

Laxminarayan Institute of Technology, Nagpur

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

Subject: Renewable Energy Sources Question Samples (6th Sem B.Tech CE)

1. Which of the following energy has the greatest potential among all the sources of renewable energy?
 - A. Solar energy
 - B. Wind energy
 - C. Thermal energy
 - D. Hydro-electrical energy

2. What is the rate of solar energy reaching the earth's surface?
 - A. 1026 W
 - B. 865 W
 - C. 1016 W
 - D. 1020 W

3. What is the total amount of solar energy received by earth and the atmosphere?
 - A. 12.8×10^{24} J/Year
 - B. 2.8×10^{24} J/Year
 - C. 22.8×10^{24} J/Year
 - D. 3.8×10^{24} J/Year

4. Which is the most common source of energy from which electricity is produced?
 - A. Hydroelectricity
 - B. Wind energy
 - C. Coal
 - D. Solar energy

5. In what form is solar energy is radiated from the sun?
 - A. Ultraviolet Radiation
 - B. Electromagnetic waves
 - C. Infrared radiation
 - D. Transverse waves

6. Solar radiation includes
 - A. Visible light, ultraviolet light
 - B. Infrared, radio waves
 - C. X-rays, and gamma rays
 - D. All of the above

7. A pyranometer is used for measurement of
 - A. Direct as well as diffuse radiation
 - B. Direct radiation only
 - C. Diffuse radiation only
 - D. None of the above

8. The complement of the zenith angle is
 - A. Solar altitude angle
 - B. Surface azimuth angle
 - C. Solar azimuth angle
 - D. Slope

9. What does Heating and cooling of the atmosphere generates?
 - A. Thermo line circulation
 - B. Radiation currents
 - C. Convection currents
 - D. Conduction currents

10. How much is the energy available in the winds over the earth surface is estimated to be?
 - A. 2.9×10^{12} MW
 - B. 1.6×10^7 MW
 - C. 1 MW
 - D. 5MW

11. How much wind power does India hold?
 - A. 20,000 MW
 - B. 12,000 MW
 - C. 140,000 MW
 - D. 5000 MW

12. What is the main source for the formation of wind?
 - A. Uneven land
 - B. Sun
 - C. Vegetation

D. Seasons

13. What happens when the land near the earth's equator is heated?

- A. All the oceans get heated up
- B. Small wind currents are formed
- C. Rise in tides
- D. Large atmospheric winds are created

14. How much power does the small scale wind machine generate?

- A. 18 KW
- B. 2 KW
- C. 12 KW
- D. 30 KW

15. On what does the selection of supporting structure depend?

- A. Length of blades
- B. Rotating capacity
- C. Capacity of generator
- D. Transmission systems

16. Calculate the air density, when 10m/s wind is at 1st atmospheric pressure and 15°C?

- A. 1.226 kg/m³
- B. 1.033 kg/m³
- C. 2.108 kg/m³
- D. 0.922 kg/m³

17. What does heating and cooling of the atmosphere generate?

- A. Thermo line circulation
- B. Radiation currents
- C. Convection currents
- D. Conduction currents

18. Which country created wind mills?

- A. Egypt
- B. Mongolia
- C. Iran
- D. Japan

19. What are wind energy conversion systems designed for?

- A. To convert wind energy to mechanical energy

- B. To convert wind energy to potential energy
 - C. To convert wind energy to electrical energy
 - D. To convert mechanical energy to wind energy
20. What are the two types of gear boxes used in wind turbine?
- A. VAWT and HAWT
 - B. Differential
 - C. Parallel shaft and planetary shaft
 - D. Manual transmission
21. What type of plant is a floating gas holder plant?
- A. Batch plant
 - B. Continuous plant
 - C. Semi-batch plant
 - D. Semi-continuous plant
22. For how much percent is biogas normally designed to hold?
- A. 35%
 - B. 20%
 - C. 50%
 - D. 80%
23. Where was the fixed dome concept plant developed?
- A. China
 - B. America
 - C. India
 - D. Japan
24. Indian fixed dome digesters are designed for holding what pressure capacity?
- A. 0 – 90 cm of water column
 - B. 70 – 90 cm of water column
 - C. 50 – 65 cm of water column
 - D. 10 – 25 cm of water column
25. What is the main advantage of a flexible bag plant?
- A. The fabrication can be centralized for mass production
 - B. It has highest gas storage capacity

