

Name:



Enrollment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination – December, 2019

Course : Energy Management & Audit

Semester – V

Programme : BA (Hon), Energy Economics

SCode: ECON3007

Time : 3 Hrs.

Marks : 100

Instruction :

Section A—20 Marks

Attempt all Questions

S No.		Marks	CO
Q-1	In an industry, installing a time clock cost is Rs 2000/- and it saves Rs 4000/- annually, in energy cost to the industry. What is the payback period of the investment in years?	2	CO1
Q-2	What are the four building envelope components in a hotel industry for energy conservation principles?	2	CO1
Q-3	Explain the term H.V.A.C systems used in hotel industry which creates the complete comfortable situation inside the hotel?	2	CO1
Q-4	In which year the Energy Conservation Act was made and in which year it was amended by parliament of India?	2	CO1
Q-5	What is B.E.E.? And when it came into existence?	2	CO1
Q-6	What is co-generation?	2	CO1
Q-7	What is Power Factor in alternating current circuits? Draw the Power triangle diagram of power factor?	2	CO1
Q-8	Write down the names, of all type of conventional methods of electricity production?	2	CO1
Q-9	What is M.T.O.E and why it is used in energy studies, worldwide?	2	CO1
Q-10	What is the per capita energy consumption in India, USA and China of the calendar year 2018?	2	CO1

Section B—20 Marks

Attempt any four questions.

		Marks	CO
Q-1	Analyze the purpose of C.D.M (clean development mechanism), its benefits and different area, with reference to Kyoto Protocol acceded by India on at 26 th August 2002.	5	CO2
Q-2	Apply the detail tips of energy conservation in commercial buildings, and role of ESCO companies in energy conversation projects?	5	CO2
Q-3	A pharma Industries has initial demand of the electricity substation installed as 1160 KVA, with the power factor of 0.70 (Cos 0). Now the	5	CO2

	industry wants to improve this to 0.89 (Cos 0). What capacity of capacity Rating KVAR is required by the company?		
Q-4	Analyze AT&C losses in electricity distribution system and explain the method to reduce them with a diagram?	5	CO3
Q-5	Analyze the objective of the energy Audits, its process, areas generally covered in energy audits and How energy monitoring is done?	5	CO2

Section C—30 Marks

Attempt any four questions		Marks	CO
Q-1	Evaluate the strategy of energy management with the diagram of energy pyramid and optimizing energy uses and explain the basis of energy efficiency activities?	7.5	CO3
Q-2	An Industry has a motor installed of rating 9.3 KW and full load efficiency of 87% how the energy auditor has recommended to change it with energy efficient motor rating 9.3 KW of full load efficiency of 90%. (The rate of electricity purchased is Rs 3.5 / Unit (KWH), the industries run @ 7200 Hrs/year) Calculate the simple payback period of this investment in years, if the cost of new efficient motor is Rs 25000 only.	7.5	CO3
Q-3	Apply the utility of all nine types of key majoring instruments at site for energy audit in detail?	7.5	CO3
Q-4	Apply the benefits of co- generation in energy saving projects with diagram and explain all its processes?	7.5	CO3
Q-5	Evaluate and explain the energy cost principles, various fuels, their calorific values and electricity cost in industries with examples?	7.5	CO3

Section D—30 Marks

Attempt any two Questions		Marks	CO
Q-1	As a case study of sugar industry, integrate all the parameters of pre audit phase one activities, Phase 2 detailed energy audit activities and phase-3 post audit activities for, Data collection, information connection and classification of energy conversation majors and explain them in details	15	CO4
Q-2	As a case study of steel furnace industry, integrate all the parameters of electricity billing, tariff structure, demand curve, step by step approach for maximum demand control, re scheduling of loads	15	CO4
Q-3	As a case study of miscellaneous industry, integrate the various parameters of electricity used in reactive power compensation , benefits of ,improvement of power factor , selection of capacitors, location of capacitors, and checks that need to be adopted in use of the capacitors	15	CO4

