

GANPAT UNIVERSITY
B.TECH SEM-IV (CE/IT/EC/MC/BM&I/CIVIL)
REGULAR EXAMINATION MAY-JUNE-2014
2OS401:-ENERGY CONSERVATION AND RENEWABLE ENERGY

Time: 3 Hours

Total Marks:-70

- Instructions:** - 1. Attempt all questions.
 2. Make suitable assumptions wherever necessary.
 3. Figures to the right indicate full marks.

SECTION-I

- Q:1** (A) What do you mean by 'Energy audit'? Discuss types of energy audit briefly. (7)
- (B) Give the functions of following instruments : (5)
- i) Power Analyzer
 - ii) Infrared Thermometer
 - iii) Fyrite
 - iv) Lux Meter
 - v) Pivote tube
- OR**
- Q:1** (A) What is the need for energy audit? (6)
- (B) Write a short note on Thermoplastic Insulators. (6)
- Q:2** (A) Define Energy. Explain concept of Energy Conservation (6)
- (B) What do you mean by Pay back period? (5)
- A co-generation plant installation is expected to reduce a company's annual energy bill by Rs.24 lakhs. If the capital cost of the new cogeneration installation is Rs.90 lakhs and the annual maintenance and operating costs are Rs. 6 lakhs, What will be the expected pay back period for the project?
- OR**
- Q:2** (A) What are the watt loss areas in electric motors? How to improve them? (6)
- (B) What are the advantages of electronic ballast over conventional ballast? (3)
- (C) List down the domestic applications of electric heating. (2)
- Q:3** Attempt any two: (12)
- (A) Explain the concept of hydropower plant and explain their types with neat sketch.
 - (B) Write the merits and demerits of hydroelectricity and Which turbine is used in hydro power plant?
 - (C) Describe Beam & Diffuse solar radiation with circuit diagram.

SECTION-II

- Q:4 (A) Define Solar Energy, Solar Constant and write the solar energy drawbacks. (6)
- (B) Describe the list of solar energy applications. And Explain one briefly. (6)

OR

- Q:4 (A) Describe flat plate collector briefly with their types using circuit diagrams. (6)
- (B) What is solar concentrating collector? Describe in details its classification giving neat sketches where required. (6)

- Q:5 (A) Develop an equation of Wind Power And Explain Power coefficient (PC). (5)
- (B) Write notes on (6)
- (a) Two blade windmill
 - (b) Single blade windmill
 - (c) Multiple blade windmill
 - (d) Dutch type windmill
 - (e) Sail wing type windmill

OR

- Q:5 (A) Distinguish between Horizontal axis and Vertical axis windmills. (5)
- (B) Briefly describe the measurement of wind direction and wind speed. (6)
- Q:6 Attempt any two: (12)
- (A) Define Biomass. Mention the different bio-mass conversion systems giving illustrative example
 - (B) Write notes on Janta biogas plant.
 - (C) Describe the classification of gasifier and working of updraft gasifier giving a neat sketch.

END OF PAPER

Best of Luck