

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR-517583**QUESTION BANK (OBJECTIVE)**Subject with Code : **Non Conventional Energy Resources(18ME0307)**

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UNIT – I

1. Sox, NO_x, Co, CO₂ and CH₄ etc. presence of these gases in environment in extra amount will cause [C]
A) Acid rain B) Global warming C) A&B D) None
2. The----fuels such as coal, oil and natural gas have been used in industrial world to produce power since 1700's [A]
A) Fossil B) alternative C) Solar D) Bio
3. The ---- cannot be destroyed but transferred to other form with its degradation during Conversion [A]
A) Energy B) Heat C) Thermal D) Force
4. The amount of solar energy striking on the earth's surface gets reflected back by about --- in the form of long wave radiation [B]
A) 20% B) 30% C) 2% D) 100%
5. The distance to travel the radiation is more at latitude than on equator because of [A]
A) Curvature of earth B) Earth rotation C) Declination angle D) None
6. The intensity of the sun's radiation outside the earth's atmosphere is called --- [C]
A) Irradiation B) Terrestrial C) Extraterrestrial D) solar flux
7. At sun set / sunrise the altitude angle is ----- [A]
A) 0° B)23.45° C)100° D)180°
8. Non commercialized resources Ex :---- [C]
A) solar B) anthracite coal C) cow dung D) Plastic
9. --- energy is the conversion of sunlight into electrical energy through a photovoltaic cell [A]
A) Photovoltaic B) solar C) Radiation D) Thermal
10. Earth reflected nearly 30% solar radiation in the form of long wave radiation in the sky— [B]
A) simulation B) albedo C) both D) None
11. The standard longitude of India is [A]
A) 81°54' B) 80°11' C) 88°20' D) 81°44'
12. Which of the following is a non-renewable resource? [A]
A) coal B) Forests C) Water D) Wildlife
13. Reflection percentage of the white body [A]

- A) 100 B) 25 C) 75 D) none
14. The process that converts solid coal into liquid hydrocarbon fuel is called---- [C]
A) Carbonation B) Cracking C) Liquefaction D) none
15. The average value of solar constant is estimated as [A]
A) 1367w/m^2 B) 1367w/km^2 C) 1367w/cm^2 D) 1367w/mm^2
16. The global radiation intercepted at the surface of the earth per unit area of location is called--
A) insolation B) total radiation C) A or B D) none [A]
17. The solar energy is intercepted power by earth at ----- [C]
A) 1.8×10^{11} GW B) 1.8×10^{11} W C) 1.8×10^{11} MW D) 1.8×10^{11} KW
18. Non-conventional energy resources Ex: ---- [A]
A) Solar, wind B) coal, wood C) Plastic, soil D) Petrol, Diesel
19. The sun is like nuclear reactor, which converts the hydrogen into -----through fusion reaction
A) Oxygen B) Helium C) ozone D) Hydrogen [B]
20. The radiation we receive on the earth surface is called the --- [B]
A) Irradiation B) Terrestrial C) Extraterrestrial D) solar flux
21. The sum of beam and diffuse radiation is called ----- [A]
A) Global radiation B) Diffuse radiation C) beam radiation D) none
22. -----radiation received on the earth's surface directly without change in direction [D]
A) Global B) Diffuse C) c D) Beam
23. ----Energy available in various forms i.e wind, hydro, bio and other energy [C]
A) Chemical B) Kinetic C) Solar D) Potential
24. The mean distance between the earth and sun is ---- [A]
A) 1.5×10^8 KM B) 1.5×10^8 M C) 1.5×10^8 CM D) 1.5×10^8 MM
25. The earth's ----- is surrounded by various gases like CH₄, CO₂, NO_x, aerosols H₂O etc.
A) Crust B) Mantle C) atmosphere D) core [C]
26. The maximum declination angle is ----on June 22 [A]
A) 23.45° B) 0° C) 90° D) 180°
27. The movement of air is called---- [A]
A) Wind B) atmosphere C) weather D) cyclone
28. The -----of the sun is the angle between a plane perpendicular to a line between the earth and the sun and the earth's axis [C]
A) azimuthal angle B) zenith angle C) declination D) Solar Constant
29. Sunrise and sunset occur when the sun is at the horizon and hence the cosine of the zenith angle is-- [C]

