

JNTU ONLINE EXAMINATIONS [MID1- NCES]

- 1) During the seventh plan, where wind mills are located in Andhra Pradesh :-> **Tirumala**
- 2) Which can be used for conversion of solar energy directly into electricity :-> **Solar Photovoltaic cell**
- 3) Which is non commercial energy :-> **Crop residue**
- 4) The wind power programme in India was initiated in :-> **1983-84**
- 5) The angle of declination can be measured using :-> **Cooper equation**
- 6) The angle through which the earth must turn to bring the meridian of a point directly in line with sun rays :-> **Hour angle**
- 7) The rate at which solar energy arrives at the top of the atmosphere is called :-> **Solar constant**
- 8) Position of the sun directly over head is called :-> **Sun of Zenith**
- 9) The angle between suns rays and its projection on horizontal surface is known as :-> **Inclination angle**
- 10) The angle between suns rays and perpendicular (normal) to the horizontal plane is :-> **Zenith angle**
- 11) Select the tilt factor for reflected radiation :-> **MISSING_IMAGE**
- 12) Select radiation shape factor :-> **MISSING_IMAGE**
- 13) Pyrheliometer is used to measure :-> **Direct solar radiation**
- 14) Pyradiometer is used to measure :-> **Both solar and terrestrial radiation**
- 15) The following device is mechanically simpler in design :-> **Flat plate collector**
- 16) The following device gains more temperature :-> **Concentrated Collector**
- 17) There is no need for tracking :-> **Compound parabolic concentrator**
- 18) Non uniform flux on the absorber in which :-> **Concentrate**
- 19) With solar concentrating collectors, temperature as high as :-> **3500°C**
- 20) When the absorber plate is at local fluid temperature is called :-> **Plate efficiency**
- 21) Which solar device converts energy directly to electricity :-> **Photovoltaic**
- 22) Is an alloy used for super conducting magnetic energy storage :-> **Niobium and tin**
- 23) Which water is added at the top of the pond :-> **Fresh water**
- 24) Which zone temperature is fairly uniform :-> **Surface convective**
- 25) Which is solar energy :-> **Biomass and Biogas**
- 26) When the water heated in the collector, its density :-> **Decreases**
- 27) Some of the common refrigerant absorbent combination used are :-> **Water - Lithium bromide**
- 28) The principle of absorption refrigeration was first demonstrated by Faraday in :-> **1825**
- 29) Solar drying has been used for drying of :-> **Agricultural products**

- 30) Solar dryers can be classified basically into \Rightarrow **three types**
- 31) Light is composed of tiny bundles of energy called \Rightarrow **photons**
- 32) The behaviour of the solar cell can be characterised by \Rightarrow **open circuit voltage, short circuit current, fill factor**
- 33) Above the gradient height known as \Rightarrow **Free atmosphere**
- 34) Which types of winds are considered for wind turbines \Rightarrow **Moderate to high-speed**
- 35) Which rotor is used in vertical axis wind turbine \Rightarrow **Darrieus rotor**
- 36) Which rotor is used in horizontal axis wind turbine \Rightarrow **Dutch-type rotor**
- 37) At maximum efficiency, the torque has maximum value $T_{max} \Rightarrow 8 \rho V_i / 27 g_c N$
- 38) Maximum power condition is if $V_e \Rightarrow V_i / 3$
- 39) Power available in input wind $\Rightarrow 1/2 \rho A V_i^3$
- 40) The value of $A = V_t / V_i$ at maximum C_p is $\Rightarrow 2/3$
- 41) The Betz criterion of optimum performance has the value of C_p equal to $\Rightarrow 16/27$
- 42) The energy sources available can be divided into how many types: \Rightarrow **three type**
- 43) The solar power where sun hits atmosphere is $\Rightarrow 10^{17}$ watts
- 44) Which is the conventional source of energy \Rightarrow **Coal**
- 45) Which year is considered as the year of the first "oil shock" $\Rightarrow 1973$
- 46) Which is observed as "world environment day" $\Rightarrow 5^{th}$ June
- 47) The earth receives how many million megawatts from the sun: $\Rightarrow 1,70,000$
- 48) The largest solar water heating system in India was established in $\Rightarrow 1993$
- 49) The largest solar water heating system is located at: \Rightarrow **Ujjain**
- 50) The largest in the world, integrated solar combined cycle (ISCC) power plant is in \Rightarrow **Rajasthan**
- 51) Each photovoltaic cell contains how many layers \Rightarrow **Two**
- 52) Local winds are caused by \Rightarrow **Differential heating of land, water and hills**
- 53) The angle from north of a point to equator measured from centre of earth is \Rightarrow **Altitude**
- 54) Angular distance of the Sun's rays north of the equator \Rightarrow **Declination angle**
- 55) The following source of energy is considered as complimentary of solar energy: \Rightarrow **Wind**
- 56) The value of declination angle on December 22nd in degrees $\Rightarrow -23.5$
- 57) The energy of the above photon in eV is $\Rightarrow 1.55$ eV
- 58) The electrical conductivity of a Solar cell crystal depends upon: \Rightarrow **All three are true**
- 59) An element has a principal quantum number $n=4$. The total of magnetic quantum members L and m_l can be $\Rightarrow 18$
- 60) The frequency of the above photon is $\Rightarrow 1.25 \times 10^6$ Hz

