



- 1. The term biomass most often refers to _____**
 - a) Inorganic matter
 - b) Organic matter**
 - c) Chemicals
 - d) Ammonium compounds

- 2. Dead organisms also come under the biomass.**
 - a) True**
 - b) False

- 3. Biomass is useful to produce _____**
 - a) Chemicals
 - b) Fibres
 - c) Biochemicals
 - d) Transportation fuels**

- 4. Which one of the following is an example of starch crops biomass feed stocks?**
 - a) Sugar cane**
 - b) Wheat straw
 - c) Corn stover
 - d) Orchard prunings

- 5. Which of the following forestry materials can be used as biomass?**
 - a) Logging residues**
 - b) Tallow
 - c) Fish oil
 - d) Manure

- 6. Which of the following is not used as biomass?**
 - a) Hybrid poplar
 - b) Willow algae
 - c) Iron nails**
 - d) Trap grease

7. The aerobic digestion of sewage is used to produce _____

- a) Biomass
- b) Bio fuels**
- c) Synthetic fuels
- d) Metal articles

8. Bio ethanol is denatured alcohol that is also called as _____

- a) Ethylene
- b) Methylated spirit**
- c) Ethylene glycol
- d) Methylene

9. The production of bio ethanol is by fermenting the _____ and starch components.

- a) Acid
- b) Milk
- c) Sugar**
- d) Alcohol

10. The bio ethanol is subjected to rectification to remove _____

- a) Sugar
- b) Enzymes
- c) Yeast
- d) Impurities**

11. The bio ethanol obtained in the fermentation process has _____ purity.

- a) 99%
- b) 99.2%
- c) 99.4%
- d) 99.7%**

12. The by-products that are produced during rectification of bio ethanol is used as _____

- a) Pig feed
- b) Cow feed
- c) Dog feed**
- d) Sheep feed

13. _____ is called as the bio gas.

- a) Bio ethanol
- b) Bio methane**
- c) Bio diesel
- d) Bio butanol

14. The percentage of carbondioxide in the bio methane is _____

- a) 30-40
- b) 32-43**
- c) 35-45
- d) 55-60

15. The bio methane is produced by the _____ of biomass.

- a) Aerobic oxidation
- b) Anaerobic oxidation**
- c) Fermentation
- d) Rectification

16. Bio gas is compressed and used as _____

- a) Motor fuel**
- b) Fuels in vehicles
- c) Dog feed
- d) Cow feed

17. The _____ is used as the agricultural fertilizer.

- a) Bio ethanol
- b) Bio ethane
- c) Bio methanol
- d) Digestrate**

18. Bio diesel is produced by the _____ of the vegetable oil.

- a) Fermentation
- b) Distillation
- c) Transesterification**
- d) Rectification

19. The bio diesel is the long chain of carbon atoms contains _____ group at one end.

- a) Alcohol
- b) Aldehyde
- c) Ketone
- d) Ester**

20. The difference between structure of the bio diesel and the regular diesel is an ester group.

- a) True**
- b) False

21. Having two separate units for process heat and power is?

- a) useful
- b) useless**

- c) pollution reducing
- d) none of the mentioned

22. A plant producing both, electrical power & process heat simultaneously is?

- a) Cogential plant
- b) Cogenerial plant
- c) Cogeneration plant**
- d) Conglomerate plant

23. In a by-product power cycle?

- a) the power is produced initially
- b) power production is in the middle stages of the cycle
- c) power production is after the cycle has ended**
- d) none of the mentioned

24. Back pressure turbines are usually _____ with respect to their power output.

- a) large
- b) small**
- c) very large
- d) very small

25. In terms of cost per MW compared to condensing sets of the same power, the back pressure turbines are?

- a) more expensive
- b) cheaper**
- c) costly
- d) none of the mentioned

26. Which of these is not an application of back pressure turbine?

- a) desalination of sea water
- b) filtration of water**
- c) process industries
- d) petrochemical installations

27. Back pressure turbine is placed between _____

- a) Turbine & Pump
- b) Boiler & Pump
- c) Turbine & Heat Exchanger
- d) Boiler & Turbine**

28. Which of the following is a good medium for constant temperature heating?

- a) Water

- b) Steam
- c) Coolant
- d) Diesel

29. The cogeneration plant efficiency n_{CO} if W_T , Q_i , Q_H represents turbine work, heat input, heat output respectively is given by?

- a) $n_{CO} = (W_T + Q_i) / Q_H$
- b) $n_{CO} = (W_T - Q_i) / Q_H$
- c) $n_{CO} = (W_T + Q_H) / Q_i$
- d) $n_{CO} = (W_T + Q_H) / Q_i$

30. The electricity fraction of total energy output if W_1 and Q_1 represents the turbine work and heat output is given by?

- a) $W_1 / (W_1 + Q_1)$
- b) $W_1 / (W_1 - Q_1)$
- c) $W_1 / (W_1 Q_1)$
- d) W_1 / Q_1

31. If e is the electricity fraction of the total energy output, m is the electric plant efficiency and n is the steam generator efficiency; the heat added per unit total energy output is given by?

