

National Exams May 2018
11-CS-4 Engineering Management
3 hours duration

Notes:

1. If doubt exists as to the interpretation of any question, the candidate is urged to submit with the answer paper, a clear statement of any assumptions made.
2. This is a Closed Book exam. No calculators are allowed for this exam.
3. Any five questions constitute a complete paper. Only the first five questions as they appear in your answer book will be marked.
4. All questions are of equal value.
5. Write your answers in point-form whenever possible, but fully.

Marking Scheme (marks)

1. (i) 6, (ii) 7, (iii) 7
2. (i) 6, (ii) 7, (iii) 7
3. (i) 7, (ii) 6, (iii) 7
4. (i) 7, (ii) 7, (iii) 6
5. (i) 7, (ii) 6, (iii) 7
6. (i) 7, (ii) 6, (iii) 7
7. (i) 5, (ii) 4, (iii) 5, (iv) 6

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1. (i) State the steps followed in the marketing research/analysis process for identifying target markets.
(ii) State the basic tools and techniques used in risk analysis, related to bringing a new product or service to the market.
(iii) What are the questions generally asked in performing a comprehensive strategic planning process for a new product or process?
2. (i) Name the factors that must be considered in the design for manufacturability of a product.
(ii) What is your understanding of lean manufacturing? State the objectives of lean manufacturing?
(iii) Explain the objectives of: (a) total quality management (TQM) and (b) six sigma.
3. (i) In the context of product design, explain the concepts of sequential design vs. simultaneous integrated design.
(ii) Explain the various design criteria that should be followed in developing a product.
(iii) State the use of simulation models in tracking production processes and identifying production problems.
4. (i) Briefly explain the following quality management techniques: (a) Kaizen, (b) failure mode and effect analysis (FMEA) and (c) quality function deployment (QFD).
(ii) What is the purpose of root cause analysis used in process management? State the root cause analysis techniques used to dig deeply into a problem.
(iii) What are the typical project management software programs used in industry?
5. (i) State your understanding of Chris Argyri's common classical organization concept.
(ii) Explain McClelland's achievement-affiliation concepts dealing with need to achieve.
(iii) What is your understanding of Lickert's concept of the characteristics of high and low producing organizations?
6. (i) State the characteristics of traditional organizational structure.
(ii) What is your understanding of systems thinking and in particular Metanoia - a shift of mind.
(iii) State the strategies used for effective leadership.

7. In the case of Phillips Cable Ltd., in Brockville, Ontario, 350 workers lost their jobs when the plant was closed. This occurred despite drastic worker concessions in 1991 that were supposed to be “the miracle cure to keep the operations afloat.” Brian McDougall, president of Local 510 of the Communications Energy and Paperworkers Union of Canada, said that everyone was devastated, in shock and disbelief. Answer the following questions:
- (i) What would you recommend to union workers whose employer is threatening to close down unless they agree to wage or other concessions?
 - (ii) Is there some alternative to cutting wages or closing down? What is it?
 - (iii) Union workers often feel that the company is bluffing when it threatens to close. How can such doubts be settled so that more open negotiations can take place?
 - (iv) Laws have been passed that require plants with more than a certain number of employees to give up to six months’ notice of intention to close. Do you think that such legislation helps businesses to show employees that they are serious about closing a plant and thus get concessions from labour? Are such tactics ethical? Do these laws have any effect on investment decisions