into the boiler.

24. The function of air pumps in a condenser is to

(a) remove water.

(b) air leaking into the condenser and maintain vacuum.

(c) maintain atmospheric pressure in the condenser.

(d) both (a) and (b).

Answer: (b) air leaking into the condenser and maintain vacuum.

25. Wet air pump is to remove

(a) condensate only.

(b) air only.

(c) both air and condensate.

(d) vapor from the condenser.

Answer: (c) both air and condensate.

26. In a steam power plant cooling towers are used for

(a) cooling condenser outlet water.

(b) cooling exhaust steam.

(c) cooling feed water.

(d) all of the above.

Answer: (a) cooling condenser outlet water.

27. Spray ponds are used for cooling warm water coming out of condenser in

(a) large power plants.

(b) medium power plants.

(c) small power plants.

(d) both in medium and large power plants.

Answer: (c) small power plants.

28. The drawback (s) of spray ponds is /are

(a) large ground area is required especially in case of large sized power plants.

(b) loss of water due to evaporation.

(c) considerable quantity of water is carried away in air when its velocity is high.

(d) all of the above.

Answer: (d) all of the above.

29. In which of the following steam turbines the back pressure will be below the atmospheric one ?

(a) Non-condensing turbine.

(b) Condensing turbine.

(c) Topping turbine.

(d) None of the above.

Answer: (b) Condensing turbine.

30. The modern steam turbines are

(a) reaction turbines.

(b) impulse turbines.

(c) impulse reaction turbines.

(d) none of the above.

Answer: (c) impulse reaction turbines.

31. In case of reaction steam turbine

(a) there is a enthalpy drop both in fixed and moving blades.

(b) there is enthalpy drop only in moving blades.

(c) there is enthalpy drop only in fixed blades.

(d) none of the above.

Answer: (a) there is a enthalpy drop both in fixed and moving blades.

32. As compared to steam at entry to the turbine which of the following will be larger at exit ?

(a) Flow rate.

(b) Pressure .

(c) Specific volume.

(d) Specific enthalpy.

Answer: (c) Specific volume.

34. For the same power, the size of a turbine

(a) increases with speed.

(b) remains with speed.

(c) decrease with speed.

Answer: (c) decrease with speed.

35. The pressure on the two sides of the impulse wheel of a steam turbine

(a) is different.

(b) is the same.

(c) reduces from one side to the other side.

(d) increases form one side to the other side.

Answer: (b) is the same.

36. Reheat factor in steam turbines depends on

(a) stage efficiency.

(b) exit pressure.

(c) initial pressure and temperature.

(d) all of the above.

Answer: (d) all of the above.

37. In steam turbines, the reheat factor

(a) increases with the increase in number of stages.

(b) reduces with the increase in number of stages.

(c) remains the same irrespective of number of stages.

(d) none of the above.

Answer: (a) increases with the increase in number of stages.

38. The value of reheat factor for a multistage steam turbine lies in the range of

(a) 1.005 to 1.03

(b) 1.01 to 1.06

(c) 1.02 to 1.1

(d) 1.10 to 1.2

Answer: (b) 1.01 to 1.06

39. Steam turbines are governed by

(a) nozzle control governing.

(b) throttle governing.

(c) bypass governing.

(d) all of the above.

Answer: (d) all of the above.

40. Topping turbines are

(a) low pressure condensing ones.

(b) high pressure condensing ones.

(c) high pressure non-condensing ones.

(d) low pressure non-condensing ones.

Answer: (c) high pressure non-condensing ones.

41. Compounding of steam turbines is done in order to

(a) reduce the rotor speed.

(b) increase the rotor speed.

(c) balance the turbine.

(d) none of the above.

Answer: (a) reduce the rotor speed.

42. The governing employed for medium and larger sized steam turbines is

(a) bypass.

(b) nozzle.

(c) throttle.

(d) combination of (b) and (c).

Answer: (b) nozzle.

43. The ratio of exit pressure to inlet pressure of maximum mass flow rate per unit area of steam through a nozzle, when the steam is initially super heated, is

(a) 0.65

(b) 0.578

(c) 0.5457

(d) 0.5325

Answer: (c) 0.5457

44. The ratio of exit pressure to inlet pressure of maximum mass flow rate per unit area of steam through a nozzle, when the steam is initially dry saturated, is

(a) 0.5325

(b) 0.5457

(c) 0.578

(d) 0.65

Answer: (c) 0.578

45. The effect of considering friction in steam nozzles for the same pressure ratio leads to

(a) increase in dryness fraction of exit steam.

