:QUESTI	question_description	stion_explana	uestion_typ	question_difficulty
=ANSWE	answer_description	swer_explanat	nswer_isrigh	answer_position
Q	Which among the following is not a renewable source of energy?		M	
A	Solar		0	
A	Biomass		1	
A	Hydropower		0	
A	Geothermal		0	
Q	Photovoltaic energy is the conversion of sunlight into:		M	
A	Chemical energy		1	
A	Biogas		0	
A	Electricity		0	
A	Geothermal energy		0	
Q	Lignite, bituminous and anthracite are different ranks of:		M	
A	Nuclear fuel		0	
A	Coal		1	
A	Natural gas		0	
A	Biogas		0	
Q	Common energy source in Indian villages is:		M	
A	Electricity		0	
A	Coal		0	
A	Sun		0	
A	Wood and animal dung		1	
Q	The outermost layer of the earth is:		M	
A	Magma		0	
A	Mantle		0	
A	Crust		1	
A	Solid iron core		0	
Q	Steam reforming is currently the least expensive method of producing:		M	
A	Coal		0	
A	Biogas		0	
A	Hydrogen		1	
A	Natural gas		0	
Q	Which is the most popular kitchen fuel in India?		M	
A	LPG		1	
A	Kerosene		0	
A	Coal		0	

A	Firewood		0	
Q	Which of the following produces energy because of temperature difference at various levels in ocean.		M	
A	Tidal		0	
A	Wave		0	
A	Solar		0	
A	Ocean thermal		1	
Q	Which of the following is the ultimate source of energy?		M	
A	Water		0	
A	Sun		1	
A	Fossil fuels		0	
A	Uranium		0	
Q	Which of the following is a disadvantage of renewable energy?		M	
A	High pollution		0	
A	Available only in few places		0	
A	High running cost		0	
A	Unreliable supply		1	
Q	Where is the largest Wind Farm located in India?		M	
A	Jaisalmer Wind Park, Rajasthan		0	
A	Muppandal Wind Farm, Tamil Nadu		1	
A	Vaspet Wind Farm, Maharashtra		0	
A	Chakala Wind Farm, Maharashtra		0	
Q	Solar cell is an electrical device that converts the energy of light directly into electricity by the		M	
A	Photovoltaic effect		1	
A	Chemical effect		0	
A	Atmospheric effect		0	
A	Physical effect		0	
Q	Which energy is developed by the gravitational pull of the sun and the moon		M	
A	Wind energy		0	
A	Tidal energy		1	
A	Geothermal energy		0	
A	Solar energy		0	
Q	Largest Wind Farm in India is located at:-		M	
A	Chakala Wind Farm, Maharashtra		0	
A	Jaisalmer Wind Park, Rajasthan		1	
A	Vaspet Wind Farm, Maharashtra		0	
A	Muppandal Wind Farm, Tamil Nadu		0	
Q	Current mininster of MNRE is		M	

A	Piyush Goyal		0	
A	Raj Kumar Singh		1	
A	Sushil Shinde		0	
A	Manmohan Singh		0	
Q	Some power plants pump water down deep holes into hot rock. The hot rock heats the water, which turns the water into steam. The steam rushes back to Earth's surface and is used to make electricity. This plant is generating which alternative energy resource?		M	
A	biomass		0	
A	wind		0	
A	solar energy		0	
A	geothermal energy		1	
Q	Which of the following energy has the greatest potential among all the sources of renewable energy?		M	1
A	Wind Energy		0	1
A	Solar energy		1	2
A	Thermal energy		0	3
A	Hydro-electrical energy		0	4
Q	What is total amount of solar energy received by earth and atmosphere?		M	1
A	9.2 X 1024 J/year		0	1
A	3.8 X 1024 J/year		1	2
A	2.1 X 1024 J/year		0	3
A	5.4 X 1024 J/year		0	4
Q	Solar radiation which reaches the surface without scattering or absorbed is called _____		M	1
A	Diffuse radiation		0	1
A	Beam Radiation		1	2
A	Infrared radiation		0	3
A	Ultraviolet radiation		0	4
Q	What is unit of nuclear radiation?		M	1
A	Roentgen		1	1
A	Pascal		0	2
A	Reaumur		0	3
A	Rankine		0	4

