

College of Engineering, Pune
END SEMESTER EXAM Nov/Dec 2012
B.Tech. (Production Sandwich)
(PE -405)- (Facilities Planning and Design)

Day & Date- Monday 03/12/12
Timing- 2 PM to 5 PM

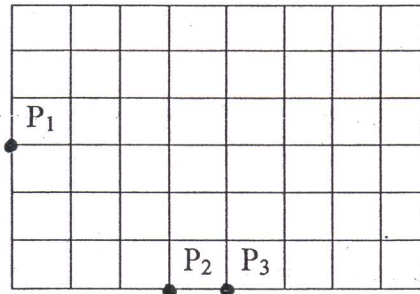
Max. Marks- 50
Duration - 3 Hrs.

Instructions:

1. All questions carry equal marks
2. Solve any **FIVE** questions.
3. Draw figures wherever necessary.

- Q. 1 A.** An airport authority is interested in designing a layout for its new location. List and justify the inputs required to generate the layout. Which facilities will you include for airport management? (5)
- B.** How conveyor model differ than that of the other material handling systems. What are the specific characteristics to be considered while designing the conveyors? (5)
- Q. 2 A.** Explain the functions carried out by stores and warehouses. What are the objectives considered in designing the layout of a warehouse? (5)
- B.** Explain the factors considered for area allocation once the facilities are identified. Write the procedure used to allocate areas in a layout. (5)
- Q. 3 A.** Simulation is an excellent tool to evaluate layouts. Comment. Write the procedure followed to design layout using ProModel. Explain the inputs required design a layout using the software. (5)
- B.** Formulate the warehouse layout problem. Elaborate the terms used and explain the approach used to minimize the total expected distance traveled. (5)
- Q. 4 A.** Explain the Systematic Economic Analysis Technique used to compare facilities planning alternatives economically. (5)
- B.** Explain the concept of modular design. Elaborate with the advantages and disadvantages. (5)

- Q.5** Consider the warehouse given in the figure. Storage bays are of size 20×20 . The storage area required for product A equals 10000 sq. ft. and product B requires 6000 sq.ft. item movements between storage and one of the three docks equals 2000 loads per month for product A and 2500 for product B. rectilinear travel is used. Design the layout of the products that minimizes the expected distance travelled per month. Assuming loads are twice as likely to travel to and from the dock denoted by P1 as to either of the remaining docks. (10)



- Q.6 a** Eight machines are to be maintained by crew from central maintenance facility. The coordinates of the machines are (0,0), (4,6) (8,2), (10,4), (4,8), (2,4), (6,4) and (8,8). It is desirable to locate maintenance department in the production area. Determine the location using minimax location criteria. (5)
- b** Process layout, product layout, and cellular layout are the three types of layouts in most of the manufacturing situations. Compare these three types of layouts according to today's manufacturing scenario. (5)