(b) decrease in exit velocity from the nozzle.

(c) no change in exit velocity from the nozzle and quality of exit steam.

(d) both (a) and (b).

Answer: (d) both (a) and (b).

46. The steam is superheated to the highest economical temperature in order to

(a) reduce the requirement of steam for a given output of energy owing to its high internal energy and thus reduce the turbine size.

(b) reduce the mechanical resistance to the flow of steam over turbine blades and increase the efficiency as superheated steam is dry and so turbine blades remain dry.

(c) avoid corrosion and pitting at the turbine blades occurring owing to steam dryness.

(d) all of the above.

Answer: (d) all of the above.

47. Any leakage of air into the condenser destroys the vacuum and causes

(a) an increase in air pressure in the condenser limiting the useful heat drop in the steam turbine.

(b) lowering of the partial pressure of the steam and of the saturation temperature along with it.

(c) under-cooling of the condensate more severe.

(d) all of the above.

Answer: (d) all of the above.

48. A 200 MW steam power plant will consume nearly……tonnes of coal per day.

(a) 1,000

(b) 2,000

(c) 4,000

(d) 7,500

Answer: (b) 2,000

49. Heating value of coal is roughly

(a) 1,000 - 1,500 kcal/kg

(b) 3,000 - 4,500 kcal/kg

(c) 5,000 - 6,500 kcal/kg

(d) 7,500 - 10,000 kcal/kg

Answer: (c) 5,000 - 6,500 kcal/kg

50. Calorific value of coal largely depends upon

(a) ash content.

(b) size of coal particles.

(c) moisture content.

(d) volatile matter.

Answer: (a) ash content.

51. The coal of the lowest calorific value is

(a) anthracite.

(b) bituminous coal.

(c) lignite.

(d) steam coal.

Answer: (c) lignite.

52. The coal having highest calorific value is

(a) anthracite.

(b) bituminous.

(c) lignite.

(d) peat

Answer: (a) anthracite.

53. Coal used in thermal power plants is also known as

(a) soft coal

(b) steam coal.

(c) charcoal.

(d) coke.

Answer: (b) steam coal.

54. Coking cokes

(a) do not form ash.

(b) burn completely.

(c) form lumps or masses of coke.

(d) burn freely.

Answer: (c) form lumps or masses of coke.

55. Which of the following is considered to be superior quality of coal ?

(a) Bituminous.

(b) Coke.

(c) Lignite.

(d) Peat

Answer: (a) Bituminous.

56. Low grade coals have

(a) low carbon content.

(b) low calorific value.

(c) low moisture content.

(d) low ash content.

Answer: (b) low calorific value.

57. Coal is usually considered of

(a) lava origin.

(b) animal origin.

(c) vegetable origin.

(d) none of the above.

Answer: (c) vegetable origin.

58. Coal rank classifies coal as per its

(a) specific gravity.

(b) degree of metamorphism.

(c) carbon percentage.

(d) ash content.

Answer: (b) degree of metamorphism.

59. The average ash content in Indian coals is around

(a) 5%.

(b) 10%.

(c) 20%.

(d) 30%.

Answer: (c) 20%.

60. The coal that has highest ash content is

(a) lignite.

(b) coking coal.

(c) bituminous coal.

(d) steam coal.

Answer: (a) lignite.

61. Ash content of coal can be reduced by

(a) pulverizing.

(b) washing.

(c) slow burning.

(d) mixing with high grade coal.

Answer: (b) washing.

62. Combustible elements in the fuel are

(a) carbon and hydrogen.

(b) carbon, hydrogen and ash.

(c) carbon, hydrogen and sulphur.

(d) carbon, nitrogen and ash.

Answer: (c) carbon, hydrogen and sulphur.

63. The percentage of carbon in anthracites is usually

(a) more than 90%.

(b) about 70%.

(c) about 50%.

(d) below 40%.

Answer: (a) more than 90%.

64. Solvent refined coal has low percentage of

(a) impurities.

(b) sulphur.

(c) ash.

(d) all of the above.

Answer: (d) all of the above.

65. Presence of sulphur content in coal will cause

(a) spontaneous combustion during coal storage and air heater corroding.

(b) clinkering and slagging.

(c) facilitating ash precipitation.

(d) all of the above.

Answer: (d) all of the above.

66. Sulphur content of liquid fuels assumes importance from the point of view of

(a) firing rate.

(b) heating rate.

(c) corrosion.

(d) efficiency.

Answer: (c) corrosion.

67. Chemical composition of coal is given by

(a) ultimate analysis.

