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UA-3540

Second Year B. B. A. (Sem. IV) Examination

March / April – 2012

Production Management

(Old Course)

Time : Hours] [Total Marks :

Instrutions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **S. Y. B. B. A. (SEM. 4)**

Name of the Subject :

☛ **PRODUCTION MANAGEMENT (OLD)**

☛Subject Code No. : **3 5 4 0** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Figures to the right indicate full marks allocated to that questions.

(3) All questions are compulsory.

(4) use of calculators and statistical tables / log tables is permitted.

1 Answer the following question briefly. **14**

(i) Explain terms "Attribute" and "Variable" in relation to quality control

(ii) Give abbreviations and symbols for following Therbligs :

- Transport (Loaded)
- Hold
- Plan
- Unavoidable delay

(iii) Weekly demand of one material is constant at 4000 pieces per week. Lead time is variable and its average value is 4 weeks. Standard deviation of lead time is 1 week. Service level for this material is 98%. Find out safety stock and re-order level for this material.

(iv) Explain Critical Ratio Rule for job sequencing . If Critical Ratio is for any job is exactly one, what will be value of stack ?

(v) Define "Inspection" for Material Flow Process Chart. Give its symbol. Give two examples of "Inspection" for Material Flow Process Chart.

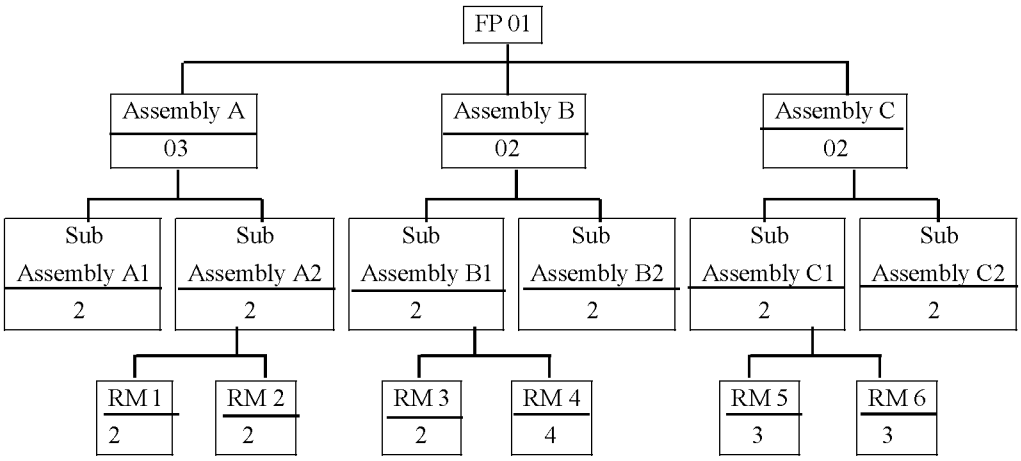
(vi) Explain how you can get benefits of both ABC analysis and VED analysis.

(vii) Explain why Interest Cost and Storage Cost should be given separate treatment in derivation of Economic Order Quantity (EOQ) formula.

2 Answer any one : **7**

(i) Write short note on Capacity Requirement Planning. Explain methods of capacity adjustment.

(ii) In the following diagram, Product Structure or Bill of Material of one finished product FP 01 is shown. Figure in every block indicates the quantity of that material needed to make one unit of that assembly or sub-assembly to which that material is an input. Today is 4^{th} February, 2011. Company wants to sell 3000 pieces of FP 01 in March 2011. Today's stock of FP 01 is 4000 pieces. In the remaining days of February, 2011 company will sell 2500 units of FP 01. At present, 1000 units of FP 01 are in Work in Progress (Semi-finished) state. These 1000 pieces will be transferred to Finished Goods Ware-house in the third week of February. At the end of March 2011, company wants to keep 2000 pieces of FP 01 as closing inventory. Find out what quantity of FP 01 should be manufactured in March 2011.



Find out consumption quantities of RM1, RM2, RM3. RM4, RM5, RM6

3 Define "Material Handling". How it differs from "Logistics" ? **7**

Explain classification of material handling system as per source of power and as per path of movement.

