Student Exam No:-_____

GANPAT UNIVERSITY

B.TECH SEM-IV (CE/IT/CIVIL/MC/EC/BM&I)

REGULAR EXAMINATION April - June 2015

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)** Define Energy management. Explain elements of energy management in detail **(6)**

(B) Explain energy conservation and energy conservation opportunities. **(6)**

OR

Q:1 **(A)** What is energy audit? Discuss the need of energy audit in detail. **(6)**

(B) Define following terms: **(6)**

1. Illumination
2. Efficiency
3. Rendering Index
4. Glare
5. Candle Power
6. Lux

Q:2 **(A)** In energy saving project the total investment is 6,70,000 Rs after 9years its depreciation charges are 1,25,000 Rs. If the annual income of tis plant is 80,000 Rs than find pay back period and ROI. **(6)**

(B) Distinguish between renewable ad non-renewable energy sources with suitable examples. **(5)**

OR

Q:2 **(A)** Discuss the requirements of good lighting schemes. **(6)**

(B) List out the energy audit instruments. And also explain any two in detail. **(5)**

Q:3 Attempt any **Two**: **(12)**

(A) Which turbines are used in medium head and high head? Explain its construction.

(B) Explain typical hydroelectric power plant in detail.

(C) Which are the factors affecting electricity generation in hydro electric power plant also state the merits and demerits of hydro electric energy.

SECTION – II

Q:4 (A) What is terrestrial and extraterrestrial radiation? Also explain solar constant in detail. (6)

(B) What is the purpose of solar water heater? Explain its construction and operation of solar water heater. (6)

OR

Q:4 (A) Explain working of following instrument. (6)

1. Pyrheliometer
2. Sunshine Recorder

(B) Explain box type and community type solar cooker. (6)

Q:5 (A) With basic block diagram, Explain parts of aero generator. (6)

(B) State advantages and disadvantages of wind power also give detailed information about site selection criteria for installation of windmill. (5)

OR

Q:5 (A) Explain construction and working of following windmill. (6)

1. Two blade
2. Multi blade
3. Single blade

(B) Define power coefficient and derive the equation for wind power. (5)

Q:6 Attempt any **Two**. (12)

(A) How Janta Biogas plant is differ from KVIC plant? Explain in detail.

(B) What is pyrolysis? Also explain biological process.

(C) What is the basic difference between gasification and combustion? Explain Down draft and updraft gasifier.

END OF PAPER

BEST OF LUCK