RENEWABLE ENERGY: 100 PRACTICE MCQs

Environmental Issues, Energy Conservation & Renewable Energy
For Government Job Examinations (WBCS, WBPSC Miscellaneous, SSC, Railway, Banking, Police, Primary TET, Panchayat and others)

Q1. Which gas released by burning fossil fuels is mainly responsible for global warming?

(A) Oxygen
(B) Argon
(C) Nitrogen
(D) Carbon dioxide

Q2. Sustainable Development Goal 7 deals with:

(A) Zero hunger
(B) Quality education
(C) Affordable and clean energy
(D) Clean water and sanitation

Q3. The nodal ministry for renewable energy development in India is:

(A) Ministry of Power
(B) Ministry of Coal
(C) Ministry of New and Renewable Energy
(D) Ministry of Petroleum and Natural Gas

Q4. The Indian Renewable Energy Development Agency (IREDA) was established in:

(A) 2007
(B) 1987
(C) 1977
(D) 1997

Q5. SECI stands for:

(A) State Energy Commission of India
(B) Solar Electric Company of India
(C) Solar Energy Corporation of India
(D) Sustainable Energy Council of India

Q6. The National Institute of Solar Energy (NISE) is located at:

(A) Gurugram
(B) Hyderabad
(C) Chennai
(D) Kapurthala

Q7. The National Institute of Bio-Energy (NIBE) is located at:

(A) Pune
(B) Kapurthala
(C) Chennai
(D) Gurugram

Q8. India announced its 'Panchamrit' climate targets at COP26 held in:

(A) Dubai
(B) Kyoto
(C) Paris
(D) Glasgow

Q9. Under Panchamrit, India aims for how much non-fossil energy capacity by 2030?

(A) 175 GW
(B) 100 GW
(C) 500 GW
(D) 250 GW

Q10. The solar constant is approximately:

(A) 0.137 kW/m^2
(B) 1.37 kW/m^2
(C) 13.7 W/m^2
(D) 137 kW/m^2

Q11. A single silicon solar cell produces a voltage of about:

(A) 230 V
(B) 12 V
(C) 0.5 to 0.6 V
(D) 24 V

Q12. Connecting solar cells in series mainly increases the:

(A) Current
(B) Voltage
(C) Area of each cell
(D) Band gap

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Q13. Connecting solar cells in parallel mainly increases the:

(A) Band gap
(B) Voltage
(C) Resistance
(D) Current

Q14. The rating of a solar PV panel is expressed in:

(A) Ampere-hour
(B) Joule
(C) kVA
(D) Watt-peak (Wp)

Q15. When the temperature of a solar cell rises, its efficiency generally:

(A) Increases
(B) Remains unchanged
(C) Decreases
(D) Doubles

Q16. Which type of commercial solar cell generally has the highest efficiency?

(A) Monocrystalline silicon
(B) Organic cell
(C) Polycrystalline silicon
(D) Amorphous silicon thin film

Q17. The charge controller in a solar PV system is used to:

(A) Protect the battery from overcharging
(B) Concentrate sunlight
(C) Convert DC into AC
(D) Measure wind speed

Q18. Net metering allows a rooftop solar consumer to:

(A) Avoid all electricity bills
(B) Export surplus electricity to the grid and get credit
(C) Convert AC into DC
(D) Store power only in batteries

Q19. The world's first fully solar-powered airport is:

(A) Mumbai Airport
(B) Kolkata Airport
(C) Cochin International Airport
(D) Delhi Airport

Q20. Modhera, India's first 24x7 solar-powered village, is in:

(A) Gujarat
(B) Rajasthan
(C) Punjab
(D) Kerala

Q21. PM-KUSUM scheme was launched in:

(A) 2010
(B) 2019
(C) 2022
(D) 2015

Q22. The flat plate solar collector works on the principle of:

(A) Photoelectric effect
(B) Greenhouse effect
(C) Electromagnetic induction
(D) Piezoelectric effect

Q23. The most commercially mature concentrating solar power technology is:

(A) Solar tower
(B) Solar pond
(C) Parabolic dish
(D) Parabolic trough

Q24. A parabolic dish collector focuses sunlight on:

(A) A flat plate
(B) A line
(C) A single point
(D) A whole field uniformly

Q25. An evacuated tube collector has low heat loss because of:

(A) A vacuum layer
(B) A thick metal casing
(C) A fan
(D) A mirror

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Q26. A solar still is used to:

(A) Generate AC power
(B) Obtain pure water from saline water
(C) Dry grains only
(D) Cook food

Q27. In a thermosiphon solar water heater, water circulates by:

(A) Wind
(B) Natural convection
(C) A mechanical pump
(D) Gravity pump of a turbine

Q28. A selective coating on an absorber plate has:

(A) Low absorptance and high emittance
(B) High absorptance and low emittance
(C) High reflectance
(D) Low absorptance and low emittance

Q29. Wind is caused mainly by:

(A) Ocean tides
(B) Volcanic eruptions
(C) Rotation of the Moon
(D) Uneven heating of the Earth's surface

Q30. If the wind speed doubles, the available wind power becomes:

(A) 2 times
(B) 16 times
(C) 4 times
(D) 8 times

Q31. The Betz limit expressed as a fraction is:

(A) 1/2
(B) 2/3
(C) 16/27
(D) 8/27

Q32. The gearbox of a wind turbine is used to:

(A) Decrease the generator speed
(B) Measure wind direction
(C) Increase the rotational speed for the generator
(D) Store energy

Q33. The gearbox and generator of a wind turbine are housed in the:

(A) Nacelle
(B) Foundation
(C) Hub only
(D) Tower

Q34. The yaw mechanism of a wind turbine:

(A) Cools the generator
(B) Applies the brake
(C) Turns the nacelle to face the wind
(D) Stores energy

Q35. The typical cut-out wind speed of a wind turbine is about:

(A) 3 m/s
(B) 25 m/s
(C) 12 m/s
(D) 50 m/s

Q36. A horizontal axis wind turbine has its main shaft:

(A) Perpendicular to the ground
(B) Underwater
(C) Vertical
(D) Parallel to the ground

Q37. A major advantage of a vertical axis wind turbine is that it:

(A) Accepts wind from any direction
(B) Has the highest efficiency
(C) Needs no foundation
(D) Needs a very tall tower

Q38. Global Wind Day is celebrated on:

(A) 5 June
(B) 15 June
(C) 22 April
(D) 10 August

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Q39. India's National Offshore Wind Energy Policy was notified in:

(A) 2015 (B) 2022
(C) 2005 (D) 2010

Q40. Muppandal wind farm is near:

(A) Digha (B) Kanyakumari
(C) Pune (D) Jaisalmer

Q41. The Jaisalmer Wind Park is located in:

(A) Rajasthan (B) Maharashtra
(C) Gujarat (D) Kerala

Q42. The instrument used to measure wind direction is the:

(A) Anemometer (B) Wind vane
(C) Barometer (D) Pyranometer

Q43. The instrument used to measure solar radiation is the:

(A) Ammeter (B) Anemometer
(C) Pyranometer (D) Hygrometer

Q44. The pipe that carries water from the reservoir to the turbine in a hydropower plant is called:

(A) Penstock (B) Surge tank
(C) Spillway (D) Tailrace

Q45. The Pelton wheel is a(n):

(A) Impulse turbine (B) Reaction turbine
(C) Propeller turbine (D) Gas turbine

Q46. The Francis turbine is a reaction turbine used for:

(A) Tidal streams only (B) Very low head only
(C) Very high head only (D) Medium head

Q47. The Pelton wheel was invented by:

(A) Lester Pelton (B) James B. Francis
(C) Viktor Kaplan (D) Thomas Edison

Q48. A run-of-river hydropower plant has:

(A) A very large reservoir (B) No turbine
(C) Little or no water storage (D) A pumped upper reservoir only

Q49. A pumped storage plant works like a:

(A) Giant battery (B) Solar cell
(C) Boiler (D) Wind pump

Q50. A micro hydropower plant in India is one with a capacity of up to:

(A) 1 MW (B) 5 MW
(C) 25 MW (D) 100 kW

Q51. India's total hydropower potential is approximately:

(A) 45,000 MW (B) 5 lakh MW
(C) 10,000 MW (D) 1.45 lakh MW

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Q52. The Indian state with the highest hydropower potential is:

(A) Arunachal Pradesh (B) West Bengal
(C) Kerala (D) Punjab

Q53. The Bhakra Nangal Dam is built on the river:

(A) Ravi (B) Beas
(C) Yamuna (D) Satluj

Q54. The Hirakud Dam is built on the river:

(A) Godavari (B) Damodar
(C) Mahanadi (D) Krishna

Q55. The Sardar Sarovar Dam is built on the river:

(A) Narmada (B) Tapi
(C) Ganga (D) Cauvery

Q56. Large hydropower projects were officially recognised as renewable energy in India in:

(A) 2006 (B) 2015
(C) 2019 (D) 2010

Q57. In the formula P = (efficiency) x (density) x g x Q x H, the symbol Q stands for:

(A) Head (B) Power
(C) Water discharge (flow rate) (D) Heat

Q58. A common environmental drawback of large dams is:

(A) Emission of large amounts of CO_2 during generation (B) Acid rain
(C) Displacement of people and loss of forest (D) Production of ash

Q59. Which of the following is a source of biomass energy?

(A) Uranium (B) Wind
(C) Tides (D) Rice husk

Q60. Pyrolysis of biomass takes place:

(A) In excess oxygen (B) Only underwater
(C) In the absence of oxygen (D) Only at room temperature

Q61. The main combustible components of producer gas are:

(A) Sulphur dioxide and CO_2 (B) Oxygen and nitrogen
(C) Carbon monoxide and hydrogen (D) Argon and helium

Q62. Glycerol is a by-product of the production of:

(A) Ethanol (B) Biogas
(C) Producer gas (D) Biodiesel

Q63. Jatropha and Pongamia are important sources of:

(A) Ethanol only (B) Geothermal heat
(C) Biogas only (D) Biodiesel

Q64. The PM JI-VAN Yojana supports:

(A) Second-generation (2G) ethanol production (B) Wind farms
(C) Solar pumps (D) Small hydro

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Q65. The SATAT scheme promotes the production of:

(A) Compressed Bio-Gas (CBG) (B) Wind turbines
(C) Solar panels (D) Geothermal wells

Q66. The Global Biofuels Alliance was launched at the G20 Summit held in:

(A) Osaka, 2019 (B) Rome, 2021
(C) New Delhi, 2023 (D) Bali, 2022

Q67. The National Policy on Biofuels was approved in:

(A) 2018 (B) 2008
(C) 2022 (D) 2014

Q68. Biofuels made from algae are classified as:

(A) Third generation (B) Second generation
(C) First generation (D) Fossil

Q69. E20 petrol means petrol blended with:

(A) 20% methanol (B) 20% ethanol
(C) 20% biodiesel (D) 20% water

Q70. Biomass pellets are being used in coal power plants for:

(A) Transmission (B) Co-firing
(C) Desalination (D) Cooling

Q71. Anaerobic digestion occurs in the absence of:

(A) Water (B) Carbon
(C) Oxygen (D) Bacteria

Q72. Biogas burns with a:

(A) Red flame (B) Blue flame
(C) Yellow smoky flame (D) Green flame

Q73. The ideal temperature range for biogas production (mesophilic) is:

(A) 60 to 80 °C (B) 100 to 120 °C
(C) 0 to 10 °C (D) 30 to 40 °C

Q74. The ideal pH range for a biogas digester is:

(A) 1 to 3 (B) 10 to 12
(C) 3 to 5 (D) 6.8 to 7.2

Q75. The ideal C:N ratio in a biogas digester is about:

(A) 25 to 30 : 1 (B) 5 : 1
(C) 1 : 1 (D) 100 : 1

Q76. The digested slurry from a biogas plant is used as:

(A) Cement (B) Coolant
(C) Rocket fuel (D) Organic manure

Q77. Which gas in raw biogas is toxic and corrosive and is removed in purification?

(A) Nitrogen (B) Hydrogen sulphide
(C) Methane (D) Argon

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Q78. Compressed Bio-Gas (CBG) is:

(A) Producer gas
(B) Raw biogas with CO_2
(C) Purified and compressed biogas
(D) Liquid petroleum gas

Q79. The Janata model biogas plant is based on which design?