- A) 45 degrees B) 90 degrees C) zero D) 23.45 degrees
30. -----is that solar radiation received from the sun after its direction has been changed by reflection and scattering by atmosphere [C]
A) Beam Radiation B) Insolation C) Diffuse Radiation D) global Radiation
31. As the sunlight passes through the atmosphere, a large portion of the---- radiation is absorbed and scattered [B]
A) infrared B) UV C) X rays D) None
32. Air Mass(m)=1 when [A]
A) when sun is at zenith B) when zenith angle is 60° C) Sun set D) Sun rise
33. The angle made by the sun rays from vertical line passing through the observer is called--[D]
A) Altitude angle B) Declination angle C) Hour angle D) Zenith angle
34. The---- angle is a beam of light making angle with the surface of the earth. [C]
A) Altitude angle B) earth C) sun D) moon
35. The solar—is the vertical angle between the sun rays and a horizontal surface [B]
A) sun angle B) altitude angle C) Hour angle D) Zenith angle
36. The time interval between two successive passages of sun across the meridian of observer is known as ---length [A]
A) solar day B) moon night C) earth rotation D) Zenith angle
37. A----- is an instrument that measures either the global or the diffuse radiation arriving from the whole hemisphere. [C]
A) Yellot B) Pyrheliometers C) Pyranometer D) all of the above
38. In pyranometer replaceable ---gel cartridge absorbs moisture to prevent dew forming inside on cold nights [B]
A) copper B) silica C) carbon D) silver
39. Which instrument is used for measurement of direct beam solar irradiance? [A]
A) Pyrheliometers B) Pyranometer C) Yellot D) Thermoelectric
40. Inside pyranometer uses a -----to measure solar radiation? [C]
A) Thermocouple B) Pyranometer C) thermopile D) A&C

UNIT – II

1. Conventional energy resources Ex: [B]
A) Solar energy B) Fossil fuels C) Carbohydrates D) Hydrocarbons
2. Non-concentrating collector's concentration ratio is ---- [A]
A) One B) Zero C) <1 D) >1
3. Now a day non-concentrating collector tubes are made of --- [C]
A) Silver B) Clay C) Aluminum D) Plastic
4. Collectors selective surface material like nickel black α =---- [D]
A) 0.89 B) 0.88 C) 0.87 D) 0.15
5. ----- are used to collect the solar energy and convert the incident radiation in the thermal energy [B]
A) solar tubes B) solar collectors C) solar ponds D) solar stills
6. -----collector's area of the absorber is kept less than the aperture through which the radiation passes [B]
A) Flat plate B) concentrating C) both D) None
7. The performance of any thermal system depends on the available ----- [A]
A) Solar radiation B) available space C) collectors size D) type of collector
8. ---transparent cover is suitable for low temperature applications [C]
A) silver B) copper C) plastic D) All of the above
9. In flat plate collectors the absorber plate has –absorption and low reflection [B]
A) average B) High C) Low D) All of the above
10. ---collector which looks like fluorescent lamp and contains several individual glass tubes[D]
A) parabolic B) dis type C) flat plate D) vacuum tube
11. In vacuum tube collectors –minimizes heat loss to the outdoors [A]
A) Vacuum B) insulator C) covering plates D) Copper foil
12. The performance of solar collector depends on the --factors [D]
A) fin efficiency B) collector efficiency C) removal factor D) All of the above
13. Unglazed perforated flat plate collectos most common application is-- [C]
A) power generation B) refrigeration C) crops drying D) All of the above
14. Collector efficiency is depending on [D]
A) Fin Efficiency B) Plate thickness C) Tube Spacing D) All of the above
15. Selective surface material like--- [D]
A) nickel black B) black chrome C) copper oxide D)all of the above
16. The performance of a flat-plate collector depends on [D]

