R-14

Code: 4G585

IV B.Tech. II Semester Advanced Supplementary Examinations May/June 2018

Non Conventional Sources of Energy

(Mechanical Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

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UNIT–I

1. a) Contrast pyrheliometer and a pyranometer.   7M
    b) Explain the working principle of angstrom type pyrheliometer with neat sketch.   7M

OR

2. a) What are the reasons for variation for variation in solar radiation reaching the earth than received at the outside of the atmosphere   5M
    b) Write notes on beam and diffuse radiation   5M
    c) Define the terms: Zenith angle and solar azimuth angle.   4M

UNIT–II

3. a) Describe the layout and working of a continuous solar cooling system.   7M
    b) Describe the solar heating system with a sketch with advantages and disadvantages.   7M

OR

4. a) Classify the solar collectors and explain the various the various solar collectors   7M
    b) What is the principle of solar photovoltaic power generation and List the main elements of PV system?   7M

UNIT–III

5. a) Classify the wind energy systems and explain the working principle of wind energy system with main components   7M
    b) Explain the construction details and working of KVIC digester   7M

OR

6. a) Draw the Horizontal axis wind turbine, and explain the functions of its components.   7M
    b) What are the advantages and disadvantages of floating drum plant.   7M

UNIT–IV

7. a) Explain various types of Geothermal resources.   7M
    b) Explain with the help of a diagram, the principle of open cycle OTEC system.   7M

OR

8. a) Describe the closed cycle OTEC system, with its advantages over open - cycle system   7M
    b) Explain the harnessing energy in a Tidal power plant with a sketch.   7M

UNIT–V

9. a) Explain the working of fuel cell with a neat sketch.   7M
    b) Describe an MHD open cycle system. List the advantages of MHD power generation.   7M

OR

10. a) Describe an MHD closed cycle system with its advantages and disadvantages.   7M
    b) Describe the principle of working of a thermo-electric generator.   7M

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IV B.Tech. II Semester Advanced Supplementary Examinations May/June 2018
Production & Operations Management
(Mechanical Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks** each)
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1.	a)	Explain the factors influencing the design of the product. What information is necessary for developing an effective Production Planning and Control System?	8M
	b)	What do you mean by Productivity? What is its Importance? How would you measure the Productivity?	6M
2.	a)	Define Forecasting. List out the properties of good Forecasting method. What steps do you follow while making a Forecast?	8M
	b)	List out various methods of Forecasting. Explain any two methods in detail.	6M
3.	a)	What is Facilities Layout? What are the objectives which management desires to attain through the efficient Facilities Layout?	8M
	b)	Explain the Factors affecting facilities location in detail with suitable illustrations.	6M
4.	a)	What do you mean by Aggregate Planning? Explain in detail.	7M
	b)	List and explain various Pure and Mixed Strategies.	7M
5.	a)	Derive the EOQ formula for the purchase model without shortages.	5M
	b)	Beta industry estimates that it will sell 24,000 units of its product for the forthcoming year. The ordering cost is Rs 150 per order and the carrying cost per unit per year is 20% of the purchase price per unit. The purchase price per unit is Rs 50.Find (a) Economic Order Quantity(EOQ) (b) No. of orders per year (c) Time between successive orders A company is requiring 10,000 units of raw materials per annum. The cost per order is estimated to be Rs 50. The storage cost is estimated to be Rs 5 per unit of average inventory. What quantity should be ordered so that the total cost is minimum? Also find the total minimum cost.	9M
6.	a)	What are the assumptions in flow shop Scheduling?	5M
	b)	Write short notes on Dispatching rules.	5M
	c)	Explain the procedural steps in Johnson's Algorithm.	4M
7.	a)	What does bill of materials structure mean? Give an example.	6M
	b)	Briefly explain the purpose and concept of Line of Balance.	4M
	c)	Elucidate the steps of Line of Balance.	4M
8.	a)	Describe the principles of TQM programme and how the Elements fit together to make improvements in quality and productivity.	8M
	b)	Explain the basic principles of JIT Manufacturing System.	6M

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