- 61) The bond between atoms existing in a crystalline solar cell is mainly :-> **Covalent**
- 62) Solar radiation received at the earth surface without change in the direction is called :-> **Direct radiation**
- 63) The radiation received at the earth surface from all parts of the sky is hemisphere after being scattered in the atmosphere is :-> **Diffuse radiation**
- 64) The sum of the beam and diffuse radiation is :-> **Global radiation**
- 65) Total solar radiation received at any point on the earth's surface, is referred as :-> **Insolation**
- 66) The earth is closest in the :-> **Summer season**
- 67) Which meter used for instantaneous measurements of total radiation :-> **Solarimeter**
- 68) The annual daily diffuse radiation received over the whole country is observed to be about :-> **175 cal / cm² / day**
- 69) Solar insolation peak values are generally measured in :-> **April or May**
- 70) Which radiation is non-reflective :-> **Diffuse radiation**
- 71) The reflected radiation is :-> **Long Wave**
- 72) For measuring the intensity of direct solar radiation at normal incidence is :-> **Pyrheliometer**
- 73) For the measurement of solar radiation received from the whole hemisphere is :-> **Pyranometer**
- 74) For the measurement of terrestrial radiation only :-> **Pyrgeometer**
- 75) For the measurement of both solar and terrestrial radiation is :-> **Pyradiometer**
- 76) Glass easily transmits :-> **Short wave**
- 77) Pyrgeometer is used to measure :-> **Terrestrial radiation**
- 78) Flat plate collector utilizes :-> **Beam and Diffuse radiation**
- 79) Green house effect occurs due to which gas in the atmosphere :-> **CO₂**
- 80) Concentrated collectors utilize :-> **Beam radiation**
- 81) Which of the following collector requires orientation towards the sun :-> **Concentrated Collector**
- 82) Non uniform flux on the absorber is in :-> **Concentrated collector**
- 83) Which is non focus type concentrating collector :-> **Compound parabolic Concentrating collector**
- 84) Which radiation is not applicable for concentrated collectors :-> **Beam radiation**
- 85) Which of the following collector not required orientation towards the sun :-> **Flat plate**
- 86) The following device not gains more temperature :-> **Flat plate**
- 87) High initial cost is required :-> **Concentrated**
- 88) Storage of heat by causing a material to rise in temperature is called :-> **Sensible heat storage**
- 89) Storage thermal energy by causing a material change its phase is called :-> **Latent heat storage**
- 90) Which is the selective coating material :-> **Black nickel, Black chrome & Black copper**