- A) Number of cover plates B) Tilt of collector C) fluid inlet temperature D) All
17. The collection efficiency of ----collector varies from 40 to 60% for a temperature rise of about 15 degree centigrade. [B]
A. Concentration B. Flat plate C. Vacuum tube D. Fresnel
18. --- is Physical property material for flat plate collectors [D]
A. Density B. tensile strength C. Melting point D. All
19. --- plate is blackened in order to absorb maximum amount of sun light in FPC [B]
A. Transparent cover B. Absorber C. Insulation D. All
20. In FPC the heat absorbed by plate is removed by ---- [C]
A. Air B. Water C. fluid D. all
21. In FPC the material for insulation should have ---thermal conductivity [B]
A. Medium B. Low C. High D. None .
22. Concentrating collectors are also known as ---- collectors [C]
A. Helio B. Fresnel C. Focusing D. Non focusing
23. ---- parabolic concentrator is a medium range temperature concentrator [C]
A. Helio B. Fresnel C. Parabolic D. FPC
24. solar panels are used to collect---- [A]
A. Heat B. energy C. Radiation D. electrical energy
25. -----is used directly, as domestic or process hot water, space heating, or in some cases, air conditioning. [A]
A. Solar thermal energy B. Solar cell C. Solar still D. solar collector
26. The resultant composite bright nickel-black chrome coating has high ----- (approximately equal to 0.95) for the incident solar radiation [C]
A. Reflectivity B. Emissivity C. absorptance. D. None
27. Perhaps the most widely used selective surface in thermal collectors is – [A]
A. black chrome. B. Black nickel C. Black copper D. None
28. Heat loss from the panel follows the same three paths, convection, radiation and [A]
A. Conduction B. Reflection C. Air D. None
29. solar energy collector basic performance parameter is --- [A]
A. collector efficiency B. Cost C. absorbance D. None
30. solar collector performance indicates the distribution of -----solar energy into useful energy gain and various losses [A]

- A. Incident B. Beam C. Total D. None
31. ----use a reflective surface of aluminium or silver, deposited on glass or plastic [C]
A. FPC B. VTC C. Concentrators D. None
32. The field of heliostats collect and concentrate solar energy onto a tower mounted --[B]
A. Collector B. Receiver C. Vacuum tubes D. All
33. The ---- completely surround the receiver tower, and the receiver, which is cylindrical, has an exterior heat transfer surface. [A]
A. Heliostats B. Parabolic collector C. Fresnel D. None
34. The parabolic trough system, which concentrates ----onto a receiver pipe located along the focal line of a trough collector [A]
A. solar energy B. Wind energy C. Geothermal energy D. None
35. The parabolic dish system, which uses a tracking dish reflector to concentrate ---onto receiver mounted at the focal point of the dish. [A]
A. Sunlight B. Wind energy C. Geothermal energy D. None
36. The ----shape of evacuated tubes means that they are able to collect sunlight throughout the day [B]
A. Circular B. cylindrical C. Rectangle D. All
37. The vacuum tubes system is an efficient and durable system with the ----- inside the collector tubes [D]
A. Insulator B. Glass C. PVC pipe D. vacuum
38. Metal plates are more prone to freezing in flat plate collectors whereas the ----- plates themselves are freeze tolerant [C]
A. Silver B. copper C. Polymer D. None
39. Any antifreeze that is added to the FPC heat transfer liquid will reduce its --- carrying capacity at a marginal rate [A]
A. Heat B. Pressure C) Temperature D. None
40. The design of FPC solar panel is, overall, slightly less compact and --- efficient when compared with an evacuated tube system [C]
A. More B. Equal C. less D. None

UNIT – III

1. -----an instrument for measuring wind speed [A]
A) Anemometer (B) Hydrometer C) tachometer D) stroboscope
2. Components of a horizontal axis wind turbine are [D]
A) Gear box B) Rotor shaft C) Break assembly D) all
3. A quantity measure of the wind energy available at any location is called the - [B]
A). Wind power density B) wind density C) wind D) none
4. --- machine produce low power of 15KW to 50KW with length of blade
varying from 15-25m [A]
A) Mono blade (B) multi blade C) three blade D) Twin blade
5. ---- are caused by the uneven heating of the atmosphere by the sun [B]
A) winds B) seasons C) day and night D) solar
- 6.-----wind is caused by unequal heating and cooling of ground surfaces and
water bodies [A]
A). Local B) Breeze C) Upward D) none
7. ---- convert the energy of the wind into mechanical power [A]
A) Wind turbines B) PV Modules C) Solar cell D) solar collectors
8. The wind is approaching from back side(nascle side) and moves towards the
front is called [A]
A). Downward type rotor B) Upward wind type rotor C) both A&B D)None
9. --- machine produce low power of 15KW to 50KW with length of blade
varying from 15-25m [A]
A) Mono blade (B) Horizontal axis C) Vertical axis D) Twin blade
10. ---- are caused by the uneven heating of the atmosphere by the sun [B]
A) seasons B) winds C) day and night D) solar
- 11.-----wind is caused by unequal heating and cooling of ground surfaces and
water bodies [A]
A). Local B) Breeze C) Trade Winds D) none
12. The movement of air is called---- [D]
A) cyclone B) atmosphere C) weather D) Wind
13. The wind is approaching from back side(nacelle side) and moves towards the
front is called [C]
A). Downward type rotor B) Upward wind type rotor C) both A&B D)None
14. --- machine produce low power of 15KW to 50KW with length of blade

