



MC-3544

Second Year B.B.A. (Sem. IV) (CBCS) Examination
September / October – 2013
Production Management : Paper - II

Time : 3 Hours]

[Total Marks : 70

Instructions :

(1)

नीचे दशांशवै - निशानीवाणी विगतो उत्तरवकी पर अवश्य लभवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
S. Y. B.B.A. (Sem. 4) (CBCS)

Name of the Subject :
Production Management : Paper - 2

Subject Code No. : **3 5 4 4** Section No. (1, 2,.....) **NIL**

Seat No. :

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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

- (a) Explain following priority rules :
- FCFS
 - LPT
 - SPT
 - EDD
- (b) Explain any one indirect time study technique.
- (c) What shall be value of Critical Ratio if Slack is zero for a particular job ? What is interpretation of Slack being negative as far as timely completion of job is concerned ?
- (d) Define the term "Quality" from the angle of customer. As a customer, what four quality features do you expect while dining in a good restaurant ?
- (e) Today is 22nd February, 2013. We are doing operations scheduling for following four jobs. We are doing scheduling at 7.00 pm in evening. On the delivery dates, which are mentioned in the following table, various jobs

should leave factory latest at 8.30 AM in the morning. For following data, find out sequence of four jobs using Least Slack Rule.

| | Job 1 | Job 2 | Job 3 | Job 4 |
|----------------------|--------|---------|---------|--------|
| Delivery Date | 5.3.13 | 22.3.13 | 24.3.13 | 9.3.13 |
| Work Content in days | 14 | 25 | 30 | 17 |

- (f) Today is 4th October, 2013. Requirement generated by MRP for RM4 is 16000 pieces in November 2013. Today's stock of RM4 is 6000 pieces. In the remaining days of October 2013, company will use 12000 units of RM4. At present, an order of 12000 units of RM4 is pending with supplier. Out of this pending order quantity, 9,000 pieces will be received in the third week of October and balance quantity shall be received in the first week of November. At the end of November 2013, company wants to keep 5000 pieces of RM4 as closing inventory. Find out closing inventory of RM4 on 31st October, 2013. What additional quantity of RM4 should be ordered in November 2013 ?

2 Answer any four of the following :

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- (i) Explain "Consumer's Risk" and "Producer's Risk" in relation to Quality Control.
- (ii) Differentiate between terms : "Quality Control" and "Quality Assurance".
- (iii) Explain Taguchi's approach for quality assurance.
- (iv) Explain Zero Defect approach.
- (v) Explain the concept of Quality Circles.
- (vi) Explain terms : "Quality of Design" & "Quality of Conformance".

- 3 (a) A marriage bureau has a bio-data of six boys and six girls. Using a computer package, they can judge relative happiness on the scale of -100 to +100 for each pair of a boy and a girl. These results are shown in a following table. Find out the best combination of boys and girls so that total happiness of entire group is maximized.

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[Contd...

| | Girl 1 | Girl 2 | Girl 3 | Girl 4 | Girl 5 | Girl 6 |
|-------|--------|--------|--------|--------|--------|--------|
| Boy 1 | 50 | 0 | -60 | 80 | 70 | -40 |
| Boy 2 | -50 | 20 | -30 | 0 | 60 | -70 |
| Boy 3 | 30 | -40 | 40 | 30 | -50 | 20 |
| Boy 4 | 30 | 40 | 90 | 70 | -20 | 30 |
| Boy 5 | 0 | -10 | -30 | 20 | -10 | 20 |
| Boy 6 | 40 | 30 | 20 | -10 | 0 | 40 |

After some time, a seventh boy's bio-data is received. This boy 7 can have equal degree of happiness of 70 if he gets married to any girl. What shall be new combination of boys and girls ? Which boy will remain unmarried ?

OR

- 3 (a) There are six jobs which are to be processed in the order of $M1 \rightarrow M2 \rightarrow M3 \rightarrow M4$. Following are various processing timings. Find out the best order in which these six jobs are to be processed. What shall be total minimum completion time to complete all six jobs ? 14

| | Job 1 | Job 2 | Job 3 | Job 4 | Job 5 | Job 6 |
|-----------|-------|-------|-------|-------|-------|-------|
| Machine 1 | 14 | 10 | 10 | 10 | 14 | 8 |
| Machine 2 | 6 | 0 | 4 | 6 | 4 | 6 |
| Machine 3 | 0 | 6 | 6 | 4 | 4 | 6 |
| Machine 4 | 6 | 8 | 4 | 8 | 6 | 4 |

(Time in minutes)

- (b) Answer any one : 8
- (i) Explain the term Bill of Material. Discuss single level and multi level bills of material. Why Bill of Material is called heart of Material Requirement Planning ?
- (ii) Write a short note on "Aggregate Planning and Master Scheduling".

- 4 (a) In the following table, Time Study observations for six cycles are given. Time is measured using cumulative time measurement technique. 14

| Activity | Time Readings in Minutes | | | | | | Performance Rating (%) |
|--|--------------------------|---------|---------|---------|---------|---------|------------------------|
| | Cycle 1 | Cycle 2 | Cycle 3 | Cycle 4 | Cycle 5 | Cycle 6 | |
| Worker brings tray of 80 pieces from store | 8.84 | - | - | - | - | - | 95 |
| Checks one piece | 9.96 | 15.30 | 22.94 | 29.94 | 38.44 | 43.20 | 94 |
| Loads one piece in m/c | 10.38 | 15.76 | 23.41 | 31.26 | 38.87 | 43.68 | 105 |
| Starts m/c | 10.56 | 15.92 | 23.56 | 31.43 | 39.01 | 43.84 | 102 |
| Machine runs automatically | 13.37 | 18.70 | 26.52 | 34.28 | 41.85 | 46.64 | 100 |
| Unloads finished piece | 14.14 | 19.49 | 27.06 | 35.00 | 42.07 | 47.38 | 108 |
| Drinks water | - | - | 28.79 | - | - | - | - |
| Packs 2 pieces in a box | - | 21.77 | - | 37.36 | - | 49.60 | 97 |

- How many pieces a worker should process in shift of 8 hours if allowance factor is 25% of cycle time ?
- How many pieces a worker should process in a shift of 8 hours if allowance factor is 20% of shift time ?

OR

4 (a) Prepare Man and Machine Chart for following semi-automatic operation after suggesting all possible improvements. Also find out cycle time. 14

- Worker picks up raw material from tray – 0.5 minute
- Worker checks raw material piece – 1 minute
- Worker loads raw material piece in machine – 0.5 minute
- Worker starts machine – 0.5 minute
- Machine runs automatically with auto-stop at the end – 2 minutes
- Worker unloads finished piece – 1 minute
- Machine throws waste automatically – 0.5 minute
- Worker inspects finished piece – 1 minute
- Worker packs finished piece in box – 1 minute
- Worker marks entry in job-card – 0.5 minute
- Machine automatically resets itself for next cycle – 0.5 minutes

(b) Answer any two : 10

- (i) Explain any three techniques of Value Analysis
- (ii) Explain various types of time allowances that we may have to consider while converting Normal Time into Standard Time during work-measurement process.
- (iii) Explain SIMO charts as a micro motion study recording technique.
- (iv) Explain various ways to classify or to break an operation or a job into time elements during work-measurement process.