

National Exams May 2019

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. An approved Casio or Sharp model calculator is permitted.
3. Any 5 questions constitute a complete exam paper. Only the first five questions as they appear in your answer book will be marked.
4. All questions are of equal value. Full Marking Scheme is on page 3.

1.

- (i) State your understanding of professional responsibility
- (ii) What is your understanding of effective leadership
- (iii) Explain the traditional organizational structure

2.

- (i) What is your understanding of designing a sustainable production, products, service systems and consumption
- (ii) What is your understanding of lean manufacturing? State the objectives of lean manufacturing
- (iii) Explain the objectives of total quality management (TQM) and six sigma

3.

- (i) State the steps followed in the marketing research/analysis process for identifying target markets
- (ii) Explain how different strategic methods are used for technological forecasting
- (iii) What are type of questions would be asked in performing a comprehensive strategic planning process for a new product or process

4.

- (i) Name the factors that must be considered in the design for manufacturability of a product
- (ii) State the basic tools and techniques used in risk analysis, related to bringing a new product or service to the market
- (iii) State the use of simulation models in tracking production processes and identifying production problems

5.

- (i) Briefly state the project management techniques used in a new product, process or service development
- (ii) State the basic steps followed in managing a project
- (iii) State the techniques used for a successful project planning and the reasons for project failure

6.

- (i) State the components of a balance sheet and define each component
- (ii) Financial analysis is used to determine whether a given project merits the requested funding. Explain briefly the engineering economic analysis techniques used for the purpose
- (iii) What are the key components of a business plan

7.

- (i) What is your understanding of the concept of systems thinking
- (ii) Explain the role of a mediator in conflict resolution
- (iii) Explain the concepts of: (a) just-in-time inventory control, (b) materials resource planning and (c) manufacturing resource planning

8.

Google is often used as a great example of a company that encourages creativity, its policy dictates that 20 percent of an employee's time is spent on their own innovative projects. Answer the following questions:

- (i) Do large companies find it difficult to innovate? Why is that?
- (ii) Do startups do better at innovation?
- (iii) How is innovation connected to continuous improvement?
- (iv) As a leader of a large company how would you foster innovation?

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) 6,	(ii) 7,	(iii) 7	
5.	(i) 7,	(ii) 6,	(iii) 7	
6.	(i) 7,	(ii) 6,	(iii) 7	
7.	(i) 7,	(ii) 6,	(iii) 7	
8.	(i) 5,	(ii) 5,	(iii) 5,	(iv) 5