- varying from 15-25m [A]
A) Mono blade (B) Horizontal axis C) Vertical axis D) Twin blade
15. ---- are caused by the uneven heating of the atmosphere by the sun [B]
A) winds B) seasons C) day and night D) solar
- 16.--wind turbines have power output from 10-50KW and rotor diameter of 1-16m [A]
A) Small size B) Large size C) both D) none
17. ----- is independent of sun, having the source of natural heat inside the earth. [B]
A. Wind B) Geothermal energy C) Biomass D) all of the above
18. Geothermal fluids often contain significant of gases such as---- [D]
A. CO₂ B) CH₄ C) H₂S D) all of these
19. The high efficiency up to 60% is achieved in the -----MHD Generator [C]
A. Open cycle B) closed cycle C) Hybrid D) both (a) and (c)
20. ----is a direct conversion of chemical energy of the fuel takes place in the form of electrical energy [A]
A. Fuel cell B) MHD C) OTEC d) none of these
21. The collection and storage of solar energy in the form of heat is established open water reservoir commonly called a----- [D]
A) FPC 2. Concentration collectors 3. Solar still D. Solar pond
22. Salt water ponds, gel ponds, and others such as shallow ponds with covers, deep ponds with glass or plastic containment devices are used for----- [B]
A) Solar radiation B. Solar thermal energy c. solar power d. None
23. In solar pond much of the incoming solar radiation reaches the -----at the bottom bond[A].
A) storage zone B) surface zone C) gradient zone D) None
24. Heat loss from storage zone to upwards in the solar pond is prevented in ---zone [C]
A) Storage zone B) surface zone C) gradient zone D).None [C]
25. Solar ---- are the enclosures that provide proper environment under adverse climatic conditions for growth and production of plants, vegetables, flowers, etc. [C]
A) Solar still, B) Solar pond C) green houses D) solar dryer
26. In a solar greenhouse, the intensity of the ---- is maintained at a desired level, and also the heat is stored for use at night and for cloudy days. [A]
A) light B) radiation C) thermal energy D) solar power
27. In solar greenhouse the solar energy collection and storage depends on many factors like-- [D]
A) climate B) greenhouse size C) orientation D) all

28. Solar heating applications ---- [D]
A) Solar space heating B) solar water heating C) solar pool heating d) all
29. Solar water heating systems use ---tanks for the storage of solar energy [A]
A) water B.) air c)Oil d.None
30. Solar pool heating uses the swimming pool -----for solar energy storage. [A]
A) water B.) air c)Oil d.None
31. For solar electricity, it is stored using either ----- or grid [B]
A) solar pond B.) batteries c) PV Cell d) None
32. For----, it is stored using thermal mass, water tanks or swimming pool water [B]
A) Solar electricity B) solar heating C) Solar pond D) None
33. ---- solar energy is heat the does not require conversion for use. [A]
A) Passive B.) Active C) Both D.None
34. Passive energy is used for space and ----heating [D]
A) water B) crop drying C) solar still d) all
35. --- solar energy uses solar photovoltaics to convert the sun's energy into electricity.[A]
A) Active B. Passive C) Both D. None
36. A small inverter is often used to convert current from---- [A]
A) DC to AC B) AC to DC C) store D. None
37. Water concrete are ---accumulates during the day and can then be released during the night [B]
A) water B) Heat C) solar radiation D) None
- 38.--- is the direct conversion of light into electricity at the atomic level. [A]
A) Photovoltaic B) Solar thermal C) Solar pond D) Turbine
39. Solar cells are made of the same kinds of ---- materials. [C]
A) insulating B) conducting C) Semiconductor D.None
- 40.----- are caused by the uneven heating of the atmosphere by the sun, the irregularities of the earth's surface, and rotation of the earth. [B]
A) Geothermal energy B. wind energy C) OTEC D.None

