

The Open University of Sri Lanka
Faculty of Engineering Technology



Study Programme	:	MASTER OF TECHNOLOGY IN INDUSTRIAL ENGINEERING
Name of the Examination	:	Final Examination
Course Code and Title	:	MEX7118 - TECHNOLOGY MANAGEMENT
Academic Year	:	2014/15
Date	:	30 th August 2015
Time	:	0930 - 1230 hrs
Duration	:	3 hours

General instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of seven (7) questions.
3. Answer **Question 1** (40 marks) and **four other** questions (15 marks each).
4. Answer only **five (5)** questions.

Q1. Read the following article and answer the questions (a) to (d).

Jaguar regains its reputation

Originally called the Swallow Side Car Company, Jaguar Cars was founded in 1922 and became famous for its luxury and sports cars. In 1990, Jaguar was taken over by Ford and thereafter it was bought out by TATA and is now a wholly owned subsidiary. At the time of the Ford takeover, Jaguar's quality performance was something of a paradox. Aesthetically and in terms of on-the-road performance the cars were often highly regarded, especially by a hard core of enthusiasts. Yet even they could not ignore Jaguar's reputation for making cars which were, in comparison to its rivals, of exceptionally poor reliability. Plagued by under-investment and a conservative technical-led, rather than customer-led, culture, the company's old plants were struggling to achieve even acceptable levels of conformance quality. At this time, the JD Power survey of customer satisfaction of cars imported to the US ranked only one car (the Yugo) lower than Jaguar.

All this changed through the 1990s. The company invested heavily in training, especially in quality techniques such as statistical process control. Piecework was abolished, as was 'clocking in' and a general productivity bonus introduced which encouraged flexible working. Other shop floor initiatives included the introduction of multi-skilled teams, total productive maintenance continuous improvement teams and benchmarking against the best in the business. The success of this quality improvement programme was dramatic. It encouraged Ford to invest in new Jaguar

models and also had a significant impact on customer satisfaction. The same surveys which once put Jaguar at the bottom of the league now rank it in the very top group of luxury car makers.

Questions

- a) What does 'Quality' mean for a motor vehicle manufacturer such as Jaguar?
(10 Marks)
- b) How did the changes which Jaguar made to its operations practice affect the quality of its products?
(10 Marks)
- c) 'A Jaguar motor car will always cost more than a Maruti.' Does this mean that manufacturing cost is unimportant to Jaguar?
(10 Marks)
- d) What factors would be relevant for Jaguar to set up an Automobile Manufacturing plant in Sri Lanka and how would you see the Technology transfer?
(10 Marks)

Q2.

- a) Technology means more than just machines. Explain using an example of an industry of your choice.
(8 marks)
- b) Explain the different stages in the Technology Life Cycle and identify the current life cycle stage of a technology known to you. Justify your answer.
(7 marks)
- c) Compare two different methods of technology transfer available for a developing country and critically assess the suitability of them to a Sri Lankan industry of your choice.
(7 marks)
- d) Do you think that technology in general, automation in particular, will make some people redundant? Should we make our optimum contribution to the national life in order to exist? Can we firmly say that today we can exist without using cheap labor?
(8 marks)

Q3.

- a) There is a never ending battle between the Technocrats and the so called Environmentalists. Should there be a battle and what should be the nature of this battle?
(7 marks)
- b) What are the ethical and moral issues involved in resolving environmental issues in the application and propagation of Technology?
(8 marks)

Q4.

- a) Give examples and explain how technology acted as a humanizing factor. Do you think the role is changing? If so, is it different in the developed countries and developing countries in the South? If not explain the democratizing influence in the third world. (8 marks)
- b) What are the social and cultural effects of automation and new information technology? Are these effects universal? (7 marks)

Q5.

- a) What are the main features of technology used in modern industry? Are they oriented for mass production without much quality? If so, how would you orient towards producing quality goods? (8 marks)
- b) Can invention and innovation be planned and then made according to that plan? Do you think management should recognize 'talent as a separate entity'? (7 marks)

Q6.

- a) Consider a modern material resource such as steel and list the resources used in transforming the raw materials iron, carbon and alloys to steel. (8 marks)
- b) If we have an industrially developed country with no unemployment what should be our attitude to labour as a production resource? (7 marks)

Q7. Answer Part A or Part BPart A

- i. What skills and tasks would be necessary by a man, who is fitting panels to a car body on a production line? (7 marks)
- ii. Compare this with the work content of a peasant farmer in Sri Lanka. Which of these persons would have a more varied, may be difficult, but more enriching task? (8 marks)

Part B

"In a labour-intensive economy it takes perhaps the equivalent of six months' salary to buy the equipment needed to provide work for one man. In a capital intensive, advanced technology economy, the equivalent figure 350 months' salary. It is thus easy to see why development using western technology has been such a slow process". Do you agree? Justify your answer.

(15 marks)

_____ END OF QUESTION PAPER _____