(A) Balloon
(B) Chinese fixed dome
(C) Japanese tank
(D) Floating drum

Q80. The Deenbandhu biogas model was introduced in:

(A) 1962
(B) 1984
(C) 2018
(D) 1950

Q81. In GOBAR-Dhan, the word GOBAR stands for:

(A) Green Organic Biomass And Residue
(B) Galvanizing Organic Bio-Agro Resources
(C) General Organic Biogas And Renewables
(D) Gas Output By Animal Residue

Q82. The average geothermal gradient is about:

(A) 25 to 30 °C per km
(B) 500 °C per km
(C) 1 °C per km
(D) 100 °C per km

Q83. The first geothermal power generation (1904) took place at:

(A) The Geysers, USA
(B) Larderello, Italy
(C) Reykjavik, Iceland
(D) Manila, Philippines

Q84. A binary cycle geothermal plant uses:

(A) A secondary fluid with a low boiling point
(B) Only natural dry steam
(C) Solar mirrors
(D) Only molten rock directly

Q85. The Geysers, a famous dry steam geothermal field, is in:

(A) Iceland
(B) Kenya
(C) Italy
(D) California, USA

Q86. Manikaran geothermal site is in:

(A) Chhattisgarh
(B) Ladakh
(C) Himachal Pradesh
(D) Maharashtra

Q87. Tattapani geothermal site is in:

(A) Chhattisgarh
(B) Jharkhand
(C) Himachal Pradesh
(D) Gujarat

Q88. Which country heats most of its homes using geothermal energy?

(A) Nepal
(B) Brazil
(C) Iceland
(D) Egypt

Q89. Spring tides occur during:

(A) Monsoon only
(B) New moon and full moon
(C) Solar eclipse only
(D) First and third quarter moon only

Q90. Neap tides occur when the Moon is in its:

(A) New moon phase
(B) Eclipse
(C) Full moon phase
(D) First and third quarters

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Q91. La Rance tidal power station is in:

(A) Russia (B) Canada
(C) South Korea (D) France

Q92. Sihwa Lake tidal power station is in:

(A) China (B) Japan
(C) India (D) South Korea

Q93. The Bay of Fundy, known for the highest tides in the world, is in:

(A) Australia (B) India
(C) Norway (D) Canada

Q94. The first experimental tidal power station (1968) was Kislaya Guba in:

(A) USA (B) Canada
(C) France (D) Russia

Q95. OTEC uses the temperature difference between:

(A) Day and night air (B) Warm surface water and cold deep water
(C) Sun and Moon (D) Hot springs and rivers

Q96. The proposed 3.75 MW tidal project at Durgaduani Creek is in:

(A) Sundarbans, West Bengal (B) Gulf of Kutch
(C) Gulf of Khambhat (D) Lakshadweep

Q97. Underwater turbines placed in fast tidal currents without a dam are called:

(A) Dynamic tidal power (B) Tidal stream turbines
(C) Tidal barrage (D) Tidal lagoon

Q98. The estimated tidal energy potential of the Gulf of Kutch is about:

(A) 7,000 MW (B) 20,000 MW
(C) 1,200 MW (D) 100 MW

Q99. An important advantage of renewable energy over fossil fuels is:

(A) Very low greenhouse gas emissions (B) Constant output in all weather
(C) Lower initial cost always (D) Needs no land

Q100. The geothermal energy is called a base-load source because it:

(A) Works only in summer (B) Depends on wind
(C) Needs sunlight (D) Is available day and night

Answer Key

1 - D	**2** - C	**3** - C	**4** - B	**5** - C
6 - A	**7** - B	**8** - D	**9** - C	**10** - B
11 - C	**12** - B	**13** - D	**14** - D	**15** - C
16 - A	**17** - A	**18** - B	**19** - C	**20** - A
21 - B	**22** - B	**23** - D	**24** - C	**25** - A
26 - B	**27** - B	**28** - B	**29** - D	**30** - D
31 - C	**32** - C	**33** - A	**34** - C	**35** - B

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36 - D	**37** - A	**38** - B	**39** - A	**40** - B
41 - A	**42** - B	**43** - C	**44** - A	**45** - A
46 - D	**47** - A	**48** - C	**49** - A	**50** - D
51 - D	**52** - A	**53** - D	**54** - C	**55** - A
56 - C	**57** - C	**58** - C	**59** - D	**60** - C
61 - C	**62** - D	**63** - D	**64** - A	**65** - A
66 - C	**67** - A	**68** - A	**69** - B	**70** - B
71 - C	**72** - B	**73** - D	**74** - D	**75** - A
76 - D	**77** - B	**78** - C	**79** - B	**80** - B
81 - B	**82** - A	**83** - B	**84** - A	**85** - D
86 - C	**87** - A	**88** - C	**89** - B	**90** - D
91 - D	**92** - D	**93** - D	**94** - D	**95** - B
96 - A	**97** - B	**98** - C	**99** - A	**100** - D

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