- C. It is portable from place to place
- D. Easy to understand and work on it

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

- A. Biomass
- B. Bio-fuels
- C. Synthetic fuels
- D. Metal articles

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

- A. 99%
- B. 99.2%
- C. 99.4%
- D. 99.7%

28. Oil is estimated to last for _____ more.

- A. 100 years
- B. 500 years
- C. A decade
- D. 800 years

29. The term biomass most often refers to _____

- A. Inorganic matter
- B. Organic matter
- C. Chemicals
- D. Ammonium compounds

30. 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

31. Which of the following forestry materials can be used as biomass?

- A. Logging residues
- B. Tallow
- C. Fish oil
- D. Manure

32. Which part of the KVIC is made of a mixture of cement concrete and brick ballast?
- (a) Foundation
 - (b) Digester
 - (c) Gas holder
 - (d) Inlet and outlet pipe
33. Biomass is useful to produce _____
- (a) chemicals
 - (b) fibers
 - (c) biochemicals
 - (d) transportation fuels
34. _____ is called as the bio gas.
- (a) Bioethanol
 - (b) Biomethane
 - (c) Biodiesel
 - (d) Biobutanol
35. Gas production of the continuous plant is higher than which of the following plant?
- (a) Batch plant
 - (b) Dome plant
 - (c) Drum plant
 - (d) Flexible gas biogas plant
36. The fixed dome biogas plant is best suitable for which type of plant?
- (a) Continuous type
 - (b) Batch type
 - (c) Semi-batch type
 - (d) Semi-continuous type
37. Which plant digester is fabricated by using a rubber?
- (a) Flexible Bag biogas plant
 - (b) Fixed dome biogas plant
 - (c) Floating drum biogas plant

(d) Khadi and village industries type biogas plant

38. Which type of plant is portable?

- (a) Flexible bag biogas plant
- (b) Fixed dome biogas plant
- (c) Floating drum biogas plant
- (d) Khadi and village industries type biogas plant

39. In which type of plant the weight needs to be added on top to build the desired pressure?

- (a) Flexible bag biogas plant
- (b) Fixed dome biogas plant
- (c) Floating drum biogas plant
- (d) Khadi and village industries type biogas plant

40. To make transport fuel the bio ethanol is blended with _____.

- (a) diesel
- (b) petrol
- (c) oil
- (d) kerosene

41. What is the rate of solar energy reaching the earth surface?

- A. 1016W
- B. 865W
- C. 2854W
- D. 1912W

42. What is total amount of solar energy received by earth and atmosphere?

- A. 3.8×10^{24} J/year
- B. 9.2×10^{24} J/year
- C. 5.4×10^{24} J/year
- D. 2.1×10^{24} J/year

43. Solar radiation which reaches the surface without scattering or absorbed is called _____

- A. Beam Radiation

- B. Infrared radiation
- C. Ultraviolet radiation
- D. Diffuse radiation

44. The scattered solar radiation is called _____

- A. Direct Radiation
- B. Beam Radiation
- C. Diffuse radiation
- D. Infrared Radiation

45. Why is a transparent cover used in a flat plate collector?

- A. To maximize transmission of the incident sunlight into the box
- B. To minimize transmission of the incident sunlight into the box
- C. To entirely reflect the incident sunlight back
- D. To ensure partial transmission of the incident sunlight into the box

46. Which of the following is generally used as circulating fluid in tropical and sub-tropical climates?

- A. A mixture of ethylene glycol and water
- B. Water
- C. A mixture of propylene glycol and water
- D. Glycerol

47. Which of the following is generally used as circulating fluid in freezing climates?

- A. Liquid carbon dioxide
- B. Water
- C. A mixture of propylene glycol and water
- D. Liquid nitrogen

48. What would happen if the sun's radiation reaches the earth's surface without depletion?

- A. Life would cease to exist
- B. Life would be more vibrant
- C. The earth's average global temperature would become stable
- D. The average global temperature of earth would decrease

49. Which of the following plays a role in depletion of incoming solar radiation?

- A. Irradiance of the incoming solar radiation
- B. Dispersion

C. Solar flares

D. Nuclear fusion in sun

50. What is the inclination of earth's axis in degrees?

A. 37

B. 53

C. 23.5

D. 10