Q	The amount of energy received in unit time on a unit area perpendicular to the sun's direction at the mean distance of the earth from the sun is called _____		M	1
A	Air Mass		0	1
A	Intensity of solar radiation		0	2
A	Solar radiation		0	3
A	Solar constant		1	4
Q	Radiation intensity 'I' normal to the surface is given by _____		M	1
A	Isinθ		0	1
A	ICotθ		0	2
A	Itanθ		0	3
A	ICosθ		1	4
Q	By which of the following symbol is solar Declination denoted by _____		M	1
A	γ		0	1
A	δ		1	2
A	ρ		0	3
A	Δ		0	4
Q	The angle between the sun's rays and a line perpendicular to the horizontal plane through angle the beam of the sun and vertical is called _____		M	1
A	Declination		0	1
A	Solar Azimuth angle		0	2
A	Zenith angle		1	3
A	Altitude angle		0	4
Q	The angle of deviation of the normal to the surface from the local meridian is called as _____		M	1
A	Hour angle		0	1
A	Solar altitude		0	2
A	Solar azimuth angle		0	3
A	Surface azimuth angle		1	4
Q	LST stands for _____		M	1
A	Local standard time		0	1
A	Local solar temperature		1	2
A	Low surface temperature		0	3

A	Land surface temperature		0	4
Q	How much would be the angle of declination on DECEMBER 21 at 0900 h (LAT). The collector s located in New Delhi (28o35'N, 77o12'E) and is tilted at an angle of 36o with the horizontal and is pointing south?		M	1
A	-44.28o		0	1
A	-28.92o		0	2
A	-23.45o		1	3
A	-42.22o		0	4
Q	What is the angle of declination on 60th day of the leap year?		M	1
A	-8.29		1	1
A	8.29		0	2
A	4.82		0	3
A	12.44		0	4
Q	The hour angle is equivalent to		M	1
A	10° per hour		0	1
A	15° per hour		1	2
A	20° per hour		0	3
A	25° per hour		0	4
Q	The global radiation reaching a horizontal surface on the earth is given by		M	1
A	Hourly diffuse radiation / Hourly beam radiation		1	1
A	Hourly beam radiation – Hourly diffuse radiation		0	2
A	Hourly beam radiation / Hourly diffuse radiation		0	3
A	Hourly beam radiation + Hourly diffuse radiation		0	4
Q	The atmosphere reflects		M	1
A	long-wavelength radiation		1	1
A	short-wavelength radiation		0	2
A	all radiation		0	3
A	no radiation		0	4
Q	What are pyrheliometers?		M	1
A	Instruments measures beam radiation		1	1
A	Diffuse radiations		0	2
A	Direct radiations only		0	3

A	Total radiations		0	4
Q	Reflector mirrors used for exploiting the solar energy are called		M	1
A	Mantle		0	1
A	Heliostats		1	2
A	Diffusers		0	3
A	Ponds		0	4
Q	Solar energy can be directly converted to elec-trical energy by which of the following de-vices?		M	1
A	solar cooker		0	1
A	solar heater		0	2
A	solar cell		1	3
A	solar geyser		0	4
Q	For what purpose are Gas heating collectors used?		M	1
A	To trap solar radiance		0	1
A	To act as a medium to help in conversion of sunlight to electrical energy		0	2
A	Employed as solar air heaters		1	3
A	They act as alternate panels in case of failure		0	4
Q	The frame which contains all the parts is called _____		M	1
A	box		0	1
A	plate		0	2
A	enclose		0	3
A	container		1	4
Q	Approximately Cooking time of Paraboloidal Dish-type Solar Cooker is		M	1
A	20-30 minutes		1	1
A	20-50 minutes		0	2
A	20-70 minutes		0	3
A	20-90 minutes		0	4
Q	The common size of Box Type Solar Cooker is		M	1
A	40cm x 40cm x 20cm		0	1
A	60cm x 60cm x 20cm		1	2
A	60cm x 40cm x 20cm		0	3

A	40cm x 40cm x 10cm		0	4
Q	A module in a solar panel refers to		M	1
A	Series arrangement of solar cells.		0	1
A	Parallel arrangement of solar cells.		0	2
A	Series and parallel arrangement of solar cells.		1	3
A	Zigzag arrange ment os solar cells		0	4
Q	Paraboloid dish collector gives Concentration Ratio of		M	1
A	1		0	1
A	10 to 15		0	2
A	upto 100		0	3
A	30 to 50		1	4
Q	What does Heating and cooling of the atmosphere generates?		M	1
A	Thermo line circulation		0	1
A	Radiation currents		0	2
A	**Convection currents**		1	3
A	Conduction currents		0	4
Q	A rotor installed in a fixed orientation with the swept area perpendicular to the pre dominate wind direction is called _____		M	1
A	Nacelle		0	1
A	**Yaw fixed machines**		1	2
A	Blades		0	3
A	Anemometer		0	4
Q	Which type of generator are made use in wind turbines?		M	1
A	Recreational generators		0	1
A	Asynchronous generator		0	2
A	**Synchronous generator**		1	3
A	Alternator		0	4
Q	Why severe fluctuations in power are always undesirable in windmill?		M	1
A	Damage of parts due to fluctuations		0	1
A	The efficiency of the plant will be reduced		0	2
A	**Because they pose power oscillations problems**		1	3
A	Results in damage to the whole plant		0	4
Q	What does TSR stand for in design consideration of wind mills?		M	1
A	**Tip speed ratio**		1	1
A	Torque-synchronous ratio		0	2