UNIT – IV

1. --refers to renewable organic matter generated by plants in the process of photosynthesis [B]
A) Bio mass B) Bio fuel C) bio chemical D) Agro chemical
2. ----is the principle constituent of wood as well as of other biomass materials [C]
A) Lignin B) hemi cellulose C) Cellulose D) None of these
3. The process of biological digestion of any organic matter in the absence of oxygen is known as [A]
A) anaerobic B) aerobic C) pyrolysis D) none of these
4. The materials having combustible organic matter such as C, H, O and oxygenated hydrocarbon are referred to as ----- [C]
A) Wind B) Geothermal energy C) Biomass D) all of the above
5. -----deals with generation of electrical field when an ionized at high temperature passes through the applied magnetic field [B]
A) MHD B) OTEC C) Fuel cell D) none of them
6. During the anaerobic digestion process gaseous fuel production takes place which is known as [C]
A) Biomass B) Bio gas C) A&B D)None
7. The open cycle MHD generator uses----- as a fuel as it produces more conductive plasma[D]
A) coal B) Hydrogen C)CO₂ D) all of them
8. In ---- to increase the reactivity at electrodes the catalysts are added to electrode for breaking the fuel molecules [A]
A) Solar cell B) Fuel cell C) MHD D) thermo electricity
9. The earth radius 6370 KM was a mass of --when it originated from sun a million year ago[A]
A) Hot liquid B) Gases C) Stream D) all of them
10. -----energy is caused by the action of wind blowing over the sea surface [B]
A) Tidal B) Wave C) Thermal D) Solar
11. People are using earth's thermal energy in the form of ----for bathing and washing in many parts of the world [A]
A) Hydro energy B) Wave energy C) Hot spring D) Volcanoes
12. The geothermal fluids like [D]
A) hot water B) hot brine C) wet steam D)all of them
13. ----is an organic matter from plants, animals and micro organisms or waste from their

- derivatives [A]
A) Bio mass B) Bio fuel C) Bio chemical D) agrochemical
14. Bio mass mechanical conversion process is ----- [C]
A) Briquetting B) Pelletization C) both A & B D) None
15. ----losses occur because of some energy being lost to break the ions from the place they formed at electrodes [A]
A) Chemical polarization B) Voltage drop C) Ohmic D) none of these
16. The operation of thermoelectric generator is based on -----effect [B]
A) seebeck B) peltier C) Thomson D)None
17. Thermionic emissions most important practical application in electronics is in the – [D]
A) Electron tube B) Vacuum tube C) CRT D) all of them
18. Micro hydro power station capacity upto ----- [A]
A) 100KW B) 1000KW C) 10MW D) 100MW
19. Bulb turbines operate efficiently between the head range of ----meters with discharge of 3 to 70 cumecs [B]
A) 1.25 to 25 B) 2 to 50 C) 125 to 225 D) 30-210
20. Ocean thermal energy conversion is a means of converting storage ocean ----energy into useful energy [D]
A) Geothermal B) Wave C) Tidal D) Thermal
21. Some examples of materials that make up biomass fuels are : [D]
A) Scrap lumber B) forest debris C) Manure D. All
22. ---- power is carbon neutral electricity generated from renewable organic waste [C]
A) Solar power B. Geo power C. Biomass C. Thermal
23. In ----plants, wood waste or other waste is burned to produce steam that runs a turbine to make electricity. [C]
A) biomass power B. solar power C. Thermal power D. Geo power
24. ---- is made in a biogas digester. [D]
A) Solar power B. Thermal energy C. Heat D. biogas
25. In biogas digester bacteria convert organic waste into ---- gas through the process of anaerobic digestion. [B]
A) Ethane B. Methane C. Poly ethane D. None
26. ----wastes are converted to intermediate or secondary energy forms such as heat, biogas, alcohol, fuels, chemicals etc. [B]
A) Ocean B. organic C. human D. dung

