* U A - 3 5 3 6 *

# UA-3536

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

### March / April – 2012

## Production Management

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**

☛Subject Code No. : **3 5 3 6** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

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

(3) All questions are compulsory.

**1** Answer following questions briefly. **12**

(i) Weekly demand of one chemical is 520 kgs. Cost of placing one order is Rs. 1280.00. Price of this material is Rs. 2000.00 per bag of 20 kgs. Inventory carrying cost on per unit, per year basis is 25% of price. If EOQ is ordered, what shall be time gap between two orders ?

(ii) Give two examples each of 'Operation' and 'Inspection' in material flow process chart.

(iii) Mention abbreviations and symbols of following therbligs :
- Select
- Pre - position
- Inspect
- Hold

(iv) Briefly discuss any two methods of disposal of non-moving inventories.

(v) Decide priorities of five jobs Johnson's rule :

| | Job 1 | Job 2 | Job 3 | Job 4 | Job 5 |
|---|---|---|---|---|---|
| Machine 1 | 12 | 12 | 22 | 22 | 18 |
| Machine 2 | 16 | 18 | 14 | 14 | 22 |

(Time in minutes)

(vi) Give any four examples of Strategic (Long Term) Production Planning.

2 (i) Discuss importance of Production Management. **28**
(ii) Discuss any seven principles of Material Handling.
(iii) Discuss any two techniques (method) of plant location selection.
(iv) Discuss any seven methods of controlling waste.

**OR**

2 (i) Discuss applicability of Production Management principles to manufacturing organizations, to service sector, to retailing and trading sector. **28**
(ii) Differentiate between product lay-out and process lay-out.
(iii) Discuss any seven factors affecting selection of plant location.
(iv) Discuss various methods of quality control.

3 Annual consumption of one material is 3,20,000 kgs per year. The factory works for 320 days in a year. This material is manufactured on in-house basis. The capacity of in-house manufacturing unit is 1500 kgs per day. Every time when new manufacturing cycle begins in that in-house unit, Rs. 400.00 are spent on generation of production records and Rs. 400.00 on giving orders and instructions. Machine cleaning and resetting cost is Rs. 400.00. Per unit in-house cost of manufacturing is Rs. 80.00 per kg. Annual per unit inventory carrying cost is 20% of per unit in - house manufacturing cost. **10**

- Find out Economic Run Length Quantity.
- Find out maximum inventory level.
- Find out length of one production run in days
- Find out time gap between end of one cycle and beginning of next cycle.
- Find out gap between beginning of two successive production cycles.

**OR**

3 Write a detailed note on 'Selective Inventory Control'. **10**

4 In a semi - automatic manufacturing operation, following activities are observed : **10**
(i) Worker picks up raw material piece from tray - 2 minute.
(ii) Worker checks length of raw material piece - 1 minute
(iii) Worker loads raw material piece in machine - 2 minute
(iv) Worker starts machine - 1 minute
(v) Machine runs automatically with auto stop at the end. - 3 minute

(vi) Worker unloads finished piece - 2 minutes
(vii) Machine throws waste material automatically - 2 minutes
(viii) Worker inspects finished piece - 2 minutes
(ix) Worker packs finished piece in the box. - 2 minutes
Suggest how can we reduce idle time of worker and idle time of machine. Prepare man and machine chart for that improved situation. What shall be cycle time after improvements ? What shall be % idle time of worker and machine after improvements ?

**OR**

4 Answer following questions. **10**

(1) Discuss various principles of motion economy.

(2) Explain various types of performance allowances to be considered while converting Normal Time in to Standard Time.

5 Five manual jobs are to processed by five workers. Any worker can process any job but we wish to assign only one job to one worker. In the following table, time values for each combination of job and worker are mentioned. Find the best combination of jobs and workers.

| | *Worker 1* | *Worker 2* | *Worker 3* | *Worker 4* | *Worker 5* |
|---|---|---|---|---|---|
| *Job 1* | 12 | 20 | 40 | 60 | 32 |
| *Job 2* | 16 | 28 | 60 | 72 | 32 |
| *Job 3* | 32 | 48 | 80 | 80 | 48 |
| *Job 4* | 20 | 20 | 32 | 40 | 24 |
| *Jon 5* | 40 | 40 | 60 | 100 | 40 |

(All times are in minutes)

After some time, bio-data of Worker 6 is received. He takes equal time of 24 minutes for each five jobs. Should we recruit him ? Which job shall be assigned to him ? Which worker will be sacked ? What will be time saving because of introduction of Worker 6 ? Justify your answer by proper calculations.

**OR**

5 (i) Today is 5$^{th}$ February, 2012. We are doing Material Requirement Planning for the month of March, 2012. Requirement of Raw Material No 7 (RM 7) in the month of March, 2012 is 20,000 units. Current stock of RM 7 is 15000 units In remaining days of February, 2012, we are going to consume 12000 units of RM 7. We have got pending order of 10000 pieces of RM 7 and receipt against it is expected in the first week of March 2012. Targeted 31$^{st}$ closing inventory of RM 7 is 4000 units. What additional order of RM 7 should be placed for March, 2012 requirement ? **3**

(ii) Define Bill of Material. Explain single level Bill of Material and multi level Bill of Material. **4**

(iii) Today is 23rd February 2012. We are doing production scheduling at 7 PM. Thus, today's day is not available for work. We have to give delivery of each job in morning on date of delivery. Solve following sequencing problem and decide priorities of four jobs using LPT, LS and CRR rules : **3**

| | Job 1 | Job 2 | Job 3 | Job 4 |
|---|---|---|---|---|
| Work remaining in days | 15 | 12 | 20 | 25 |
| Delivery dat | 8.3.12 | 5.3.12 | 21.3.12 | 25.3.12 |