A	Tip suspension ratio		0	3
A	Temporary speed restriction		0	4
Q	What does WECS stands incase of wind mill terminology?		M	1
A	Wind engine control system		0	1
A	**Wind energy conversion system**		1	2
A	Wind energy combined system		0	3
A	Wind engine comparison system		0	4
Q	The effect of increasing tip speed ratio on the number of blades is _____.		M	1
A	increase		0	1
A	**decrease**		1	2
A	remains same		0	3
A	cant be commented		0	4
Q	Global Cold wind move from		M	1
A	Equatorial to oceanic region		0	1
A	Equatorial to polar region		0	2
A	**Polar to equatorial region**		1	3
A	Oceanic to Equatorial region		0	4
Q	Brahmanvel Wind Farm is located in _____.		M	1
A	Rajsthan		0	1
A	**Maharashtra**		1	2
A	Kerala		0	3
A	Madhyapradesh		0	4
Q	Wind turbines can be grouped together into _____.		M	1
A	Wind fields		0	1
A	**Wind farms**		1	2
A	Wind flocks		0	3
A	Wind zoos		0	4
Q	Calculate the air density when 18m/s wind is at 1std atmospheric pressure and 34 degree C? (select the closest value as answer)		M	1
A	**1.149 kg/m^3**		1	1
A	1.9 kg/m^3		0	2
A	2.88 kg/m^3		0	3
A	5.89 kg/m^3		0	4
Q	The wind turbine rotor having law value of solidity		M	1
A	runs slower		0	1
A	produces higher torque		0	2
A	runs faster		1	3

A	has law efficiency		0	4
Q	What do we call a large group of wind turbines used to generate electricity?		M	1
A	Wind plant		0	1
A	Wind pack		0	2
A	Wind farm		1	3
A	Wind mill		0	4
Q	What is mean wind speed?		M	1
A	time averaged wind, averaged respect to region and time		0	1
A	time and spaced averaged wind, averaged respect to region and time		0	2
A	space averaged wind speed, averaged with repect to certain windy region		0	3
A	time averaged wind speed, averaged over specified time interval		1	4
Q	Winds having following speed are suitable to operate wind turbines.		M	1
A	5-25 m/s		1	1
A	10-35m/s		0	2
A	20-45m/s		0	3
A	**30-55m/s**		0	4
Q	Wind energy is harnessed as _____ energy with the help of windmill or turbine		M	1
A	**Electrical**		0	1
A	Mechanical		1	2
A	Solar		0	3
A	Thermal		0	4
Q	The fraction of power in the wind through the swept area which is converted into useful mechanical shaft power is called __		M	1
A	Coefficient of spin		0	1
A	Coefficient of performance		1	2
A	Coefficient of lift		0	3
A	**Coefficient of variation**		0	4
Q	The fraction of time during a given period that the turbine is actually on line is called?		M	1
A	**Cut out velocity**		0	1
A	Flat rating		0	2
A	Availability factor		1	3
A	Cut in velocity		0	4
Q	Which control is used to maintain the optimum blade angle to achieve certain rotor speeds or power output of wind turbines?		M	1
A	Power control		0	1
A	**Tethering control**		0	2
A	Yaw control		0	3
A	Pitch control		1	4

