

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER 2 – EXAMINATION – WINTER 2018**Subject Code: 3529206****Date: 01/01/2019****Subject Name: Production & Operations Management (POM)****Time: 2.30 pm To 5.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Define the following questions: 14

1. Gantt Chart
2. TQM
3. Lean Manufacturing
4. Shop floor control
5. Kaizen
6. Loading
7. Scheduling

Q.2 [A] What are the routing, dispatching, prioritization and expediting? Explain. 07

[B] Write a note on ISO and its various series applicable to operations management 07

OR

[B] Define SQC. Explain Acceptance sampling in detail. 07

Q.3 [A] A project consist of nine activities whose time estimates (in weeks) and other characteristics are given below: 07

| Activity | Node | Optimistic Time | Most Likely Time | Pessimistic Time |
|----------|------|-----------------|------------------|------------------|
| A | 1-2 | 10 | 11 | 12 |
| B | 2-3 | 6 | 10 | 14 |
| C | 2-4 | 5 | 8 | 11 |
| D | 2-5 | 1 | 5 | 9 |
| E | 3-6 | 3 | 5 | 13 |
| F | 4-6 | 4 | 9 | 14 |
| G | 5-7 | 1 | 2 | 3 |
| H | 6-7 | 3 | 7 | 11 |
| I | 7-8 | 9 | 12 | 15 |
| J | 7-9 | 3 | 5 | 7 |

Find the critical path of the project and its expected duration.

[B] Explain Product Design Vs Process Design. 07

OR

- Q.3 [A Define Aggregate production planning. 07
- [B] Briefly discuss safety management. 07
- Q.4 [A Explain the Factors affecting Facility Location Planning. 07
- [B] In a factory, there are seven jobs from A to G to perform, each of which should go through two machines M1 and M2. The processing timings (in hours) for the jobs are given here. You are required to determine the optimal sequence for performing the jobs using Johnson's rule. Also find the waiting times of the jobs. 07

| Job | Machine M1 | Machine M2 |
|-----|------------|------------|
| A | 9 | 2 |
| B | 5 | 4 |
| C | 8 | 10 |
| D | 3 | 5 |
| E | 4 | 6 |
| F | 1 | 11 |
| G | 7 | 6 |

OR

- Q.4 [A Define the various types of plant layout in brief with suitable examples of each. 07
- [B] A project has activities with duration and precedence requirements as given in Table. 07

| Task | Time(days) | Required predecessor(s) |
|------|-------------|-------------------------|
| A | 2 | - |
| B | 3 | - |
| C | 4 | - |
| D | 1 | A |
| E | 2 | B |
| F | 5 | B |
| G | 7 | C |
| H | 2 | D,E |
| I | 3 | F,G |
| J | 1 | H,I |

- (I) Draw network diagram of the project.
- (II) Find out the critical path and duration of the project.

- Q.5 Indian institute of material management (IIMM) is a forum for purchase and materials related employees and they have frequent meetings, seminars and annual conventions to share knowledge.

In one of their annual conventions the topic was implementation of JIT for competitive

advantage. Leading personalities of the IIMM talked lots of positive and benefits due to the JIT manufacturing systems. However few of the executive participants were more worried about practice and less interested in idealistic theories.

One Mr. Jitendra Joshi of LML's Bangalore office was impressed. He has been arranging engine block castings, tyre tube sets, machined components, speedometers etc from southern region of LML, Kanpur unit. He has 15 years of experience in facing lots of problems in arranging the long distance supplies. He mustered courage to get and ask few questions against the JIT and summary of question to Mr. Sudhakar (the speaker) were as follows:

Mr. Joshi said JIT cannot be fully implement able in Indian conditions due to the following genuine constraints:

- The inter-state disputes like 'Kaveri Dispute', 'Border Disputes' at times disturb the arrangements.
- On and off terrorism, political agitations, holidays due to local, regional and national leaders' deaths also disturb work environment.
- Spread of vendors all over India and vastness of coverage do not enable to know correct position of WIP of vendors.
- Transport bottlenecks, heavy rain, floods (coastal areas), workers' strikes cause anxiety and worry.
- Partnership problems, financial and quality constraints are not easily attended or solved.

These questions were like a mini speech on anti JIT and the atmosphere in the auditorium got changed up Mr. Sudhakar, the speaker, gave half hearted replies to questions for which Mr. Joshi and his friends were not satisfied. Finally Mr. Sudhakar said:

"The system which operate successfully in Japan may not work equally well in other countries". Only when Mr. Joshi took his seat as he felt he has made his clean on practical problems than merely going through the theory. Suddenly he seems to have won the admiration of the gathering.

Prof. Rao who was chairman of the technical session gave his concluding remarks. He appreciated the ideology of JIT but advised executives to take it up step by step and ensure pragmatic views and do not over depend on JIT to fail. This he told as Indian industrial environment is yet to mature to take care of JIT system in totality.

1. Explain why JIT purchase works well in the developing countries.
2. Do you agree with Mr. Joshi's views on constraints to JIT? Why?

14

OR

1. Explain the correct problems in northern and eastern India for implementing system.
2. Write how you feel the JIT systems can be adopted in India with an example.

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