

**National Exams May 2015**  
**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) 7, (ii) 7, (iii) 6
3. (i) 7, (ii) 6, (iii) 7
4. (i) 7, (ii) 7, (iii) 6
5. (i) 8, (ii) 6, (iii) 6
6. (i) 7, (ii) 7, (iii) 6
7. (i) 5, (ii) 5, (iii) 5, (iv) 5

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1. (i) Explain the reasons for using benchmarking techniques in marketing process.  
(ii) Briefly state the characteristics of some technological forecasting models used in industry.  
(iii) State the manner by which environmental, technological and social factors impact strategic decisions.
2. (i) What is your understanding of proactive design for manufacturing? State the manufacturing functions.  
(ii) State the various areas of manufacturing organizations that need to be studied to achieve the lean manufacturing goal of zero waste.  
(iii) When implementing Kaizen or continuous quality improvement, state the approach to be taken.
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) What is your understanding of: (a) McGregor's Theory X and Theory Y, (b) Maslow's Hierarchy of Human Needs and (c) Herzberg's Motivator- Hygiene Concept?  
(ii) Explain Skinner's Operant Conditioning Theory with particular reference to the use of positive and negative reinforcement to motivate employee behavior,  
(iii) What is your understanding of: (a) high-producing organization, (b) low-producing organization and (c) high-producing managers?
6. (i) Explain the difference between management and leadership.  
(ii) Describe the traditional and non-traditional methods employers use to recruit new employees.  
(iii) What are the requirements for managing a diverse workforce?

7. Many Canadian companies have adopted a form of workforce management that they believe will enable them to compete better in the world market. They keep a “core of management and valued workers” whom they favour with good benefits and permanent jobs. They take on and shed other workers as business spurs and slumps.” These jobs pay less and have few if any benefits. Answer the following questions:
- (i) What is likely to be the impact of this trend on employee motivation? Will temporary workers be as motivated as permanent employees, especially if they continue to look for a “decent” job?
  - (ii) How will this, in turn, affect production and service to customers? Given the growing importance of teamwork and cooperation, is quality production likely to suffer?
  - (iii) What are the long-term impact on the competitiveness of companies?
  - (iv) How can companies develop employees’ long-term loyalty in such circumstances?