- 91) Solar air heater can use following engine :-> **Braton cycle and striling cycled**
- 92) Using heat to produce a certain chemical reaction and then storing the products is called :-> **Thermo chemical storage**
- 93) Which energy is not under solar energy storage :-> **Wind energy**
- 94) Storage by causing a material to rise in temperature is :-> **Sensible heat storage**
- 95) Storage by phase change, solid to liquid or liquid to vapour :-> **Latent heat**
- 96) For high temperature storage, is the least expensive and most readily available :-> **Glauber's salt**
- 97) Photo synthesis reaction is :-> $\text{CO}_2 + 2 \text{O}_2 \rightarrow 2 \text{H}_2\text{O} + \text{CO}_2$
- 98) Solar pond is characterized by zones :-> **Three**
- 99) The surface convective zone usually has a thickness around :-> **15 to 25 cm**
- 100) Which layer acts on insulating layer :-> **Concentration gradient zone**
- 101) Which zone is much thicker :-> **Non-convective**
- 102) Which type of salts are dissolved in the water :-> **Magnesium, sodium chloride and sodium nitrate**
- 103) The proposed applications of solar energy may be considered in general :-> **Three**
- 104) Solar thermal electric conversion is considered as :-> **Indirect Solar conversion**
- 105) Photovoltaic conversion is considered as :-> **Direct conversion**
- 106) By utilizing thermo electric effect, is considered as :-> **Direct**
- 107) Hot water storage tank is located at :-> **Above collector**
- 108) A solar water heater industry in South Florida was started :-> **1900**
- 109) Open type or closed type membrane type solar water heaters can only be placed :-> **Horizontally**
- 110) The hot water is taken from the heater outlet pipe, opening the gate valve from inlet :-> **Outlet pipe at top**
- 111) The gas jets or electrical heater is turned on automatically by a :-> **Thermostat**
- 112) Which is not common refrigerant absorbent combination :-> **Water - Zink oxide**
- 113) Solar water still used for :-> **water distillation**
- 114) Solar distilled water cost comes to about :-> **50 paise/litre**
- 115) Solar still is not installed in which state :-> **Chennai**
- 116) Initial cost of the solar still is :-> **high**
- 117) How many basic methods of drying :-> **three**
- 118) Solar cells have the theoretical efficiencies of the order :-> **25**
- 119) Solar cells have actual efficiencies of the order :-> **10**
- 120) The conversions of light into electricity is :-> **Photovoltaic effect**
- 121) Solar cells will produce power at about :-> **0.5V**

- 122) Broadly categorised of PV power systems \Rightarrow stand-alone, grid connected, solar power satellite
- 123) Winds are classified into how many types \Rightarrow 3
- 124) Local winds are caused by \Rightarrow differential heating of land, water, hills and mountains
- 125) The first wind mill to drive an electric generator was built by \Rightarrow Smith
- 126) The energy in the wind is \Rightarrow Kinetic Energy
- 127) Which is the fastest growing energy source among all renewables \Rightarrow Wind
- 128) Vertical axis wind mills are also known as \Rightarrow Persian wind mills
- 129) Wind mills are classified into types \Rightarrow Two
- 130) Adding third blade increases the power output by about \Rightarrow 5%
- 131) Adding third blade, the weight and cost of the rotor increases \Rightarrow 50%
- 132) Nacelle contains \Rightarrow rotor brakes, gear box, control
- 133) It can accept wind from any direction without adjustment \Rightarrow Darrieus rotor
- 134) Suffered from fatigue arising from numerous natural resonances in the structure \Rightarrow Vertical axis wind turbine
- 135) Which type of rotor is considered for high RPM \Rightarrow Darrieus
- 136) Which type of rotor is considered for low RPM \Rightarrow American multiblade
- 137) The circumferential force on wind blades is given by $\Rightarrow \rho \cdot \pi \cdot D \cdot N$
- 138) A wind turbine is capable of converting only the total power of wind to useful mechanical power is \Rightarrow 59.26
- 139) Is the ratio of the maximum power obtained from the wind to the total power of the wind is termed. \Rightarrow Betz maximum, Betz coefficient, Power coefficient
- 140) Betz maximum depends on \Rightarrow Tip-Speed ratio
- 141) Which is called Betz criterion \Rightarrow 16/27
- 142) Which city has been declared as a solar thermal city \Rightarrow Bangalore
- 143) Select non-conventional energy source \Rightarrow Wind energy
- 144) Choose vertical axis wind mill \Rightarrow Darrieus type wind mill
- 145) The wind turbines convert wind energy directly to \Rightarrow Mechanical energy
- 146) Darrieus type wind turbine comes under \Rightarrow Vertical type
- 147) Yaw control for \Rightarrow Positioning the nacelle
- 148) Hour angle equivalent per hour in degree is \Rightarrow 15
- 149) A horizontal angle measured from north to the horizontal projection of the sun's rays is \Rightarrow Azimuth angle
- 150) Autumnal equinox is on \Rightarrow March 22nd
- 151) Solar cells are made from \Rightarrow All three types of materials