(b) proximate analysis.

(c) gross analysis.

(d) any of the above.

Answer: (a) ultimate analysis.

68. Ultimate analysis of fuel determines the percentage of

(a) ash, volatile matter and moisture.

(b) total carbon by weight.

(c) total carbon by weight – unit weight of H_2, 0_2, N_2, sulphur and ash.

(d) none of the above.

Answer: (c) total carbon by weight – unit weight of H_2, 0_2, N_2, sulphur and ash.

69. Complete combustion of pulverized coal in a steam raising thermal power plant is ensured by what type of an analysis of flue gas going out by the chimney?

(a) 0_2 content forgiven air intake.

(b) CO_2 content for given fuel rate feed.

(c) CO content.

(d) All of these.

Answer: (d) All of these.

70. The proximate analysis of coal gives percentage by weight of

(a) moisture, and volatile matter.

(b) moisture, volatile matter, fixed carbon and ash.

(c) carbon, hydrogen, oxygen, nitrogen, sulphur and ash.

(d) carbon, hydrogen, and oxygen.

Answer: (b) moisture, volatile matter, fixed carbon and ash.

71. The ash content of bituminous coal is

(a) 2 to 3%

(b) 6 to 12%

(c) 15 to 20%

Answer: (b) 6 to 12%

72. The most important factors to be considered in the selection of fuel for power plants include

(a) cost of fuel.

(h) calorific value of fuel.

(c) none of the above.

(d) both (a) and (b).

Answer: (d) both (a) and (b).

73. Live storage of coal in power plant means

(a) a covered storage near the boiler furnace having coal sufficient to meet 24 hour demand of the power plant

(b) coal in transit.

(c) coal ready for combustion.

(d) storage of coal sufficient to meet one week demand of the plant readily.

Answer: (a) a covered storage near the boiler furnace having coal sufficient to meet 24 hour demand of the power plant

74. In a steam power plant, coal is carried from storage to boiler generally by means of

(a) trolleys.

(b) V-belts.

(c) buckets.

(d) manually.

Answer: (b) V-belts.

75. Belt conveyors can be employed for transporting coal at inclination up to

(a) 75°

(b) 60°

(c) 30°

(d) 15°

Answer: (c) 30°

76. The maximum length of a screw conveyor is around

(a) 85 - 90%

(c) 40 - 60%

(b) 60 - 75%

(d) 15 - 30%

Answer: (a) 85 - 90%

77. In small power plants, coal is unloaded by means of

(a) belt conveyors.

(b) coal accelerators.

(c) lift trucks.

(d) all of the above.

Answer: (b) coal accelerators.

78. Load carrying capacity of a belt conveyor is around

(a) 10 - 20 tonnes per hour.

(b) 20 - 40 tonnes per hour.

(c) 50 - 100 tonnes per hour.

(d) 100 - 160 tonnes per hour.

Answer: (c) 50 - 100 tonnes per hour.

79. Bucket elevators are employed for

(a) carrying coal in vertical direction.

(b) carrying coal in horizontal direction.

(c) carrying coal in any direction.

(d) none of the above.

Answer: (a) carrying coal in vertical direction.

80. In coal preparation plants, the magnetic separation are used for removing

(a) dust.

(b) iron particles.

(c) clinkers.

(d) all of the above.

Answer: (b) iron particles.

81. Burning of low grade fuel can be improved by

(a) pulverizing.

(b) blending with better quality coals.

(c) oil assisted ignition.

(d) any of the above.

Answer: (d) any of the above.

82. Which one is essential for combustion of fuel ?

(a) Oxygen.

(b) Correct fuel-air ratio.

(c) Proper ignition temperature.

(d) All of the above three.

Answer: (d) All of the above three.

83. The percentage of 0_2 in atmospheric air is

(a) 21 % by volume.

(b) 23 % by weight.

(c) 79 % by volume and 77% by weight.

(d) both (a) and (b).

Answer: (d) both (a) and (b).

84. The proper indication of incomplete combustion is

(a) the smoking exhaust from chimney.

(b) high temperature of flue gas.

(c) high CO content in flue gases at exit.

(d) high CO_2 content in flue gases at exit.

Answer: (c) high CO content in flue gases at exit.

85. The stoker used in large capacity boilers, when un-pulverized coal is used, is

(a) overfeed stoker.

(b) underfeed stoker.

(c) any of the above.

(d) none of the above.

Answer: (a) overfeed stoker.

86. Overfeed stoker includes

(a) travelling grate.

(b) chain grate.

