Registration No. : | | | | | | | | | | |

Total number of printed pages – 3

B. Tech

HSSM 4302 (Old)

Sixth Semester (Back) Examination – 2013

PRODUCTION AND OPERATION MANAGEMENT

BRANCH : AEIE, CIVIL, CSE, EC, EEE, ELECTRICAL, ETC, FASHION, ICE, IEE, IT, MECH, MME, TEXTILE

QUESTION CODE : B375

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) What are the similarities between manufacturing and service creations ?

   (b) What is the different process technologies used in production and operations management ?

   (c) Mention the different phases of product life-cycle.

   (d) What are the different factors affecting Make or Buy decision ?

   (e) Define standard time.

   (f) Which type of layout problem is suitable for CRAFT and ROC ?

   (g) What are the different techniques used for multi facilities location problems ?

   (h) What is the P and Q system of inventory control ?

   (i) What are the different strategies of aggregate planning ?

   (j) What are the inputs of material requirement planning ?

2. (a) List and briefly discuss different functions of production planning and control. 5

   (b) A time study was made of an existing job to develop new time standard. A worker was observed for 45 minutes. During that period, 30 units are produced. The analysis rated the worker as performing at a 90%

P.T.O.

performance rate. Allowance in the firm for rest and personal time are 12 per cent. 5

(i) What is the normal time for the task ?

(ii) What is the standard time for the task ?

3. (a) Differentiate between product and process layout. 5

(b) In an engineering college, the number of daily calls request repair LAPTOPS has registered as it continues : 5

September	1	2	3	4	5	6	7	8
Calls	92	127	103	165	132	111	174	97

(i) Prepare 3-days Simple Moving Average forecast and 4-days Simple Moving Average forecast in connection with these data.

(ii) Use MAD to decide which method produced the better forecast ?

4. Define production and operations management. Explain the significance of quality and productivity to meet global challenges of Production and Operations imperatives. 10

5. (a) Explain the stop watch method study procedure. 5

(b) A time study was made of an existing job to develop new time standard. A worker was observed for 45 minutes. During that period, 30 units are produced. The analysis rated the worker as performing at a 90% performance rate. Allowance in the firm for rest and personal time are 12 per cent. 5

(i) What is the normal time for the task ?

(ii) What is the standard time for the task ?

6. A project contains the following activities, along with their time

Activity	a	m	b	Immediate predecessor
A	2	5	8	——-
B	1	5	9	——-
C	4	6	9	A
D	2	2	2	B
E	1	2	9	A
F	2	4	5	C,D
G	3	8	10	C,E
H	1	2	3	F,G

estimation for completion.

(a) Calculate the expected time and variance for each activity. 5

(b) Draw the critical path diagram. Show the early start, early finish time and late start, late finish times. Show the critical path. 5

7. (a) Discuss briefly the different stages of new product development. 5

(b) Discuss briefly the interaction between product and process design. 5

8. Write short notes on : 2.5×4

(a) ABC Analysis

(b) Priority dispatching rules

(c) Flexible Manufacturing System (FMS)

(d) Fixed position layout.