- 152) The mean distance between the sun earth is $\rightarrow 1.5 \times 10^8$ Km
- 153) NASA Standard value for solar constant is $\rightarrow 1.353$ kw/sqm
- 154) Is the Vertical angle between the projection of the suns rays on the horizontal plane and direction of suns rays (passing through the point) is \rightarrow **Azimuth angle**
- 155) Declination is zero on the two equinox days of \rightarrow **March 22 and September 22**
- 156) The radiation data are measured on a \rightarrow **Horizontal surface**
- 157) Which of the following an anti-freezing material \rightarrow **Ethylene glycol**
- 158) Which is the selective coating material \rightarrow **Black copper, Black Chrome, Blank Nickel**
- 159) Select the tilt factor for beam radiation $\rightarrow \cos \theta / \cos \theta_z$
- 160) To measure the brightness \rightarrow **Sunshine**
- 161) Also been used on Photo voltaic (solar cell) detectors \rightarrow **Yellot solarimeter**
- 162) The energy H of direct radiation is calculated by means of the formula $\rightarrow H_{DN} = K_i \sin^2 \theta$
- 163) The heat transport system in the solar water heating system is \rightarrow **Thermo siphon action**
- 164) The following devices has more optical losses \rightarrow **Concentrated collector**
- 165) The suggested number of glass covers on the flat plate collector for optimum Temperature \rightarrow **two**
- 166) Storage of heat by causing change of phase of the material is called \rightarrow **Latent heat storage**
- 167) Storage of heat by causing a material to rise in temperature is called \rightarrow **Sensible heat storage**
- 168) No anti freeze is required to protect the absorber in \rightarrow **Concentrate**
- 169) Emission of light with temperature following law \rightarrow **T power 2**
- 170) Which material is coated above the absorber plate \rightarrow **Chromium sesquioxide**
- 171) In the solar water heating system is \rightarrow **Thermo siphon action**
- 172) Electromagnetic energy storage requires the use of \rightarrow **Super conducting materials**
- 173) Solar energy has been converted into chemical energy of \rightarrow **Methane**
- 174) The number of times the battery charging and discharging under specified condition is called \rightarrow **Life cycle**
- 175) Which is the heat collection, as well as thermal storage medium \rightarrow **Lower zone**
- 176) In summer, large pond operating temperature of fluctuate cyclically between a maximum value of $\rightarrow 85^\circ\text{C}$ to 95°C
- 177) In winter, solar pond operating minimum temperature $\rightarrow 50^\circ\text{C}$ to 60°C
- 178) Wind energy is the solar energy this can be converted \rightarrow **Indirect**
- 179) Ocean thermal energy conversion is considered as \rightarrow **Indirect**
- 180) Micro hydel energy is a \rightarrow **Non-conventional**

- 181) In freezing weather, thermosiphon type solar heater can :-> **Not to be used**
- 182) Thermosiphon solar water heater are :-> **Passive system**
- 183) Which heating system operate without pumps :-> **Passive system**
- 184) The still is erected in open area with its long axis facing direction :-> **East-West**
- 185) Which type of collectors are used for providing process heat for disalination process :-> **flat plate, evacuated tubular,parabolic concentrators**
- 186) Central salt and marine chemicals research(CSMCRI) institute is at :-> **Bhavnagar**
- 187) Power conditioner generally consists of a :-> **blocking diode, voltage regulator, inverter or converter**
- 188) Standard source of power for space vehicles and satellites :-> **Solar power**
- 189) Which materials are used in the solar cells :-> **semi-conductor**
- 190) Warm air flows :-> **Up**
- 191) Wind energy is :-> **unsteady, treacherous, erratic**
- 192) The combination of wind turbine and generator is some times referred to as :-> **Aero generator**
- 193) Yaw control is used in :-> **Horizontal axis wind turbine**
- 194) The height of the tower of a large vertical axis wind turbine is around :-> **100m**
- 195) Which rotor is not used in horizontal axis wind turbine :-> **Savonious rotor**
- 196) Which rotor is used for electric power generation only :-> **Darrieus**
- 197) In which the rotor axis is shifted out of wind direction :-> **Yaw and Tilt control**
- 198) Power-maximum for an ideal wind machine, with horizontal axis :-> **$8 \rho; A V_i^3 / 27$**
- 199) At Betz coefficient, pressure difference across turbine is :-> **$4 \rho; V_i^2 / 9$**
- 200) Who developed the condition maximum power is being extracted from the wind :-> **Betz**
- 201) Power in wind still present at the outlet of system :-> **$1/2 \rho; A_e V_e^3$**