27. Biomass energy conversion categories --- [D]
A. Direct combustion B. Thermo chemical conversion
C. Biochemical conversion D. all
28. Gasification is a dry -----conversion process [A]
A. chemical B. Mechanical C. Physical D. Non
29. Heating of biomass is carried out in the presence of limited quantities of oxygen for the maximum liberation of carbon monoxide and hydrogen called ---gas[A]
A. Synthesis B. coal C. bio D. None
30. Biomass can be converted into gases, liquids, and solids by ----in the absence of oxygen[A]
A) Pyrolysis B. Hydrogasification C. Direct combustion D. None
31. Biomass thermochemical conversion processes ----- [D]
A). Pyrolysis B. Gasification c) Hydro-gasification D. all.
32. Biomass Biochemical conversion process----- [D]
A) Chemical reduction B. Alcoholic fermentation C. anaerobic digestionD. all
33. --- are reactors through which oxygen or air is passed for combustion of biomass [A]
A. Gasifiers B. cylinders c. chambers d.None
34. Which is geothermal region --- [D]
A.Non- thermal B. Semi-thermal c. Hyper –thermal D. all
35. Geothermal fields are often referred to as ---- systems [B]
A.Biological B. Hydrothermal C. Organic d. Chemical
36. The geothermal sources with high temperature at great depths in the ---- [B]
A.Core B. Crust d. Mantle d.none
37. Geothermal ---cycle power plant generates electricity from low to medium temperature resources ` [A]
A. Binary B flash steam power C. double flash steam d. None.
38. Geothermal power plant thermal efficiencies are poor due to the flow fluid ----- and . pressures. [C]
A. Volume B. Density c. Temperature D. Pressure
39. The geothermal power generators --- [D]
A) sprinkle prime mover B.keller rotor oscillating vane
C. The armstead hero turbine D.all
40. Technologies for electric power generation depend critically on several resource parameters such as fluid temperature , and --- its salinity, content of other gases. [D]
A. Volume B. Density c. Temperature D. Pressure

UNIT – V

1. The ----is used to raise pressure of the air/oxygen supplied in combustion chamber for efficient burning of fuel [A]
A) air compressor B) pre heater C) Heat exchanger D) all of these
2. The high efficiency up to 60% is achieved in the ----- MHD generator [B]
A) Open cycle B) Hybrid C) Closed cycle d) none of these
3. ----is a direct conversion of chemical energy of the fuel takes place in the form of electric energy [A]
A) Fuel cell B) MHD C) OTEC D) none of these
4. -----converts is a form of heat engine which works between source and sink to generate direct electricity [D]
A) Thermionic B) thermo electric C) solar cell D. OTEC
5. Falling water as a source of ---- is known from ancient times [D]
A) wind B) Energy C) wave D) Tidel
6. -----occur on full moon, sun and earth are at right angle [A]
A) Neep tide B) spring tide C) Tidal current D) None of these
7. The---- converter is a form of heat engine which works between source and sink to generate direct electricity. [B]
A) solar cell B) Thermionic C) fuel cell D) MHD
8. -- devices are solid state devices that convert thermal energy into direct electrical energy.[C]
A) Cellulose B) hemi cellulose CC) Thermoelectric D) None of these
9. The operation of thermoelectric generator is based on -----effect known as [A]
A) seebeck B) Thomson C) Peltier D) none of these
10. The fuel cell vehicle uses ---, reformed methanol as a fuel [C]
A) carbon B) sulphur C) hydrogen gas D)LPG
11. Alkaline fuel cell use an alkaline solution of KOH as the ----and use low cost metals as a catalyst. [B]
A) electrode B) electrolyte C) fuel d) none
12. Phosphoric acid fuel cell uses liquid phosphoric acid as the ----- [B]
A) construction material B) electrolyte C) electrode D) none
13. The phosphoric acid fuel cell efficiency is 37 to ---- [B]
A) 40 B) 42% C) 35 d) all of them
14. The high efficiency up to 60% is achieved in the -----MHD Generator [D]
A) Open cycle B) closed cycle C) Hybrid D) both (a) and(c)

15. --- produces electricity continuously as long as fuel and oxidizer is supplied. [A]
A) Fuel cell B) Battery C) UPS D)MHD
16. Magneto hydro dynamic is a branch of -----mechanics [B]
A) Solid B) fluid C) dynamic D) Hydro
17. MHD deals with the flow of an electrically conducting fluid in the presence of a ----field [C]
A)Electric B. electro magnetic C. Magnetic D.None
18. Turbo generator and the MHD generator generating ----power [A]
A) Electric B. Magnetic C. Electo magnetic D.None
19. Ionization caused by heating a gas is known as thermal ---- [A]
A).Ionization B. power C. energy D. none
20. In--- generator, the free electrons in the hot side of the bar will be on higher K.E and will be moving at greater speed than those in the cold side of the bar [D]
A) Thermoelectric B) Thermionic C) MHD D) all of the above
21. A --- cell is an isothermal electrochemical device in which direct conversion of chemical energy into Electrical energy. [A]
A) Fuel B) solar C) MHD D) Thermionic
22. Small hydro power station capacity upto ----- [C]
A) 100MW B) 1-50MW C) 101 KW D) none of these
23. ---is a primary cell and cannot be recharged but can be refueled [C]
A) battery B)cell C) fuel cell d) none of these
24. The ---- is chargeable [D]
A) Fuel cell B) inventor C) UPS D) Battery
25. A ----- is an electrochemical device in which the chemical energy of a conventional fuel is converted directly and efficiently into electrical energy. [C]
A). MHD B.Thermo electric generators C.Fuel cell D.None
26. The large ocean surface acts as a reservoir of solar ----- [C]
A) solar ponds B. Solar dryer C. Solar energy D. None
27. There are essentially two different kinds of OTEC plant, known as closed cycle and –cycle [C]
A)Thermal B. Carnot C. Open D. none
28. In closed cycle OTEC, there is a long closed loop of pipeline filled with a fluid such as --[C]
A).Nitrogen B. Oxygen C. Ammonia D. Chlorine
29. In Open cycle OTEC,, the sea water is itself used to generate heat without any kind of -----fluid [C]

