Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

EE3EL04 / EX3EL04 Energy Conservation & Management

Programme: B.Tech. Branch/Specialisation: EE/EX

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. Non renewable energy is **1**

(a) Wind (b) Biomass (c) Coal (d) Tidal

ii. Energy can neither be created nor be distroyed but it can changed from one form to another this law is known as **1**

(a) Kinetic energy (b) Potential energy

(c) Conservation of energy (d) Conservation principle

iii. An energy policy does not include **1**

(a) Target energy consumption reduction

(b) Time period for reduction

(c) Declaration of top management commitment

(d) Future production projection

iv. The objective of energy management includes **1**

(a) Minimising energy costs

(b) Minimising waste

(c) Minimising environmental degradation

(d) All of these

v. What does a load duration curve represent? **1**

(a) The variation of load during different hours of the day.

(b) Average load.

(c) The number of hours for which a particular lasts during the day.

(d) None of these

vi. What is the shape of the load duration curve? **1**

(a) Rectangular shape (b) Triangular shape

(c) Parabolic shape (d) Free hand sketch

P.T.O.

vii. Electric company charge for **1**
(a) Energy (b) Power (c) Resistance (d) Units

viii. A unit of electricity is called **1**
(a) kW (b) J-H (c) KW-H (d) W-minute

ix. Cogeneration is the simultaneous generation of _____. **1**
(a) Heat and power
(b) Steam and condensate
(c) Mechanical Energy and power
(d) All of these

x. In cogeneration, the system efficiencies can go up to _____. **1**
(a) 70% (b) 80% (c) 90% (d) 60%

Q.2 i. Discuss environmental aspect in energy conservation methods. **2**

ii. What are the various efforts which countries must undertake for sustainable energy development? **3**

iii. With the help of neat sketch discuss the structure of atmosphere along with temperature profile of atmosphere and related phenomenon. **5**

OR iv. What are the main reasons of global warming and climate change? What could be the steps which can possibly be taken to solve this issue? **5**

Q.3 i. What is the aim of energy audit. **2**

ii. Define energy monitoring. **3**

iii. Explain the instruments used for energy audit. **5**

OR iv. Describe the roll of energy manager for energy management in an organisation. **5**

Q.4 i. Explain payback period. **2**

ii. Explain load curve analysis. **3**

iii. How DSM can be achieved by the load management. **5**

OR iv. Disscuss different type of tarrif used for charging the consumers of electric energy. **5**

Q.5 i. Explain electricity billing. **2**

ii. Explain the constant power drive system. **3**

iii. Discuss the method to improve power factor of the system. **5**

OR iv. How energy conservation in a transport system can be achieved? Discuss. **5**

Q.6 i. Explain co-generation. **2**

ii. Discuss in detail energy conservation measures for industries. **3**

iii. Explain energy conservation process in cement industry. **5**

OR iv. How energy can be conserved in building, heating and lighting? **5**

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Marking Scheme

EE3EL04 / EX3EL04 Energy Conservation & Management

Q.1	i.	Non renewable energy is (c) Coal	**1**
	ii.	Energy can neither be created nor be distroyed but it can changed from one form to another this law is known as (c) Conservation of energy	**1**
	iii.	An energy policy does not include (d) Future production projection	**1**
	iv.	The objective of energy management includes (d) All of these	**1**
	v.	What does a load duration curve represent? (c) The number of hours for which a particular lasts during the day.	**1**
	vi.	What is the shape of the load duration curve? (a) Rectangular shape	**1**
	vii.	Electric company charge for (d) Units	**1**
	viii.	A unit of electricity is called (c) KW-H	**1**
	ix.	Cogeneration is the simultaneous generation of _____. (a) Heat and power	**1**
	x.	In cogeneration, the system efficiencies can go up to _____. (c) 90%	**1**
Q.2	i.	Environmental aspect in energy conservation methods.	**2**
	ii.	Efforts which countries must undertake for sustainable energy development 1 mark for each (1 mark * 3)	**3**
	iii.	Structure of atmosphere along with temperature profile of atmosphere atmosphere 2 marks Sketch 2 marks Phenomenon 1 mark	**5**
OR	iv.	Reasons of global warming and climate change 2.5 marks Steps to be taken to solve this issue 2.5 marks	**5**
Q.3	i.	Aim of energy audit.	**2**
	ii.	Definition of energy monitoring.	**3**
	iii.	Instruments used for energy audit 1 mark for each instrument (1 mark * 5)	**5**
OR	iv.	Roll of energy manager for energy management in an organisation 1 mark for each roll (1 mark * 5)	**5**
Q.4	i.	Payback period.	**2**
	ii.	Load curve analysis. Curve 2 marks Explanation 1 mark	**3**
	iii.	DSM can be achieved by the load management 1 mark for each point (1 mark * 5)	**5**
OR	iv.	Type of tarrif used for charging the consumers of electric energy 1 mark for each type (1 mark * 5)	**5**
Q.5	i.	Electricity billing.	**2**
	ii.	Constant power drive system.	**3**
	iii.	Method to improve power factor of the system. 1 mark for each method (1 mark * 5)	**5**
OR	iv.	Energy conservation in a transport system can be achieved 1 mark for each point (1 mark * 5)	**5**
Q.6	i.	Co-generation.	**2**
	ii.	Energy conservation measures for industries. 1 mark for each measures (1 mark * 3)	**3**
	iii.	Energy conservation process in cement industry 1 mark for each process (1 mark * 5)	**5**
OR	iv.	Energy can be conserved in building, heating and lighting 1 mark for each point (1 mark * 5)	**5**

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