(c) spreader.

(d) all of the above.

Answer: (d) all of the above.

87. The equipment used for supplying coal to the boiler, when un-pulverized coal is being used, is

(a) skip hoist.

(b) stoker.

(c) any of the above.

(d) none of the above.

Answer: (b) stoker.

88. Capacity of the underfeed stoker is in the range of coal burned per hour.

(a) 100 — 250 kg

(b) 100 — 500 kg

(c) 100 — 2,000 kg

(d) 100 — 5,000 kg

Answer: (d) 100 — 5,000 kg

89. Travelling grate stoker can burn coal at the rate of

(a) 50 to 75 kg/m^2h

(b) 75 to 100 kg/m^2h

(c) 100 to 150 kg/m^2h

(d) 150 to 200 kg/m^2h

Answer: (d) 150 to 200 kg/m^2h

90. Pulverized coal is

(a) non-smoking coal.

(b) coal free from ash.

(c) coal broken in fine particles.

(d) coal which burns for long time.

Answer: (c) coal broken in fine particles.

91. Equipment used for pulverizing the coal is the

(a) hopper.

(b) stoker.

(c) ball mill.

(d) burner.

Answer: (c) ball mill.

92. Pulverized fuel is used for

(a) better burning.

(b) increased calorific value of coal.

(c) less radiation loss.

(d) medium size units

Answer: (a) better burning.

93. The advantages of using pulverized fuel include

(a) higher boiler efficiency, low air requirement and low fan power.
(b) easy and complete combustion.

(c) fast response to load changes and low banking losses.

(d) all of the above.

Answer: (d) all of the above.

94. The drawbacks of using pulverized fuel include

(a) additional investment in pulverizing plant and stack fly-ash removal equipment.

(b) extra power requirements for the pulverizing plant.

(c) reduced power plant efficiency.

(d) both (a) and (b).

Answer: (d) both (a) and (b).

95. Ash is the main waste product of steam power plants with low grade coal (may be in tonnes per day). This ash

(a) can be used in building construction.

(b) can be used in brick making near the plant side.

(c) it can be dumped in disused mines, river or sea or in an area excavated in the waste land, as the case may be.

(d) all of the above.

Answer: (d) all of the above.

95. Fly-ash generally results from

(a) fluidized bed boilers.

(b) pulverized coal boilers.

(c) diesel engines.

(d) gas turbines.

Answer: (b) pulverized coal boilers.

96. Dust can be separated from gas by

(a) impingement upon small baffles.

(b) sudden velocity decrease owing to enlargement.

(c) abrupt changes of flow direction.

(d) any of the above.

Answer: (d) any of the above.

97. Which of the following equipment is installed in steam power plants to reduce air pollution ?

(a) De-super-heater.

(b) Air filter.

(c) Air electrostatic precipitator.

(d) Stack.

(e) None of them.

Answer: (c) Air electrostatic precipitator.

98. In coal-fired thermal power stations, what are the electrostatic precipitators used for?

(a) To remove dust particles settling on the bus bar conductors in the station switchyard.

(b) To condense steam by electrostatic means.

(c) To keep the air heaters clean.

(d) To collect the dust particles from the flue gases.

Answer: (d) To collect the dust particles from the flue gases.

99. Electrostatic precipitator is installed between

(a) induced fan and chimney.

(b) air pre-heater and induced fan.

(c) economizer and air pre-heater.

(d) boiler furnace and economizer.

Answer: (b) air pre-heater and induced fan.

100. The draught produced by a chimney is called the

(a) forced draught.

(b) induced draught.

(c) natural draught.

(d) balanced draught.

Answer: (c) natural draught.

101. The draught produced by steel chimney in comparison to that produced by brick chimney, for the same height, is

(a) more.

(b) less.

(c) the same.

(d) unpredictable.

Answer: (c) the same.

102. Artificial draught is produced by

(a) a forced fan.

(b) an induced fan.

(c) induced and forced fan.

(d) all of the above.

Answer: (d) all of the above.

103. For the same draught produced the power of forced draught fan, in comparison to that of induced draught fan, is

(a) more.

(b) less.

(c) the same.

(d) may be more or less.

Answer: (b) less.

103. The artificial draught is usually designed to produce

(a) more draught.

(b) less smoke.

(c) low temperature of chimney gas.

(d) all of the above.

Answer: (d) all of the above.

104. The draught produced by a chimney of a given height at a given outside temperature

(a) decreases with the increase in temperature of chimney gases.

(b) increases with the increase in temperature of chimney gases.

