

National Exams December 2013
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) 7, (ii) 7, (iii) 6
2. (i) 6, (ii) 7, (iii) 7
3. (i) 7, (ii) 6, (iii) 7
4. (i) 7, (ii) 7, (iii) 6
5. (i) 6, (ii) 8, (iii) 6
6. (i) 8, (ii) 6, (iii) 6
7. (i) 7, (ii) 6, (iii) 7

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1. (i) What is the purpose of trend analysis? State the major forces that influence trends.
(ii) Explain briefly the characteristics of the following forecasting models: (a) time series models, (b) moving average and (c) exponential smoothing.
(iii) State the questions generally asked in conducting technology assessment or audit.
2. (i) State the characteristics a change leader should possess to manage change successfully.
(ii) What guidelines should be followed to create an environment of change in a company?
(iii) Explain the factors that contribute resistance to change in a company.
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 the requirements for the implementation of a successful budget.
(ii) What are the key elements of the following budgeting procedures: (a) zero-based budgeting (ZBB), (b) budgeting for total quality management (TQM) and (c) activity-based budgeting (ABB).
(iii) Explain the manner by which the contents of business/financial plans can be evaluated.
6. (i) What is your understanding of the following schools of management thought: (a) management process school, (b) behavioral school and (c) mathematical school
(ii) What is your understanding of the concept of systems thinking and in particular the disciplines proposed by Senge.
(iii) Explain the role of a mediator in conflict resolution.

7. An internationally recognized author has noted that if you as manager want high performance from your employees, look first at the atmosphere in your company before you start thinking about “changing each individual employee”. The author further noted that most firms create a “stifling atmosphere in which employees feel constrained, controlled and forced to comply with a rigid contract that govern their behaviour”. Now that “information, knowledge, and expertise” have become just as important as capital was in the past, emphasis has shifted from the corporation to the individual.
- (i) Do you find it surprising that senior executives have to be reminded of these things? How come they are not already aware of this issue since it has been actively discussed in business schools and business periodicals for some years?
 - (ii) Why are companies so slow to adapt to new conditions? Don't they want a better-motivated workforce?
 - (iii) Is it possible that corporations' concentration on downsizing in recent years has blinded them to the changed needs of their remaining employees and managers?