- A). ammonia B. Nitrogen C. intermediate D. None
30. The biggest problem with OTEC is that its relatively ----- [A]
A) inefficient B. low C. High D. Very low
31. In fuel cell reaction between the fuel and oxidizing agent produces--- at the electrodes.[C]
A) Current B. Power C. Voltage d. All
32. Many fuel cells connected in series to provide useful terminal voltage, which is called a--- [C]
A).solar panel B. Solar Module C. Module D. None
33. Which is fuel cell in the following [D]
A) Direct fuel cell B. Indirect fuel cell C. Regenerative fuel cell D. All
34. ---fuel cell is one in which the hydrogen or hydrogen containing fuel is fed directly to the anode. [A]
A) Direct B. Indirect fuel cell C. Regenerative fuel cell D. All
35. The --- fuel cell uses a reforming process outside the cell, or internally at the anode to convert the fuel to hydrogen which is then fed to anode [B]
A) Direct B. Indirect C. Regenerative fuel cell D. All
36. The --- fuel cell is one in which the fuel cell product is reconverted into its reactants by one of several methods and is then recycled. [C]
A) Direct B. Indirect C. Regenerative D. All
37. ---is the second largest renewable energy contributor to electricity production in india. [C]
A) wave energy B. Tidel Energy C. Small hydro D. Solar energy
38. While india's total installed capacity for small hydro power units reported significant increase from 1909 MW as in march 2006 to ---- MW as in January 2012. [C]
A. 4200 MW B.4900 MW C. 3300 MW D. 2090 MW
39. A generating capacity of up to 10 MW is generally accepted as the upper limit of what can be termed ----hydro [D]
A. Micro B.Mini C. Small Hydro D.Small
40. Out of the total power generation installed capacity in india of 1,76,990 MW (june 2011), hydro power contributes about ----- [A]
A.38106 MW B.2200 MW C. 52020 MW D. None

SIDDARTHA INSTITUTE OF SCIENCE AND TECHNOLOGY: PUTTUR-517583**QUESTION BANK (DESCRIPTIVE)**Subject with Code : **Non Conventional Energy Resources (18ME0307)**

Branch: ME

Year & Sem: II-B.Tech & II-Sem

Regulation: R18

UNIT –I

1. (a). What are the types of solar radiation measuring Instruments? 5M
(b) Explain the working of Sunshine recorder with a neat sketch 5M
2. (a) Write short notes on solar radiation 5M
(b) Derive an Expression for solar radiation on tilted surfaces. 5M
3. (a) Mention the importance of measuring wind speed and classify its measuring instruments 5M
(b) Describe the working of hot wire anemometer with a neat sketch 6M
4. (a) What is conventional and non-conventional Energy? Write the merits and demerits of Conventional energy sources? 5M
(b) Name the renewable energy sources and explain them in brief 5M
5. (a) What is the need of renewable energy? 5M
(b) Describe Renewable Energy Scenario in Andhra Pradesh. 5M
6. (a) Explain the working of Pyrheliometer with a neat sketch 5M
(b) Discuss about the environmental aspects of Energy Utilization? 5M
7. (a) Outline the challenges and remedies associated in the use of solar energy 5M
(b) Generate a report on the usage of energy around the world 5M
8. (a) Illustrate the working of Eppley pyranometer with a neat sketch 5M
(b) Define Extraterrestrial and Terrestrial solar radiation and solar flux? 5M
9. (a) Write a short note on the use of wind sock in aviation industry 5M
(b) Explain briefly about the secondary sources of Energy 5M
10. (a) Mention the merits and demerits of solar energy 5M
(b) What are energy resources available in India? 5M

