

Student Exam No:- _____

GANPAT UNIVERSITY
B.TECH SEM-III (OPEN ELECTIVE-IT/CE/EC/MC/ME/BM&I/CIVIL)
REGULAR EXAMINATION DEC-2013

SUBJECT CODE:- 2OS301: 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			
Que-1	[A]	Why Energy audit is required? and Explain energy audit types.	[06]
	[B]	Define Energy and its types. Also explain importance and limitation of Energy Conservation	[06]
OR			
Que-1	[A]	Explain different methods of power factor improvement.	[06]
	[B]	A factory takes a load of 200 kW at 0.85 p.f. lagging for 2500 hours per annum. The traiff is Rs 150 per kVA plus 5 paise per kWh consumed. If the p.f. is improved to 0.9 lagging by means of capacitors costing Rs 420 per kVAR and having a power loss of 100 W per kVA, calculate the annual saving effected by their use. Allow 10% per annum for interest and depreciation.	[06]
Que- 2	[A]	Explain following method with its merits and demerits. (i) Simple payback method (ii) Net Present Value	[06]
	[B]	Explain Importance of following energy efficient equipment in Energy Conservation. (i) Soft Starter (ii) Electronic ballasts.	[05]
OR			
Que- 2	[A]	Explain different types of lighting schemes with necessary figure.	[06]
	[B]	Write the different tips of energy conservation for domestic equipment.	[05]
Que-3	Attempt any three questions.		[12]
	(A)	Discuss Energy conservation Act 2001.	
	(B)	Explain Concept of Electrical Heating with its type and application.	
	(C)	Which turbine is used in hydro power plant. Explain briefly.	
	(D)	How hydroelectric power plants work?	

SECTION-II			
Que-4	[A]	Define Solar energy, Solar constant and Describe beam and Diffuse radiation with circuit diagram	[06]
	[B]	Compare liquid flat- plate collector and Typical Air Heater with neat sketches	[06]
OR			
Que-4	[A]	Mention the types of pyranometer and Describe any one of them giving neat sketch.	[06]
	[B]	Describe the list of solar energy applications. And Explain one briefly	[06]
Que- 5	[A]	Explain the Concept of wind Energy and Define the Following terms (a) Wind Velocity (b) Wind Speed (c) Wind mill	[06]
	[B]	Write the applications of windmill system.	[05]
OR			
Que- 5	[A]	Describe Horizontal axis windmills briefly with circuit diagram	[06]
	[B]	Classification of wind energy conversion systems (WECS)	[05]
Que-6	[A]	Give the classification of biogas plants briefly.	[06]
	[B]	Write notes on Janta bio-gas plant.	[06]

END OF PAPER
Best of Luck