OR

3 Differentiate between intermittent production systems and continuous production systems. **7**

4 Answer any one : **8**

(i) Daily consumption of one material is 1200kgs. There are 300 working days in a year. This material is manufactured on in-house basis. The capacity of in-house manufacturing unit is 2400 kgs per day. Every time when new pruduction cycle begins for in - house manufacturing of this material, Rs. 1600.00 are spent on cleaning and resetting of machines. Apart from this, Rs. 200.00 are spent on creating records to production new production batch and Rs. 200.00 are spent on giving instructions and orders to employees. Total per unit cost of manufacturing

this material on in-house basis is Rs. 100.00 per Kg. Annual per unit inventory carrying cost is 20% of total per unit cost of manufacturing. Find out Economic Run Length Quantity, maximum inventory level, length of one product run in days, time gap between end of one production run and beginning of the next, time gap between starting point of two successive production run and total minimum cost of inventory associated with ERLQ.

(ii) Demand of one chamical is 3600 liters per week. The factory works for 50 weeks in one year. Annual per unit storage cost is Rs. 4.50 per litre per year. Price of this material is Rs. 160.00 per litre and per unit annual interest cost is 10% of price. Cost of sending inquires while placing purchase order is Rs. 50.00. Cost of making comparison statement is Rs. 50.00. Cost of arranging one negotiation session is Rs. 200.00. Cost of typing and sending one order is Rs. 100.00. Out of every order received, 5 litres are consumed in quality checking which is done by destructive testing method. Test of conduct quality test is Rs. 400.00 which does not include value of 5 litres used in quality check. Find out EOQ.

The lead time of purchasing is 3 weeks, safety stock is 10% of EOQ. Find out re-order level and total cost of inventory.

5 There are five areas in which company wants to sell its products. Five salesmen are available for this purpose. One salesman can attend only one area. Any salesman can go to any area but for every combination of area and salesman, sale volume will be different, These values are shown in following table : **12**

	Area 1	*Area 2*	*Area 3*	*Area 4*	*Area 5*
Salesman 1	30	60	140	90	70
Salesman 2	100	70	90	30	40
Salesman 3	20	60	120	80	40
Salesman 4	60	90	50	120	100
Salesman 5	50	80	110	50	40

(All figures in thousands of rupees)

Find out the best combination of area and salesman.

After some time, Area 6 is also considered by company. Five Salesman can achieve following sale volumes in this Area 6 :

Salesman 1	Salesman 2	Salesman 3	Salesman 4	Salesman 5
100	100	100	100	100

(All figures in thousands of rupees)

Because of production capacity and distribution capacity limitation, company can cater to only five areas. It can not sell products in all six areas, Should comapny target Area 6 ? Which area will not be covered now ? Justify your answer by proper calculation. What will be new combination of area and salesman ? What will be increase in total sale because of this change ?

OR

5 Define the term, "Product Control". Explain "Dispatching" and "Follow-up" as two techniques of Production Control. **12**

6 (a) In a semi - automatic operation, following activities are observed : **8**

(i) Worker picks up raw material piece from tray - 5 seconds.

(ii) Worker inspects surface finish of raw material piece directly with eye. - 5 second.

(iii) Worker loads raw material piece in machine. - 10 seconds.

(iv) Worker sarts machine by engaging a lever. - 5 seconds.

(v) Machine runs automatically with automatic stoppage at the end. - 50 seconds.

(vi) Worker unloads finished piece from machine. - 10 seconds.

(vii) Machine throws waste material automatically. - 10 secodns.

(viii) Worker inspects finihsed piece. - 20 seconds.

(ix) Worker puts finished piece in the box. - 60 seconds.

Construct Man and Machine Chart for the best activity sequence after introducing all such improvements which can reduce idle time of worker and of machine. What is cycle time ? What shall be per cycle idle time of worker and machine per cycle ?

(b) List various Indirect Time Study technique. Explain any one briefly. **2**

OR

6 (a) Explain the process of value analysis. **5**

(b) Write a detailed note on various principles of motion economy. **5**

7 Answer any two : **12**

(i) Define terms; "Quality" and "Quality Control". List various methods of quality control. Explain any three methods.

(ii) Discuss various objectives of quality control

(iii) Twenty samples of n = 200 units were taken. Number of defective items are mentioned in the following table :

12	18	10	14	16	19	17	12	11	14
16	14	12	16	18	20	18	20	21	22

Prepare 2 - sigma control limits of a suitable chart. Is process under control ?