Q	Value of Betz coefficient is		M	1
A	53.9		0	1
A	0.593		1	2
A	**935**		0	3
A	39.5		0	4
Q	Biogas calorific value is		M	1
A	20000 to 23000 kcal/cubic meter		0	1
A	20000 to 23000 kcal/cubic meter		0	2
A	20000 to 23000 kJ/kg		1	3
A	20000 to 23000 kJ/cubic meter		0	4
Q	Main purpose of biogas digester is to produce		M	1
A	Methane		1	1
A	Fertilizer		0	2
A	Wet waste digestion		0	3
A	carbondioxide production		0	4
Q	chopped liguminous plants and night soil in the input materialof biogas plant increases		M	1
A	Nitogen and phosphorus respectively		1	1
A	Phosphorus and nitrogen respectively		0	2
A	Carbon and hydrogen		0	3
A	Phosphorus and sulphur		0	4
Q	Janta plant is		M	1
A	Indian floating dome digester		0	1
A	Modified chinese fixed dome digester		1	2
A	Modern floating dome digester		0	3
A	Syntex plant		0	4
Q	In pyrolysis combustible mixture of gases predominate		M	1
A	At 1000 deg C		1	1
A	At 500 deg C		0	2
A	when fermentation is going on		0	3
A	At 100 deg C		0	4
Q	Optimum distance between the plant and the site for a 2 cubic meter plant is		M	1
A	100 m		0	1

A	10 m		1	2
A	more than 50 m		0	3
A	60 m exactly		0	4
Q	if volume of raw waste added daily is V1 and volume of waste after digestion is V2 and t is the time period of digestion in days capacity of the digestion tank is		M	1
A	(V1+V2)*t/2		0	1
A	(V1+V2)/2t		1	2
A	(V1-V2)*t/2		0	3
A	(V1-V2)/2t		0	4
Q	If C is volume per unit dry mass of input, m is mass of dry input volume of biogas is given by		M	1
A	C*m		1	1
A	c/m		0	2
A	c+m		0	3
A	c^m		0	4
Q	If F is a fraction of methane in biogas, CV is methane calorific value, Vb is volume of biogas, Assuming combustion efficiency as 100% the energy available from biogas is		M	1
A	F*CV*V		1	1
A	F/CV*V		0	2
A	F*CV/V		0	3
A	CV*V/f		0	4
Q	Gas production starts at 20th day cattle dung to water ratio and temperature respectively is		M	1
A	2:1 and 37 deg C		0	1
A	1:1 and 50 deg C		0	2
A	1:1 and 37 deg C		1	3
A	1:3 and 37 deg C		0	4
Q	Ignition timing of SI engine using biogas shall be _____ for better performance		M	1
A	retarded by 4 to 5 degree		0	1
A	kept as that of petrol		0	2
A	Advance by 31 To 41 degree		0	3
A	advanced by 4 to 5 degree		1	4
Q	One of the CI engines modification for making it run on biogas is		M	1

A	making it dual fuel		1	1
A	changing its cylinder material		0	2
A	changing the orientation		0	3
A	changing the crankshaft material		0	4
Q	Density of dry matter is 50 kg/cubicmeter and mass of dry input is 10 kg/day, volume of fluid in the digester is		M	1
A	0.2 cubic meter/day		1	1
A	0.3 cubic meter/day		0	2
A	0.5 cubic meter/day		0	3
A	0.8 cubic meter/day		0	4
Q	If efficiency of burner is 60%,, calorific value of methane is 30 MJ/cubicmeter, fraction of methane is 60% by volume, volume of biogas generated is 3 cubic meter/day, the power output from biogas is		M	1
A	36MJ/day		0	1
A	32.4MJ/day		1	2
A	40MJ/day		0	3
A	38MJ/day		0	4
Q	In _____ method the sea water enters a vacuum chamber and flash evaporated.		M	1
A	Closed cycle system		0	1
A	Open cycle system		0	2
A	Hybrid OTEC		1	3
A	Neither closed nor open system		0	4
Q	How much is the efficiency of geothermal plant?		M	1
A	0.28		0	1
A	0.15		1	2
A	0.42		0	3
A	0.3		0	4
Q	Which of the following method of generating electric power from sea water is more advantageous?		M	1
A	Wave power		0	1
A	Ocean Currents		0	2
A	Tidal power		1	3

A	Wind		0	4
Q	What type of energy is wave energy?		M	1
A	Non – conventional		1	1
A	Commercial		0	2
A	Non – renewable		0	3
A	Exhaustible		0	4
Q	When two high tides and two low tides of approximately equal size occur, the tide called		M	1
A	diurnal tide		0	1
A	spring tide		0	2
A	neap tide		0	3
A	semi-diurnal tide		1	4
Q	What is the time period for one tide to occur in a day?		M	1
A	6h, 12.5 min		1	1
A	6h, 40.5 min		0	2
A	6h, 0 min		0	3
A	6h, 25.6 min		0	4
Q	Thermal gradient in a geo thermal plant is given by		M	1
A	Heat flux * thermal conductivity		0	1
A	Heat flux / thermal conductivity		0	2
A	Thermal conductivity / heat flux		1	3
A	heat transfer coefficient/Thermal conductivity		0	4
Q	Which of the following is not a merit of tidal power generation?		M	1
A	Free from problems of ecology balance		0	1
A	Everlasting		0	2
A	No extra submerging of land is required		0	3
A	Uneven operation		1	4
Q	What happens if the turbine generators are smaller and operate much longer?		M	1
A	Resulting work is reduced		1	1
A	High power generation		0	2
A	Less power loss		0	3
A	Less sound is created		0	4

