GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2021
ENERGY MANAGEMENT AND AUDIT
EE801B

TIME ALLOTTED: 3 HOURS **FULL MARKS: 70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

			Marks	CO No
1.	(i)	The main objective of energy management is to (a) Minimize energy cost (b) Minimum environmental effects (c) Maintain optimum energy procurement and utilization (d) All of these	1	CO1
	(ii)	The agency to look after the climate changes and for action to cut GHG is (a) UNFCCC (b) WHO (c) DOE (d) GOI	1	CO3
	(iii)	In hydroelectric power, what is necessary for the production of power throughout the year? (a) Dams filled with water (b) High amount of air (c) High intense sunlight (d) Nuclear power	1	CO1
	(iv)	Which of the following is called the secondary air pollutant? (a) PANs (b) Ozone (c) Carbon monoxide (d) Nitrogen Dioxide	1	CO3
	(v)	Which of the following is/are the important features of Energy Conservation Act? (a) Standards and Labeling (b) Designated consumers (c) Energy conservation building codes (d) All of the above	1	CO1

(vi)	Which one of the following is an objective of tariff: (a) Recovery of cost on production of power (b) Recovery of capital investment (c) Gg Profit gain (d) All of these	1	CO2
(vii)	The basic function of electronic ballast is (a) To ignite the lamp (b) To stabilize the gas discharge (c) To supply the power to the lamp (d) All of these	1	CO3
(viii)	Non-contact speed measurements can be carried out by (a) Tachometer (b) Stroboscope (c) Oscilloscope (d) Speedometer	1	CO2
(ix)	A soft starter reduces (a) Starting time (b) Starting current (c) Starting Power (d) Full load power	1	CO3
(x)	Providing information to BEE is the role of energy manager as per – (a) Energy Conservation Act 2003 (b) Energy Conservation Act 2004 (c) Energy Conservation Act 2002 (d) Energy Conservation Act 2001	1	CO1
(xi)	Demand Side Management is required to (a) Reduce overall cost of installed capacity (b) Reduce needs for peaking stations (c) Ensure quality and equity of supply (d) all of these	1	CO1
(xii)	Power factor can be improved by connecting which among these (a) Static capacitors (b) Resistors (c) Synchronous condensers (d) Both (a) and (c)	1	CO3

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

		Marks	CO No
2.	What are the benefits of benchmarking energy consumption?	5	CO2
3.	Discuss in your own words, how the energy need of growing economy like India can be solved.	5	CO1
4.	Briefly discuss about the Integrated Energy Policy.	5	CO2
5.	Write about the Clean Development Mechanism (CDM).	5	CO3

6.		An industry has a connected load of 200 kW. The maximum demand is 170 kW. On an average, each machine works for 65% time. The tariff system includes a fixed change of Rs. 1,100 per year, a maximum demand charge of Rs. 125 per kW and an energy charge of Rs. 6·15 per kWh. Find the yearly expenditure of the industry on electricity.	5	CO2

GROUP – C
(Long Answer Type Questions)
Answer any ***three*** from the following: **3×15=45**

			Marks	**CO No**
7.	(a)	What is sustainable development? Give two examples of its practice in day to day life.	5	CO3
	(b)	Explain the importance of energy conservation.	5	CO1
	(c)	Write short notes on Kyoto Protocol.	5	CO3
8.	(a)	What are the needs for Energy Audit?	5	CO2
	(b)	What are the duties and responsibilities (five each) of Energy Manager as per the Energy Conservation Act 2001?	5	CO1
	(c)	Briefly discuss about the Tariff.	5	CO2
9.	(a)	What is Bachat Lamp Yojana (BLY) scheme?	5	CO3
	(b)	What do you mean by 'Carbon Credit'?	5	CO3
	(c)	Briefly discuss about the Wind Energy & Biomass energy.	5	CO1
10.	(a)	How an Occupancy Sensor serves as an Energy Saver?	5	CO1
	(b)	Briefly explain the functions of electronic ballast.	5	CO1
	(c)	Briefly discuss about the Demand Side management (DSM).	5	CO1
11.	(a)	What are the effects of Harmonics on motor operation and performance?	5	CO3
	(b)	Define power factor and suggest technically the methods of improvement is power factor	5	CO3
	(c)	What is Energy efficient lamp? Write in details.	5	CO3