

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2018-19

Semester : VI (V Dean)

Academic Year : 2018-2019

Course No. : DE-615

Course Title : **Energy Conservation and Management**

Credits : 1+1=2

Total Marks : 50

Day & Date : Saturday, 29.06.2019

Time : 11.00 to 13.00 Hrs.

- Note :**
- 1) All questions from **Section 'A'** are compulsory.
 - 2) Solve **Any Three** questions from **Section 'B'**.
 - 3) All questions carry equal marks.
 - 4) Draw neat and well labelled diagram wherever necessary.

SECTION - 'A'

Q. 1 A) Choose the most appropriate answer from the options given below. (05)

- i) B.E.E. stands for
 - a) Bureau of energy efficiency
 - b) Basic electrical engineering
 - c) Bureau of electrical energy
 - d) Bureau of electrical engineering
- ii) "The judicious and effective use of energy to maximize profits and enhance competitive positions". This can be the definition of
 - a) Energy Conservation
 - b) Energy Management
 - c) Energy Policy
 - d) Energy Audit
- iii) VFD stands for
 - a) Variable frequency drive
 - b) Variable factor drive
 - c) Versatile frequency drive
 - d) None of these
- iv) The percentage of energy saved at the current rate of use, compared to the reference year rate of use, is called
 - a) Energy Utilization
 - b) Energy Performance
 - c) Energy Efficiency
 - d) None of these
- v) An energy policy does not include
 - a) Target energy consumption
 - b) Time period for reduction
 - c) Declaration of top management commitment
 - d) Future production projection

B) Define the following. (05)

- i) Energy
- ii) Energy efficiency
- iii) Demand side management
- iv) Energy audit
- v) Electricity Act 2003

Q. 2 A) Write the formula for the following. (05)

- i) Demand factor
- ii) Average load
- iii) Diversity factor
- iv) Plant capacity factor
- v) Plant use factor

(P.T.O.)

- B) State whether the following statements are True or False. If False, rewrite the statement after making necessary corrections. (05)
- i) Diversity factor value should be less than 1.
 - ii) Multispeed motor with VFD improves energy efficiency.
 - iii) EER stands for Energy Efficiency Ratio.
 - iv) A 42 Inch LCD TV will consume less power than 32 Inch LCD TV.
 - v) To obtain optimum fuel consumption for car speed should be between 55-60 km per hour.

SECTION – 'B'

- Q. 3 A) What is energy audit? Explain different types of energy audit. (05)
B) Briefly explain energy saving opportunities in processing equipment. (05)
- Q. 4 A) What is transformer? Explain energy losses and energy savings in transformers. (05)
B) Briefly explain the power saving guide with "Star Ratings" of electrical appliances. (05)
- Q. 5 A) What is Energy conservation Act 2001? Discuss its important features. (03)
B) How do you control the speed of electrical motor? Explain their role in saving electric energy. (03)
C) Discuss the role of Energy inspectors and Auditors in energy management. (04)
- Q. 6. A) Explain energy conservation in steam distribution systems. (03)
B) Discuss the role of solar energy options for food processing industries. (03)
C) Explain the energy conservation in Refrigeration and AC systems (HVAC). (04)
- Q. 7 Being a Dairy Technologist how will conserve and manage the energy resources in the dairy industry. (10)