- a) $(1 / m) + ((1 - e) / n)$
- b) $(1 / n) + ((1 - e) / m)$
- c) $(1 / m) + ((1 + e) / n)$
- d) $(1 / n) + ((1 - e) / m)$

32. Pass-out turbines are used in which of these cases?

- a) relatively high back pressure
- b) small heating requirement
- c) only relatively low back pressure
- d) both relatively high back pressure and small heating requirement

33. Which of these is not considered economical for cogeneration?

- a) a high fraction of electric to total energy
- b) a low fraction of electric to total energy
- c) a low fraction of total energy to electric energy
- d) none of the mentioned

34. The process of producing energy by utilizing heat trapped inside the earth surface is called _____

- a) Hydrothermal energy
- b) Geo-Thermal energy

- c) Solar energy
- d) Wave energy

35. How much is the average temperature at depth of 10 km of earth surface?

- a) 200°C**
- b) 900°C
- c) 650°C
- d) 20°C

36. What is hot molten rock called?

- a) Lava
- b) Magma**
- c) Igneous rocks
- d) Volcano

37. How many kinds of Geo thermal steams are there?

- a) 2**
- b) 3
- c) 4
- d) 5

38. What does EGS stand for in geothermal energy?

- a) Engraved Geothermal systems
- b) Enhanced geothermal system**
- c) Exhaust gas system
- d) Engineered geo physical system

39. Who invented first geothermal plant?

- a) Michael Faraday
- b) Piero Ginori Conti**
- c) Enrico Fermi
- d) Guglielmo Marconi

40. A geothermal solution containing appreciable amounts of sodium chloride or other salts is called as _____

- a) Fluids
- b) Brine**
- c) Solvent
- d) Magma

41. Earth's outer layer rock is called as _____

- a) Mantle

- b) Crust**
- c) Outer core
- d) Asthenosphere

42. The hole on earth's surface from where the steam from the earth comes out is called as

- _____
- a) Gash
 - b) Mud pot
 - c) Void
 - d) Fumarole**

43. A spring that shoots jets of hot water and steam into the air is called as _____

- a) Mine hole
- b) Geyser**
- c) Hot spring
- d) Mud pot

44. Which kind geothermal plant is most common type?

- a) Dry steam
- b) Flash**
- c) Binary
- d) Wet steam

45. How much is the efficiency of geothermal plant?

- a) 28%
- b) 15%**
- c) 42%
- d) 30%

46. The geothermal energy is the _____ from the earth.

- a) Heat**
- b) Light
- c) Photons
- d) Protons

47. The hot water from the ground is used to _____

- a) Turn turbines**
- b) Heat water
- c) Heat turbines
- d) Heat machinery

48. Dry steam geothermal energy generator takes steam out of _____ in the ground.

- a) Fractures**

- b) Rocks
- c) Magma
- d) Water

49. Flash geothermal power plants turns the high pressure hot water into _____

- a) Low pressure hot water
- b) Low pressure cool water**
- c) High pressure hot water
- d) High pressure hot water

50. The hot water is sent into the _____

- a) Pipe
- b) Vapour
- c) Valve
- d) Heat exchanger**

51. The _____ is used to turn the power into AC.

- a) Turbine
- b) Heat exchanger
- c) Synchronous generator**
- d) Valve

52. The cooling water is again sent into _____

- a) Valve
- b) Heat exchanger
- c) Turbine
- d) Condenser**

53. Which of the following is the correct equation for the electrical power generated by the hydroelectric power plant?

- a) $75 \times 0.736 wQH\eta$ Watt
- b) $(7.5/0.736) \times wQH\eta$ Watt
- c) $0.845 \times wQH\eta$ Watt**
- d) $9.81 \times wQH\eta$

54. Which of the following is not a requirement for site selection of hydroelectric power plant?

- a) Availability of water
- b) Large catchment area
- c) Rocky land
- d) Sedimentation**

55. The amount of electrical energy that can be generated by a hydroelectric power plant depends upon _____

- a) Head of water
- b) Quantity of water**
- c) Specific weight of water
- d) Efficiency of Alternator

56. Potential energy of water is used to drive the turbine.

- a) True
- b) False**

57. Hydroelectric power plant is _____

- a) Non-renewable source of energy
- b) Conventional source of energy**
- c) Non-conventional source of energy
- d) Continuous source of energy

58. Hydroelectric power plant is generally located near load centre.

- a) True
- b) False**

59. Hydroelectric power plant is mainly located in _____

- a) Flat areas
- b) Deserts
- c) Hilly areas**
- d) Deltas

60. Which of the following is not an advantage of hydroelectric power plant?

- a) no fuel requirement
- b) low running cost
- c) continuous power source**
- d) no standby losses

61. Which of the following statement is true about hydroelectric power plant?

- a) Hydroelectric power plants are multipurpose.**
- b) Due to non-uniform flow of water frequency control in such plants is very difficult.
- c) Hydroelectric power plant has high running cost
- d) Water is used as fuel in hydroelectric power plant