These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai

Online Examination 2020

Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VIII

Course Code: MEE8022 and Course Name: Renewable energy sources

Time: 1hour Max. Marks: 50

Note to the students:- All the Questions are compulsory and carry equal marks .

	Renewable Energy sources forms _____
Q	% of total utility electricity in India
A	22
B	40
C	35
D	10
	Solar radiation which reaches the surface
Q	without scattering or absorbed is called
A	Ultraviolet Radiation
B	Total Radiation
C	Infrared Radiation
D	Beam Radiation
	What is the main source for the formation
Q	of wind?
A	Uneven land
B	Solar Energy
C	Vegetation
D	Seasonal Changes
	Which of the following is not process
Q	involved in Anaerobic Digestion
A	Enzymatic Hydrolysis

B	Acid Formation
C	Methane Formation
D	Oxidation
Q	The molten rock within the earth is called as _____
A	Magma
B	Igneous
C	Sedimentary
D	Metamorphic
Q	The tool used for performance assessment and logical evaluation of avenues for improvement in Energy Management and Audit is
A	Bench Marking
B	Monitoring and Verification
C	Energy Pricing
D	Fuel Substitution
Q	The angle through which the earth must turn to bring the meridian of a point directly in sun's rays is called _____
A	Declination
B	Solar azimuth angle
C	Hour Angle
D	Zenith Angle
Q	Which of the following is not site selection consideration for wind Energy
A	Adequate Supply of wind at high velocity
B	Altitude should be as high as possible
C	Site should be well connected with rail or road

	Ground condition should be such that it
	will provide Sound Foundation for Wind
D	Turbine Base
	Select incorrect statement for Floating
Q	drum type biogas plant
A	Danger of explosive mixture formation due to mixing oxygen is minimized
B	It has higher cost
	Separate Pressure equalising device is
C	needed during transfer of matter
D	Heat is lost through metal gas holder
	On Full or New Moon Day _____
Q	tides occurs
A	Neap
B	Spring
C	Autom
D	Winter
Q	Having an energy policy
A	shows commitment
B	satisfies regulations
C	indicates energy audit skills
D	adds to the list of number of other policies
	Calculate day length when latitude angle is
Q	20° & declination angle is (-15)°
A	12.65 hr
B	11.25 hr
C	9.8 hr
D	10.25 hr
Q	Renewable Energy Source is
A	Coal
B	Petrol
C	Wind Energy
D	Natural Gas

Q	Declination angle at Ratnagiri on 20st January 2020 is
A	(-17.51)°
B	(-22.01)°
C	(-20.34)°
D	(-23.01)°
Q	Calculate air density at pressure of 0.92 atmosphere & temp. of 31°C for a wind turbine.
A	1.52 kg/ m^3
B	1.45 kg/ m^3
C	0.9 kg/ m^3
D	1.068 kg/ m^3
Q	Calculate Volume of biogas digester when No. of cows is 8, Retention period is 20 days, Dry matter collected per cow per day is 1.8 kg, Density of dry matter in fluid in the digester is 58 kg/m^3.
A	3 m^3
B	2 m^3
C	5 m^3
D	1 m^3
Q	How much is the average temperature at the depth of 10 km from earths surface
A	1000 ˚C
B	200˚C
C	500˚C
D	800˚C
Q	Which device uses float that has two motions
A	High level reservoir Float Machine

B	Dolphin Type Wave Generator
C	Savoinous Wave Generator
D	Vertical Wave Conversion Device
	Select incorrect Statement for Vapour
Q	dominated Geothermal System
A	Water is vaporised into steam
B	Water attains around 200 ˚C
C	Pressure always remains above 8 bar
D	It causes environmental problem
	Select incorrect Statement for Solar
Q	Concentrating Collector
	Concentrating Collector uses Beam radiation but unable to use diffuse
A	radiation
B	Solar Tracking is required
	Lower Temperature can be achieved compared to same area of flat plate
C	collector
	Absorber Area required is Lesser than Flat
D	Plate Collector
	Wind at atmospheric pressure & 15 °C has a velocity of 19 m/s. Density of air is 1.226 kg/ m^3. If Turbine diameter is
Q	122m. Maximum Axial Thrust is
A	1386.57 kN
B	2299.45 kN
C	2166.52 kN
D	745.67 kN

Q	For certain biogas plant Retention period is 30 days, Dry matter collected per cow per day is 80 kg, Density of dry matter in fluid in the digester is 50 kg/m³. if height by diameter ratio is considered as unity. Height of the digester will be
A	6.52 m
B	5.32 m
C	7.24 m
D	3.94 m

Q	Calculate the overall efficiency of an OTEC plant if the temp. of water in surface layer is 37°C & temp. of cold water in the depth of ocean is 8°C. if Relative Efficiency factor is 0.56
A	3.0%
B	6.9%
C	5.2%
D	4.4%

Q	Wind at atmospheric pressure & 25 °C has a velocity of 30 m/s. Density of air is 1.18 kg/ m³. The values of Total Power Density in wind stream (in W/m²), Maximum Power Density (in W/m²) will be
A	9255.46, 5484.72
B	4738.8, 2808.17
C	1999.18, 1184.7
D	15993.45, 9477.6

Q	calculate the power available from the digester when efficiency of burner is 60%, Heat of combustion of methane is 28 MJ/m^3, biogas yield is 0.85, and volume of bio gas is 3 m^3/day.
A	32.25 MJ/day
B	53.75 MJ/day
C	89.6 MJ/day
D	42.84 MJ/day