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OEY-001

CERTIFICATE IN ENERGY TECHNOLOGY AND MANAGEMENT (CETM)

Term-End Examination

December, 2013

OEY-001 : ENERGY RESOURCES AND CONVERSION PROCESSES

Time : 3 hours

Maximum Marks : 70

Note : There are two sections, Section A and Section B. Section A is compulsory. Attempt any eight questions from section B.

SECTION-A

(All questions are compulsory.)
1. Choose the most appropriate correct answer from the given alternatives. 7x1=7

(a) Which of the following is non-renewable source of energy ?

	(i)	Wind	(ii)	Solar			
	(iii)	Coal	(iv)	Biogas			
(b)	In a resistive circuit, power factor is :						
	(i)	Zero	(ii)	One			
	(iii)	Two	(iv)	None			
(c)	Energy can be expressed as :						
	<i>(</i> •)		···>				

- (i) Potential (ii) Thermal
- (iii) Mechanical (iv) All

	(d)	It takes 10 s to lift a 10 kg block to a vertical							
		height of 2m. The power output is :							
		(i)	20 W		(ii)	19.8 W			
		(iii)	19.6 W		(iv)	19.4 W			
	(e)	Plants get energy from :							
		(i)	Air		(ii)	Water			
		(iii)	Food		(iv)	Sun			
	(f)	The Sun produces :							
		(i)	Heat						
		(ii)	Light						
		(iii) Electromagnetic Radiation							
		(iv)	All						
	(g)	Ultin	nate analy	vsis refer	s to th	e determin	ation		
		of :							
		(i) Fixed Carbon							
		(ii) Moisture							
		(iii)	Ash and	l volatile	e matt	er			
		(iv)	Hydrog	en					
2.	Fill in	Il in the blanks. $7x1=7$							
(a) Energy can neither be							nor		
(b) The working fluid in solar water heaters									
			· 1 · C	1 (1 •.			
	(C)	the calorific value of wood is							
	(1)	than the calorific value of petrol.							
	(a)	KVV is the unit of							
	(e)	Bion	nass reso	ources a	are		and		
	(f)	Wind	d is	S(ource	of energy.			
	(g)	The energy sources for cooking in rural areas							
		are _		and _		······•••			

SECTION-B

(Attempt any eight questions.)

3.	Discuss the advantages of gaseous fuels over solid fuels.	7
4.	Discuss the importance of biogas in rural areas.	7
5.	Explain the energy conversion process in an automobile.	7
6.	Explain the wind energy utilization for water pumping and off grid power generation.	7
7.	Discuss and differentiate between Hydrogen and Fuel cells.	7
8.	What are biofuels ? Discuss their importance in Indian environments.	7
9.	Explain the laws of thermodynamics.	7
10.	Explain in detail combustion and combustion efficiency.	7
11.	A boiler has an hourly input of 50 kWh. Energy equivalent to 25 kWh is extracted and utilized for heating water. Determine the energy conversion efficiency.	7

12. Discuss the environmental impact of fossil fuels. 7

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