

**National Exams May 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) 6, (ii) 7, (iii) 7
2. (i) 7, (ii) 7, (iii) 6
3. (i) 7, (ii) 7, (iii) 6
4. (i) 7, (ii) 6, (iii) 7
5. (i) 7, (ii) 6, (iii) 7
6. (i) 7, (ii) 6, (iii) 7
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 Kaizan or continuous quality improvement, state the approach to be taken.
3. (i) For effective work schedule breakdown, state the measures that should be taken.  
(ii) What factors should be considered for accurate work scheduling.  
(iii) State the quality process management techniques other than TQM (Total Quality Management).
4. (i) What are the key components of a balance sheet? Define each component.  
(ii) What is the purpose of: (a) engineering economic analysis and (b) financial analysis?  
(iii) State your understanding of the following engineering economic analysis techniques: (a) net present value (NPV), (b) rate of return on investment (ROI) and (c) internal rate of return (IRR).
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. 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?