(c) remains unchanged irrespective of temperature of chimney

gases.

(d) may increase or decrease.

Answer: (b) increases with the increase in temperature of chimney gases.

105. The natural draught

(a) is provided by a chimney.

(b) is used in small steam boilers.

(c) can also be used in large steam boilers if economizers and pre-heaters have been used.

(d) both (a) and (b).

Answer: (d) both (a) and (b).

106. The magnitude of natural draught depends upon

(a) average temperature difference between flue gases within the chimney and the outside air.

(b) height of the chimney above the furnace grate level.

(c) weather and operating conditions.

(d) all of the above.

Answer: (d) all of the above.

107. For forced draught the blower is located

(a) at the top of the chimney.

(b) near the base of the chimney.

(c) near the base of the boiler.

(d) any where permissible.

Answer: (c) near the base of the boiler.

108. The height of chimney, in a steam power stations, is governed by

(a) the draught to be produced.

(b) the quantity of flue gases being produced.

(c) pollution control.

(d) all of the above.

Answer: (a) the draught to be produced.

109. The pressure at the furnace is minimum in case of

(a) induced draught.

(b) forced draught

(c) balanced draught.

(d) natural draught.

Answer: (c) balanced draught.

110. In forced draught the main function of the chimney is to

(a) discharge gases high up in the atmosphere from the point of view of air pollution.

(b) accelerate the fuel combustion.

(c) reduce the temperature of the discharged hot gases.

(d) all of the above.

Answer: (a) discharge gases high up in the atmosphere from the point of view of air pollution.

111. Induced draught fans amused to

(a) cool the steam let out by the turbine in thermal station.

(b) cool the hot gases coming out of the boiler.

(c) force the air inside the coal furnace.

(d) control the heat generated in a nuclear reactor.

(e) pull the gas out of the chimney.

Answer: (c) force the air inside the coal furnace.

112. What it the nominal pH value of water that is to be maintained in a steam raising thermal power station?

(a) 0.0

(b) 7.0

(c) 8.5

(d) 14.3

Answer: (c) 8.5

113. The feed water treatment is done mainly to avoid

(a) embrittlement problem.

(b) carry over problem.

(c) corrosion and scale formation problems.

(d) all of the above problems.

Answer: (d) all of the above problems.

113. Boiling down of boiler water is done so as to

(a) control the solid concentration in the boiler water by removing some of the concentrated saline water.

(b) remove dissolved gases in the water.

(c) reduce boiler pressure.

(d) increase steam temperature.

Answer: (a) control the solid concentration in the boiler water by removing some of the concentrated saline water.

114. It is necessary to heat water before feeding it back to the boiler as because of this

(a) the dissolved oxygen and carbon dioxide which would other-wise corrode boiler are removed in the feed water heater.

(b) thermal stresses due to cold water entering the boiler drum are avoided.

(c) some other impurities carried by steam and condensate due to corrosion in boiler and condenser are precipitated outside the boiler.

(d) all of the above.

Answer: (d) all of the above.

115. Huge quantity of water is required in a steam power plant. It is required

(a) to raise the steam in boilers.

(b) for cooling purposes such as in condensers.

(c) as a carrying medium such as in disposal of ash.

(d) all of the above .

Answer: (d) all of the above.

116. For a 3-element feed water control in a coal-fired thermal power station, measurements of level of water in the boiler drums is made so that the water level does not

(a) exceed a specified upper limit.

(b) fall below a specified lower limit.

(c) violate specified upper and lower limits.

(d) restrict to a specified limit.

Answer: (c) violate specified upper and lower limits.

117. The auxiliary consumption in a thermal power (steam) station is

(a) 2 - 5%

(b) 8 - 10%

(c) 15 - 20%

(d) 20 - 25%

Answer: (a) 2 - 5%

118. Turbo-alternators run at

(a) a variable speed around 2,000 rpm.

(b) a constant speed of 1,000 rpm.

(c) a constant speed of 3,000 rpm.

(d) a variable speed above 1,000 rpm.

(e) none of the above.

Answer: (c) a constant speed of 3,000 rpm.

119. Large size steam plants and nuclear plants are suitable for

(a) peak loads.

(b) intermediate loads.

(c) base loads.

(d) both base and peak loads

Answer: (c) base loads.

120. The efficiency of a nuclear power plant is less than that of a conventional fuel fired thermal plant because of

(a) less rejection of heat in the condenser.

(b) higher temperature conditions.

(c) higher pressure conditions

(d) low temperature and pressure conditions.

Answer: (d) low temperature and pressure conditions.