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

Total Number of Pages : 03 **MBA**
15MNG205

2nd Semester Regular / Back Examination 2017-18
OPERATIONS MANAGEMENT
BRANCH : MBA
Time : 3 Hours
Max Marks : 100
Q.CODE : C933

Question No1 & No 2 are compulsory and answer any four from the rest.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Q1 **Fill in the blanks :** **(2 x 10)**

a) In India BIS published ----------series of quality system standards In ISO 9000 the total number of clauses (element)are----------.

b) --------- chart provides the management with useful record of quality history. The probability of accepting a bad lot which otherwise would have been rejected is called as --------.

c) The three important dimension of TQM are quality planning, ---------- and ----------.

d) The quality of performance depends upon --------- and ----------.

e) ----------lay out is to identify families of components that requires similar processing on a set of machine. --------- layout will have more material handling cost.

f) ---------- is a process that follows capacity Planning..---------- model can be used to map the aggregate planning problem.

g) Normal time is the multiple of cycle time and ----------.Standard time is a function of -------time and allowance factor.

h) Mean chart is a control chart used to control a ---------- quality. P chart used to control-------- quality.

i) ---------- occurs when it costs less per unit to produce or operate at high levels of output.---------- occurs when higher level of output cost more per unit to produce.

j) A ---------- is the percent of capacity held in reserve for unexpected occurance. ---------occurs when demand variability is magnified at various upstream points in the supply chain.

Q2 **Answer the following :** **(2 x 10)**

a) What are the different cycles in Supply Chain Management ?

b) Write down any three advantages of Group Technology layout.

c) What are the task that project team must perform before the project begins?

d) Which layout is suitable for batch and mass Production System?

e) Explain types of Cost of Quality.

f) Explain advantages of ISO 9000 series.

g) The time study of a work operation yield a cycle time of 10 minutes. The analyst rated the worker observed at 80%.The firm uses a 15% allowance factor. Find the standard time.

h) What is the basic difference between sequencing and scheduling?

i) What are the basic element of JIT?

j) What do you mean by pure strategy in the context of aggregate planning? Which strategy is benefit to organisation?

Q3 **a)** What do you mean by Work Measurement? Explain its objectives and uses What are the different steps in making a time study? **(10)**

b) A work measurement study was carried out in a firm for 10 hours and following information was generated: **(5)**

Units Produced=360, Idle time=15%, Performance rating=120%, Allowance time=10%

What is the standard time for a task?

Q4 **a)** Briefly explain what are the factors affecting Plant Location and also explain centroid locational model. **(10)**

b) Total output=300units, **(5)**
Available time=35 hours

Element	A	B	C	D	E	F	G	H
Precedence	NIL	A	B	NIL	D	NIL	F	C,E,G
Time(Minutes)	2	4	5	5	3	1	2	4

(i) Calculate balance efficiency and balance delay.

(ii) Rebalance the line with cycle time of 9 minutes, Find number of workstations, output and balanced efficiency

Q5 **a)** What is capacity Planning ? Explain its need and objectives. Explain different factors that affect the capacity planning. **(7.5)**

b) What is aggregate planning? Explain its needs and procedure. What are the costs associated in aggregate planning. **(7.5)**

Q6 **a)** Control chart for mean and Range are maintained on certain dimensions of a manufactured part, measured in mm. The sub group size is 4. The values of $\bar{x}$ and R are computed for each sub subgroup. After 20 subgroups $\sum \bar{x}$ =412.83 and $\sum R$=3.39. Calculate the values of 3 sigma limits for the mean and range charts and estimate the values of б' on the assumption that the process is in statistical control. [For sub group of 4,factor d_2=2.059] **(5)**

b) A certain product is given 100% inspection as it is manicured and the resultant data are summarized by the hour. In the following table, 16 hours of data are recorded. Calculate the control limits using 3 sigma control limit and indicate values are out of control. **(5)**

Hour	1	2	3	4	5	6	7	8	9
No of units inspected	48	36	50	47	48	54	50	42	32
No of defective units	5	5	0	5	0	3	0	1	5
Hours	10	11	12	13	14	15	16		
No of units inspected	40	47	47	46	46	48	39		
No of defective units	2	2	4	1	0	3	0		

c) Explain Juran Philosophy of TQM. **(5)**

Q7 **a)** A project is having the following activities and their time estimates : **(10)**

Activity	Predecessors	Optimistic Time(days)	Most likely Time(days)	Pessimistic Time (days)
A	NIL	2	4	6
B	A	8	12	16
C	A	14	16	30
D	B	4	10	16
E	C, B	6	12	18
F	E	6	8	22
G	D	18	18	30
H	F, G	8	14	32

b) (a) Draw the network diagram and find the critical path and duration. Find also the total float, free float and independent float for each activity. **(5)**

(b) What is the probability that the project will require at least 75 days? [Z value=0.4941]

Q8 **Write Short notes on any THREE :** **(5 x 3)**

a) Push and Pull view of Supply Chain Management

b) Different principles of Total Quality Management

c) ISO 9000 Series

d) Statistical Quality Control