SECOND YEAR (SEM. III)

RENEWABLE ENERGY SOURCES

(2) There are total 50 questions in this paper. All are compulsory.

(3) All questions carry one mark, 0.25 mark will be deducted for a wrong answer.

(4) Figures to the right indicates full marks of the question.

O.M.R. Sheet अस्पष्ट अस्पष्टी अस्पष्टी सूचनाओ अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी अस्पष्टी
1. What is meant by solar constant ($S$)?
   (A) Total solar energy
   (B) Rate of solar energy flux
   (C) Solar energy flux
   (D) Solar energy rate

2. What is one form of wind energy, actually?
   (A) Electric energy
   (B) Hydro-electric energy
   (C) Geo-thermal energy
   (D) Solar energy

3. 1 Megawatt = _______ Watt.
    1 Megawatt = _______ Watt.
    (A) $10^6$
    (B) $10^{-3}$
    (C) $10^{-6}$
    (D) $10^3$

4. 1 horse power = _______ Watt.
    1 horse power = _______ Watt.
    (A) 726
    (B) 716
    (C) 746
    (D) 736
5 Wind energy is caused by?

(A) gravitational force of the sun

(B) solar energy

(C) wind

(D) atmospheric pressure

What is the cause of wind energy?

(A) gravitation of earth

(B) Heat of sun

(C) Moon

(D) Atmosphere of earth

6 How much is the theoretical working efficiency of windmill?

(A) 0.5393

(B) 0.593

(C) 0.583

(D) 0.589

7 In which village of Gujarat was the biggest wind farm of Asia dedicated to Nation having capacity of 10 MW?

(A) Lamba

(B) None of these

(C) Okha

(D) Veraval
8 Which device converts solar energy into electric energy directly?

(A) Fuel cell
(B) Heat pump
(C) Microphone
(D) Solar cell

9 In windmill wind energy converts into which energy?

(A) Electric energy
(B) Chemical energy
(C) Potential energy
(D) Heat energy

10 The first geo-thermal power station of world belongs to which country?

(A) India
(B) America
(C) Japan
(D) Italy
11 The maximum potential energy obtained by tides $E_{\text{max}} = \ldots$
(A) $2\rho AgR^2$
(B) $\frac{1}{4}\rho AgR^2$
(C) $\rho AgR^2$
(D) $\frac{1}{2}\rho AgR^2$

12 What type of blades should be of windmill to get more wind energy ?
(A) Thick
(B) Thin
(C) Long
(D) Short

13 In thermal collectors which radiation is emitted ?
(A) Infra-red
(B) All types
(C) Ultra-violet
(D) Visible light

14 In hydro-electric production plant kinetic energy is converted into which energy ?
(A) Wind energy
(B) Mechanical energy
(C) Electric energy
(D) Potential energy

DF-3041_C | 5 [ Contd...]
15. How much percentage of geo-thermal energy coming out from the earth in form of volcano and hot water spring?
(A) Approximately 0.01%
(B) Approximately 10%
(C) Approximately 1%
(D) Approximately 0.1%

16. State the continuous energy source.
(A) Moon
(B) Wind
(C) Sun
(D) Sea

17. In which form the solar energy is reflected from the surface of the earth?
(A) Infra-red radiation
(B) All types of radiation
(C) Visible light radiation
(D) Ultra-violet radiation
18. Which of the following is not a renewable energy source?  
(A) Nuclear energy  
(B) Solar energy  
(C) Geothermal energy  
(D) Hydro energy  

From the given below which energy source is not continuous energy source?  
(A) Electric energy  
(B) Solar energy  
(C) Geo-thermal  
(D) Hydro energy

19. The real energy obtained by windmill \( P_{\text{real}} \) = _______.  
\[ \frac{1}{27} \rho r^3 V_f^3 \]  
(A) \( \frac{4}{27} \pi r^3 V_f^3 \)  
(B) \( \frac{1}{27} \pi r^3 V_f^3 \)  
(C) \( \frac{2}{27} \pi r^3 V_f^3 \)  
(D) \( \pi r^3 V_f^3 \)

20. How many energy is associated per unit volume of Magma, in kilocalory/kilometer\(^3\) ?  
(A) \( 8 \times 10^4 \)  
(B) \( 8 \times 10^5 \)  
(C) \( 8 \times 10^2 \)  
(D) \( 8 \times 10^3 \)  

DF-3041_C ] 7  [ Contd...
21 Which day was celebrated as solar energy day?
(A) 3 June, 1982
(B) 3 May, 1982
(C) 3 August, 1982
(D) 3 January, 1982

22 The geo-thermal power plant does not produces _______.
(A) Heat
(B) Pressure
(C) Pollution
(D) Noise

23 If the rate of fall of water is 500 kg/second from the 100 metre height of a dam, then calculate the potential energy stored in water = ________ Joule/Second.
(A) $4.9 \times 10^4$
(B) $490 \times 10^4$
(C) $0.49 \times 10^4$
(D) $49 \times 10^4$