Q	Which device uses the float which has two motions?		M	1
A	High level reservoir wave machine		0	1
A	Dolphin type wave generator		1	2
A	Hydraulic accumulator		0	3
A	Float wave power conversion device		0	4
Q	In pitching type wave energy conversion machines		M	1
A	wave strikes horizontally		0	1
A	wave strike vertically		1	2
A	wave moves the float up and down		0	3
A	Waves strike inclined		0	4
Q	How is the height of wave determined?		M	1
A	By wind speed		0	1
A	By force of the wave		0	2
A	By an immersion scale		0	3
A	By a floating device		1	4
Q	___dominated power plants are also called as flash steam power plants.		M	1
A	solid		0	1
A	liquid		1	2
A	gas		0	3
A	plasma		0	4
Q	The ocean thermal energy conversion(OTEC) is uses _____		M	1
A	Energy difference		0	1
A	Potential difference		0	2
A	Temperature difference		1	3
A	Kinetic difference		0	4
Q	Closed cycle systems use the fluid having _____		M	1
A	Low boiling points		1	1
A	High boiling points		0	2
A	High viscosity		0	3
A	low viscosity		0	4
Q	What does OTEC stand for?		M	1
A	Ocean thermal energy cultivation		0	1

A	Ocean techno energy conservation		0	2
A	Ocean thermal energy conversion		1	3
A	Ocean thermal energy consumption		0	4
Q	How do fuel cells generate electricity?		M	1
A	Electrochemical reaction		1	1
A	Combustion		0	2
A	Fusion		0	3
A	Organic reaction		0	4
Q	The standard emf of the hydrogen-oxygen fuel cell is _____		M	1
A	2.43 V		0	1
A	3.21V		0	2
A	1.23 V		1	3
A	123 V		0	4
Q	_____ and suitable catalyst are required to promote high rate of electrode processes.		M	1
A	Lower temperature		0	1
A	Higher temperature		1	2
A	Moderate temperature		0	3
A	very low temperature		0	4
Q	Hydrogen can be used as		M	1
A	primary heat source only		0	1
A	energy carrier only		1	2
A	both as primary energy source and energy carrier		0	3
A	neither as primary energy source nor energy carrier		0	4
Q	The biggest advantage of thermoelectric power generator are		M	1
A	it's cheap and compact		0	1
A	it's cheap and bulky		0	2
A	low maintenance and ability to use high grade heat		0	3
A	low maintenance and ability to use low grade heat		1	4
Q	Direct methanol fuel cell is a modified version of		M	1
A	PAFC		0	1
A	PEMFC		1	2
A	SOFC		0	3
A	MCFC		0	4
Q	MCFC is		M	1
A	Molten Chemical Fuel Cell		0	1
A	Molten Carbide Firing Cylinder		0	2
A	Molten Carbon Fuel Cell		0	3

A	Molten Carbonate Fuel Cell		1	4
Q	PAFC is		M	1
A	Phosporic Acid Fuel Cell		1	1
A	Phosphoric Alkali Fuel Cell		0	2
A	Phosphate Acid Fuel Cylinder		0	3
A	Phosphoric Acidic Fuel Cylinder		0	4
Q	The operating Temperature of PAFC is		M	1
A	150 C - 200 C		1	1
A	250 C-800 C		0	2
A	800 C-100 C		0	3
A	150 C- 250 C		0	4
Q	With pure hydrogen and pure oxygen as input the exhaust from fuel cell contains...		M	1
A	water vapour, CO,CO2,NO2		0	1
A	water vapour		1	2
A	water vapour and CO2		0	3
A	water vapour CO and CO2		0	4
Q	For high temperature generated by combustion,		M	1
A	both thermoelectric and thermionic generators are equally suitable		0	1
A	thermoelectric are more suitable than thermionic generators		0	2
A	thermoelectric are less suitable than thermionic generators		1	3
A	none are suitable at high temperatures		0	4