

**Code: 1G581**

IV B.Tech. II Semester Regular &amp; Supplementary Examinations Mar/Apr 2016

**Production and 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) Discuss the functions of production planning & controls, in operations & productivity 7M
- b) Discuss the strategies for new product development 7M
2. a) Explain various forecasting models 7M
- b) Using exponential smoothing techniques, compute the forecast from the following data (time series) under the situation when ( compute the forecast for the 12th period  

Month	1	2	3	4	5	6	7	8	9	10
Demand	10	12	8	11	9	10	15	14	16	15.

use exponential coeff =0.32 . 7M
3. a) Distinguish between the product layout and process layout. 7M
- b) Discuss about CORELAP & CRAFT techniques 7M
4. a) Explain expediting and controlling aspects in production management 7M
- b) Describe aggregate planning with suitable diagram and explain pure and chase strategies of aggregate planning. 7M
5. a) What is an inventory? Describe the costs associated with the inventories. 7M
- b) A motor company requires 5,00,000 units of a speedometers per year. The ordering receiving and handling cost is Rs. 30 per order, while inspection cost is Rs. 112 per order. Interest cost Rs.0.06 per unit per year. Deterioration and obsolescence cost Rs.0.04 per unit per year. Storage cost Rs.10000 per year per 5,00,000 units, calculate the following:  
 (i) EOQ. (ii) Reorder period (iii) Number of orders per year (iv) Total variable cost. 7M
6. a) Explain the different steps in Johnson's Algorithm 7M
- b) Consider the following three machines and 5 jobs flow shop problem. Check whether Johnson's rule can be extended to this problem. If so, what is the optimal schedule and the corresponding make span? the processing time in hour is indicated in following table

job	Machine 1	Machine 2	Machine 3
1	07	04	03
2	09	05	08
3	05	01	07
4	06	02	05
5	10	03	04

7. a) Explain the concepts of BOM[ Bill of materials], MRP with a simple example 7M
- b) What is ERP? and describe ERP MODULE for any one function of Enterprise 7M
8. a) State Deming's 14 principles on total quality management. 7M
- b) Discuss the key elements of total quality management 7M

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**Code: 1G582**

IV B.Tech. II Semester Regular &amp; Supplementary Examinations Mar/Apr 2016

**Power Plant Engineering**

(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 generally available energy resources in India for power generation along with their utility level. 7M
- b) Explain the working of ash handling circuit and coal handling circuit of thermal power plant. 7M
2. a) Differentiate between over feed and under feed coal beds used in steam boilers. 7M
- b) Why water in the power plant needs to be purified? Explain the methods of water treatment systems used in steam power plants. 7M
3. a) Draw a neat layout of a diesel power plant and label all the components and explain about each component. 7M
- b) List the advantages of diesel power plants over other thermal power plants and also explain applications. 7M
4. a) Draw the schematic lay out of gas turbine power generation plant along with auxiliary components and explain the salient features. 7M
- b) Explain the working principle of combined cycle power plant along with T-s diagram.
5. a) What is the better location for hydro power generation? Explain the salient points required to find the better location. 7M
- b) What are the functions of a surge tank fore bay and draft tube in a hydraulic power plant 7M
6. a) What are the differences between direct and indirect methods of power generations? Explain the applications. 7M
- b) How to make use of solar collectors as alternate energy source for power generation? Explain its working principle.
7. a) How does a nuclear fission differ from nuclear fusion? Explain with suitable examples. 7M
- b) Enumerate and explain the essential components of nuclear reactor. Explain the methods to minimize these pollutants. 7M
8. a) What are the operating costs to be considered for the cost analysis of thermal power plants? 7M
- b) A power plant has the following annual factors: Load factor = 70%, Capacity factor = 50%, use factor = 60% Maximum demand is 20 MW. Find:
  - i) Annual energy production;
  - ii) Reserve capacity over and above peak load;
  - iii) Hours during which the plant is not in service per year. 7M

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Hall Ticket Number :

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**R11**

**Code: 1G585**

*IV B.Tech. II Semester Regular & Supplementary Examinations Mar/Apr 2016*

**Non Conventional Sources of Energy**

( 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) What are the sources of renewable energy? 6M  
b) What are the instruments used for measuring the solar radiation? 8M
2. a) What is meant by the solar air collector? Write the pros & cons of this method. 8M  
b) Write note on the Owen- Illinois (OI) collector. 6M
3. a) What is meant by solar distillation? Explain. 8M  
b) Discuss the characteristics of *P-N* Junction. 6M
4. a) Write note on the horizontal axis and vertical axis of wind turbines. 8M  
b) What is meant by Betz Limit? Explain. 6M
5. a) What is meant by Biogas Digester? Classify the biogas digester. 10M  
b) Write the principle of Bio-Conversion. 4M
6. a) Discuss the advantages and disadvantages of geo thermal energy over other energy forms. 6M  
b) Explain the types of wells in geothermal energy sources. 8M
7. a) Write the working principle of ocean thermal energy conversion. 4M  
b) What are the mini- hydel power plants and write their economic sources in India. 10M
8. a) What is meant by Carnot cycle? Explain. 5M  
b) Describe an MHD open cycle system. What are the main advantages of an MHD power generation? 9M

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**Code: 1G587**

IV B.Tech. II Semester Regular &amp; Supplementary Examinations Mar/Apr 2016

**Supply Chain 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 objectives of supply chain management. 5M  
b) Write in detail about push/pull view of supply chain processes. 9M
2. a) What type of networks are best suited to highly differentiated products? 7M  
b) Explain a framework for network design decisions. 7M
3. a) What are the models for facility location? Explain. 7M  
b) Explain the role and objectives of capacity allocation in modern supply chains. 7M
4. a) Explain how a reduction in lead time can help a supply chain reduce safety inventory without hurting product availability? 8M  
b) What are the pros and cons of the various measures of product availability? 6M
5. a) Write about design collaboration reference to SCM. 6M  
b) Explain the role of sourcing in supply chain. 8M
6. a) What are the factors affecting transportation decisions? Explain 7M  
b) Write notes on  
(i) International transportation  
(ii) Performance characteristics of transportation. 7M
7. a) What is the impact of lack of coordination on the performance of the supply chain? 7M  
b) What issues must be considered when managing a supply chain relationship to improve the chances of developing cooperation and trust? 7M
8. a) Explain the role of IT in supply chain with help of a case study. 4M  
b) Write short notes on  
(i) CRM  
(ii) SRM 10M

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