Exam No: _____

GANPAT UNIVERSITY
B. TECH SEM- III (ELECTRICAL)
REGULAR EXAMINATION NOV-DEC 2016
2EE304: CONVENTIONAL & RENEWABLE POWER GENERATION

TIME: 3 HRS

TOTAL MARKS: 60

Instructions: (1) This Question paper has two sections. Attempt each section in separate answer book.
(2) Figures on right indicate marks.
(3) Be precise and to the point in answering the descriptive questions.

SECTION – I

Que.-1 (A) Discuss the classification of Hydropower plant. [05]

(B) A hydraulic project with a head of 39 m has a minimum available run off of [05] approximately 94 m^3/sec and efficiency of 80%. Determine (i) firm capacity (ii) yearly gross output.

OR

Que.-1 (A) Explain the essential factors which influence the choice of site for a hydro-electric [04] plant.

(B) A factory is located near a water fall where the usable head for power generation [04] is 24 m. The factory requires continuous power of 500 kVA at 0.8 power factor throughout the year. The river flow in a year is (a) 10 m^3/sec for 4 months, (b) 6 m^3/sec for 2 months and (c) 1·5 m^3/sec for 6 months.

(C) Explain the functions of: (i) surge tank (ii) Strainer. [02]

Que.-2 (A) Draw the schematic diagram of Diesel generating plant and explain all important [05] components.

(B) Define Coefficient of power and deduce an equation of energy exerted from wind by [05] using wind machine.

OR

Que.-2 (A) Discuss the types of wind generating machines. [05]

(B) Develop the block diagram showing working of wind energy conversion process [05] and also discuss each important component of it.

Que.-3 Attempt any Two: [10]
(A) List out all types of energy sources with their single line meaning.
(B) Draw the sketch to identify various working cycles of coal based power plant.
(C) Discuss the importance of wind as important energy source and also discuss disadvantages of wind energy.

SECTION-II

Que.-4 (A) Draw standalone system of electrical power generation using solar PV method. [02]

(B) Dc motor is supplied by 1.5 HP at shaft side with an efficiency of 80 %.Module has [03] 36 cell with 9X4 matrix. Size of each is 125 X 125 mm and efficiency is 12%. 1kW\m^2 is global radiation on panel, then calculate required module quantity.

(C) Describe the double basin arrangements of tidal energy system. [05]

OR

Que.-4 (A) What is the flow of working for fixed dome type biogas plant? Draw the [05] construction view for the same.

(B) List the different types of concentrating collector and explain any two of them in [05] brief.

Que.-5	(A)	By which method gas based power plant is extended to generating electrical power in two stage? Draw and explain it.	[05]
	(B)	Differentiate nuclear power plant from thermal power plant.	[05]

OR

Que.-5	(A)	List the components of nuclear reactor and discuss the functions of each with required diagram.	[05]
	(B)	Write down a short note on site selection points for thermal power station.	[05]

Que.-6		**Attempt any Two:**	[10]
	(A)	Derive expressions for maximum power generation per unit volume of a generator in magneto hydro dynamics system.	
	(B)	Explain the Anderson cycle for OTEC process with suitable sketch.	
	(C)	Explain the principle of operation of Hydrogen Fuel cell. Clarify it with explanation of alkali fuel cell.	

END OF PAPER