

JK Lakshmipat University, Jaipur
Institute of Engineering and Technology
BBA and BCA (Open Elective) End Term Exam (Dec. 2022)
Course Code & Name: (EE 1221) Energy Economics

Time: 2 hr 30 hr.

Max. Marks: 60

Attempt all questions.

Q 1	A domestic consumer's monthly consumption of electricity can be approximated as under: 5 lamps 100 watt each for 4 hours a day, Geyser 2.5 kW for one hour daily and Room heater 1 kW for 2 hours daily. Find his bill for a month of 30 days at the following tariff: Rs. 4 per kWh for first 15 units, Rs. 3 per kWh for next 20 units, Rs. 2 per kWh for remaining units. [5 % discount for prompt payment]	10 Marks LO-1
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.	10 Marks LO-2
Q 3	India has embarked on an ambitious journey to ensure transition to a Green Economy with focus of solar and wind power and introduction of electric vehicles. Discuss the current status and the potential drivers and barriers that are going to impact the transition.	10 Marks LO-3
Q 4	As per energy conservation act 2001, Explain all designated industries, which are the biggest areas of energy conservations potentials. Analyze the biggest energy saving opportunities and benefits, in the process, in overall energy costs, in any one industry in detail.	10 Marks LO-3,4
Q 5	Manufacturers make backup batteries for computer systems available to Batteries +dealers through privately owned distributorships. In general, batteries are stored throughout the year, and a 5% cost increase is added each year to cover the inventory carrying charge for the distributorship owner. Assume you own the City Center Batteries + outlet. Make the calculations necessary to show which of the following statements are true and which are false about battery costs. (a) The amount of \$98 now is equivalent to a cost of \$105.60 one year from now. (b) A truck battery cost of \$200 one year ago is equivalent to \$205 now. (c) A \$38 cost now is equivalent to \$39.90 one year from now. (d) A \$3000 cost now is equivalent to \$2887.14 one year earlier. (e) The carrying charge accumulated in 1 year on an investment of \$20,000 worth of batteries is \$1000.	10 Marks LO-3,4
Q 6	Consider the following definition of energy economics and answer the questions given at the end: "Like any branch of economics, energy economics is concerned with the basic economic issue of allocating scarce resources in the economy. Thus, the microeconomic concerns of energy supply and demand and the macro-economic concerns of investment, financing and economic linkages with the rest of the economy form an essential part of the subject." (Bhattacharyya, 2011) (a) What is the basic concern of energy economics? (b) Elaborate the micro and macro concerns of energy economics. (c) List some measures that can help in addressing the above concerns.	10 Marks LO-1,4