

GANPAT UNIVERSITY**M. TECH SEM-1st CAD-CAM & AMS REGULAR EXAMINATION NOV-DEC 2017**
3ME106 – COMPUTER AIDED PROCESS PLANNING

MAX. TIME: 3 HRS

MAX. 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)** What is the philosophy of Just in Time (JIT)? Explain the approaches to be followed to achieve the goals of JIT. 5
- (B)** Describe the salient features of forward and backward planning methods with reference to process planning. 5

OR

- Que.1 (A)** What is the need and importance of computer aided process planning technique? Explain giving a suitable illustration. Also explain the different types of CAPP techniques 5
- (B)** Define group technology and the basis of classifying the parts based on GT. Also explain the composite part concept using a suitable example. 5

- Que.2 (A)** Define Master Production Scheduling. Explain the factors that need to be taken into account while developing master production schedule. 5
- (B)** Explain the inputs to material requirements planning system. Sketch the sample Output table for material requirements planning system and discuss in detail. 5

OR

- Que.2 (A)** An end item X is composed of two B's and one C. moreover, each B requires three D's and one E, and each D requires four E's. Similarly, each C is made up of two E's and two F's. The items at each level are components of the next level up and, as in a family tree, are parents of their respective components. The available inventory on hand of each items B, C, D, and E are 4, 10, 8, and 60 respectively. Note that the quantities of each item in the product structure tree refer only to the amounts needed to complete the assembly at the next higher level. Use this information to do the following: 7
- (A)** Draw the product tree diagram
- (B)** Determine the quantities of B, C, D, E, and F needed to assemble one unit of X.
- (C)** Determine the quantities of these components that will required to assemble 10 Xs, taking into account the quantities on hand of various components.
- (B)** Explain the concept of group technology for mass production system 3

- Que.3 (A)** Explain the generic model of ERP system using schematic block diagram indicating flow of information 5
- (B)** What is ERP? Discuss its benefits in large scale industry. 5

SECTION: II

- Que.4 (A)** for one of the manufacturer the number of product sold during the past 10 years is as follows. 7
- For product planning purpose annual sales are estimated for this product group, what would these annual group forecasts have been for year 5 through 11 with each of the following techniques?

- (1) An unweighted four year moving average approach

(2) An Weighted four year moving average approach in which a weight of 0.1 was assigned to first year,0.2 to the second year ,0.3 to the third year and0.4 to the fourth year.

An exponential smoothing approach in which a smoothing factor of 0.05 was used and in which the weighted four year moving average was used as the forecast for year 5.

Year	No. of product sold	Year	No. of product sold
1	11922	6	10168
2	10417	7	12574
3	13060	8	9856
4	11841	9	11333
5	14183	10	10716

(B) Explain Collective opinion method of sales forecasting with advantages and disadvantages. 3

OR

Que.4 (A) Sales data of a product related to economic index for past 10 years is given below 7

Year	Economic Index	Sales 10000 units	Year	Economic Index	Sales 10000 units
1	111	2.1	6	100	2.6
2	161	2.8	7	129	2.4
3	143	2.6	8	104	2.3
4	170	2.0	9	152	2.3
5	126	2.5	10	115	3.0

(1) Determine the equation of the least squares line that describes the relationship between sales and the economic indicator.

(2) Determine the strength of the relationship between the two variables by computing the value of coefficient of correlation.

If the value of economic index for the 11th year is 175, find out the sales in 11th year.

(B) What is the importance of sales forecasting? Explain the method of least squares. 3

Que.5 (A) What is forecast? What steps are involved in using time series data to make a Forecast? Summarize the key features of the more commonly used forecasting method 5

(B) A wholesale distributor finds that the number of one of his products sold during the past seven years is related to an economic index and the data is as follows: 5

Year	Economic Index	Sales (1000 units)	Year	Economic Index	Sales (1000 units)
1	87	13.1	5	93	11.6
2	122	17.4	6	124	19.2
3	119	15.3	7	115	14.7
4	130	22.8			

(i) Determine the equation of the least squares Line that gives relationship between the economic index and sales.

(ii) Determine the coefficient of correlation between the two variables.

(iii) If the value of the economic index for a future period is 127, what sales can be expected during that period?

OR

Que.5 (A) Discuss the integration of CAD database And CMM operation. 5

(B) What is Simulation? List the advantages and disadvantages of simulation technique. 5

Que.6 (A) What are the two types of inspection techniques? Explain any one non-contact type inspection technique. 5

(B) Describe the Construction of a CMM and List the components of a co-ordinate measuring machine 5

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