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209503

Dec., 2018

B.Tech. (ME) Vth Semester

INDUSTRIAL ENGINEERING

(ME 350C)

Time : 3 Hours] [Max. Marks : 75

Instructions :

(i) It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.

(ii) Answer any four questions from Part-B in detail.

(iii) Different sub-parts of a question are to be attempted adjacent to each other.

(iv) Any other specific instructions.

PART–A

1. (a) Write the objectives of a good plant layout for an Electronic Company. (1.5)

   (b) What are the objectives of Production Planning and Control (PPC)? (1.5)

   (c) Compare the production systems based on their characteristics. (1.5)

(d) Define productivity. Write the tools for improving productivity. (1.5)

(e) Define work study. What are the areas of application of work study in an industry? (1.5)

(f) Write the factors tending to reduce productivity. (1.5)

(g) With the help of appropriate examples, explain fixed cost and variable cost. (1.5)

(h) Define order point and safety stock. (1.5)

(i) Explain ABC analysis. (1.5)

(j) What are THERBLIGS? Write its importance. (1.5)

PART–B

2. (a) What are the various types of plant layouts? Describe in brief any two types of plant layouts with their advantages and limitations. (10)

(b) The demand for a product is 500 units per month. Every production run requires a set-up cost of Rs. 1000. It cost Rs. 1.00 to store unit product for one month. What should be the optimal number of units to produce in each production run? (5)

3. (a) Define method study. Explain the steps in method study. (5)

(b) Pepsi Company produces a single article. Following cost data is given about its product:?

Selling price per unit	Rs. 40
Marginal cost per unit	Rs. 24
Fixed cost per annum	Rs. 16,000

Calculate :

I. P/V ratio.

II. Break even sales.

III. Sales to earn a profit of Rs. 2,000.

IV. Profit at sales of Rs. 60,000.

V. New break even sales, if price is reduced by 10%. (10)

4. How does inventory contribute to the value-adding activities of a firm? When should inventory be considered a symptom of waste? Discuss strategic importance of materials in manufacturing industries. (15)

5. (a) What is sales forecasting? List various methods of sales forecasting and explain any one of the method. (5)

(b) Assume that your stock of sales 1 0 merchandise is maintained based on the forecast demand. If the distributor's sales personnel call on the first day of

each month, compute your forecast sales for each of the three methods mentioned here.

S.No.	Month	Actual Sale
1	June	140
2	July	180
3	August	170

I. Using a simple three-month moving average, wh is the forecast for September.

II. Using a weighted moving average, what is the forecast for September with weights of 0.20, 0.30 and 0.50 for June, July and August respectively.

III. Using simple exponential smoothing and assume that the forecast for June, had been 130, calculate the forecasts for September with a smoothing constant alpha of 0.30. (10)

6. (a) Define work sampling. Discuss the steps in Work Sampling procedure. (5)

(b) Discuss the factors which should be considered for the selection of site for the automobile industry. (10)

7. At the end of each month, a research and development team writes status reports for the projects at work. The team leaders, Sandeep and Mahesh, submit them to the R&D director on the first Monday of each month.

Unfortunately, they forgot to check their calendar one month until late Friday evening. To their surprise, they discovered that the month ended on Sunday and the reports were due the following Monday morning. As they had not started writing them, they decided to come to work early Saturday morning, so they could finish the reports before Monday morning. They split the work as follows : Sandeep writes and edits the reports while Mahesh collates data and draws all the necessary graphs. Assume that Mahesh starts his work on a report as soon as Sandeep is finished with it and that Sandeep works continuously. Time for the reports (in hours) for each project by each team leader is given as follows :

Projects	Time (in hours) taken by Sandeep	Time (in hours) taken by Mahesh
A	4	2
B	3	5
C	5	1
D	7	3
E	8	6

Using Johnson's Rule, determine the sequence of projects and total time duration to accomplish the task. (15)