24 The unit of potential energy = ________.
(A) Joule/second
(B) Volt/second
(C) Newton/second
(D) Watt/second
25. The kinetic energy in wind is converted into which form of energy by windmill?
   (A) Mechanical energy
   (B) Chemical energy
   (C) Potential energy
   (D) Heat energy

26. If the maximum power of windmill is \( P_{\text{max}} = 120 \text{ kW} \) then what will be its real power \( P_{\text{real}} \)?
   (A) 60 kW
   (B) 0.06 kW
   (C) 0.6 kW
   (D) 6 kW

27. The photosynthesis is ________ solar energy.
   (A) Indirect
   (B) None of these
   (C) Direct
   (D) Direct and Indirect
28 1 atomic mass unit = ________ kilogram.

(A) 166 × 10^{-27}
(B) 0.166 × 10^{-27}
(C) 1.66 × 10^{-27}
(D) 16.6 × 10^{-27}

29 Which company of Vadodara has done experiments of windmill at various places, in Saurashtra?

(A) Enarcon Ltd.
(B) Wind Electric Ltd.
(C) Jyoti Ltd.
(D) Suzlon Ltd.

30 The density of water = ________ kilogram/meter^3.

(A) 1.025 × 10^2
(B) 3.00 × 10^3
(C) 1.025 × 10^3
(D) 2.025 × 10^3
31 The primary source of energy for living organisms on Earth is
(A) Sun
(B) Sea
(C) Coal
(D) Moon

State the necessary fundamental energy source for the existence of living organism on earth.
(A) Sun
(B) Sea
(C) Coal
(D) Moon

32 In photosynthesis process, the solar radiation energy is converted into which
energy?
(A) Chemical energy
(B) Mechanical energy
(C) Electrical energy
(D) Heat energy

33 The real energy generated by windmill depends upon _____ of wind.
(A) Pressure
(B) Volume
(C) Temperature
(D) Velocity
34. State the unit of energy.
   (A) Newton
   (B) Joule
   (C) Watt
   (D) Volt

35. State the full form of GEDA.
   (A) Gujarat Energy Development Association
   (B) Gujarat Electric Development Agency
   (C) Gujarat Energy Development Agency
   (D) Gujarat Electric Energy Development Agency

36. In hydro-electric production plant potential energy is converted into _______ energy.
   (A) Chemical energy
   (B) Mechanical energy
   (C) Heat energy
   (D) Kinetic energy
37. What is the shape of plate of focusing collector?
   (A) Plane  
   (B) Spherical  
   (C) Circular  
   (D) Parabolic

38. What type of renewable energy is?
   (A) Increasing CO₂  
   (B) None of these  
   (C) Without pollution  
   (D) With pollution

39. Which type of collectors are used in Solar Cooker?
   (A) Flat plate collector  
   (B) None of these  
   (C) Solar radiation plate  
   (D) Focusing collector

40. The unit of power = ________.
   (A) Joule  
   (B) Erg  
   (C) Watt  
   (D) Volt
41 Which type of system is developed to obtain geo-thermal energy in Russia?
(A) Dry vapour of temperature less than 125°C
(B) Dry vapour of temperature greater than 125°C
(C) Wet vapour of temperature less than 125°C
(D) Wet vapour of temperature greater than 125°C

42 The hydro-electric energy is _______ solar energy.
(A) Simple
(B) None of these
(C) Direct
(D) Indirect

43 In which form of a small part of geo-thermal energy coming out of the earth?
(A) Stone and soil
(B) None of these
(C) Volcano and hot water spring
(D) Lava and hot gas
44 \[ 1 \text{ erg} = \underline{\text{ ? }} \text{ Joule.} \]
1 erg = \underline{\text{ ? }} Joule.
(A) \(10^5\)
(B) \(10^{-5}\)
(C) \(10^7\)
(D) \(10^{-7}\)

45 Which energy is renewable energy?
(A) Fossil energy
(B) Chemical energy
(C) Hydro-electric
(D) Nuclear energy

46 Write full form of BARC.
(A) Bhabha Atomic Revise Centre
(B) None of these
(C) Bhabha Atomic Research Centre
(D) Bhabha Auto Research Company

47 The energy obtain by tides is ______ form of solar energy.
(A) Simple
(B) None of these
(C) Direct
(D) Indirect
48. In 1954 in U.S.A., the first solar cell was made from which metal?

(A) Conducting metal
(B) Non-conducting metal
(C) Germanium
(D) Silicon

49. The energy obtained by tides is ______.

(A) Bad
(B) Good
(C) Continuous
(D) Indefinite

50. What is the work done in Joule by 2 kWh motor in one hour?

(A) $0.72 \times 10^5$
(B) $72 \times 10^{-5}$
(C) $72 \times 10^5$
(D) $7.2 \times 10^5$