UNIT –II

1. Enumerate the different types of concentrating type collectors. 10M
2. Describe with a neat sketch working of a solar water heating system and state its advantages and disadvantages 10M
3. (a) Mention the thermal analysis of flat plate collector 5M
(b) Write the working principle of flat plate collector with a neat sketch 5M
4. (a) Illustrate the functions of various components in flat plate collectors 5M
(b) How Flat plate collectors are different from Concentrating collectors 5M
5. (a) Explain the working principle of concentrating collector 5M
(b) How steam will be generated with parabolic dish collector. Explain 5M
6. (a) Explain the construction and uses of evacuated tube collectors? 5M
(b) What are the factors effected on performance of solar flat plate collector 5M
7. (a) Write the applications of solar energy 5M
(b) Explain the working principle of solar PV cells 5M
8. Explain the working of water heating system and desalination system with a neat sketch 10M
9. Explain the process of generation of power in solar pond with a neat sketch and also mention its merits and demerits 10M
10. Mention the functioning of various components in solar power generation 10M

UNIT-III

1. (a) What is wind power? Explain in detail. 5M
(b) Mention the merits and demerits of wind energy 5M
2. Describe with a neat sketch the working of wind energy system with main components 10M
3. How the electricity will be generated from wind turbine generator 10M
4. Classify the wind turbines and explain their working in detail 10M
5. Illustrate the power generation process in HAWT with its merits and demerits 10M
6. Describe the working of VAWT with its merits and demerits 10M
7. (a) Differentiate HAWT and VAWT 5M
(b) Explain briefly the functioning of Darrieus Wind Turbine 5M
8. What are the different types of vertical axis wind turbines? Write about Savonius and ducted wind turbines with neat sketches. 10M
9. Mention the factors to be considered in the selection of site for wind energy 10M
10. (a) Explain the performance and operational characteristics of wind machines 5M
(b) What are the safety and environmental impact of wind energy 5M

UNIT-IV

1. (a) What is biomass and why it is called as renewable energy? 5M
(b) What are the different forms of bio-energy? 5M
2. (a) What is biomass direct combustion? Explain in detail 5M
(b) Name various stokers used for the combustion of biomass and explain anyone with a neat figure 5M
3. (a) Describe the working of Spreader stoker with a neat sketch 5M
(b) Mention the need of Fluidized Bed Combustion and explain it with a neat diagram 5M
4. (a) What is biomass gasifier and write its gasification reactions 5M
(b) How do you classify the gasifiers and explain anyone in detail. 5M
5. (a) With a neat sketch explain biomass gasification? 5M
(b) What is meant by fermentation, aerobic, anaerobic digestion? Explain 5M
6. (a) Compare fixed dome and float drum type bio digesters. 5M
(b) Explain the function of Deenbandhu biogas digester with a neat sketch 5M
7. (a) What are the factors affecting the generation of bio gas? 5M
(b) Explicate various steps involve in the production of Ethanol 5M
- 8 (a) Write a short notes on various methods of biomass analysis 5M
(b) Mention the characteristics of biodiesel 5M
9. Explain the working of biomass Cogeneration system with a neat sketch and also mention its applications 10M
10. (a) Write the merits and demerits of Biomass Energy 5M
(b) Mention the applications of Biomass Energy along with its impact on environment 5M

UNIT-V

1. What is tide? Explain tidal energy and its conversion with neat diagram. 10M
2. Explain the working of fuel cell and their applications 10M
3. Explain the basic components of a tidal power plant and state their merits and demerits 10M
4. What is the nature of tidal power extracted from single basin arrangement and double basin arrangement? 10M
5. Explain in detail the wave energy conversion by floats 10M
6. What is the basic principle of ocean thermal energy conversion ? What are the main types of OTEC power plants? Describe their working. 10M
7. (a) What are the different methods of hydrogen storage 5M
(b) Differentiate wave and tidal energy. 5M
8. (a) How do you classify hydrogen production and mention any one method 5M
(b) Mention the applications of hydrogen 5M
9. What are the geothermal power plants? Explain binary cycle power plant with neat diagram 10M
10. Explain in detail about the hybrid systems 10M

Prepared by: Prof. M. Chandrasekhar