UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF INDUSTRIAL TECHNOLOGY

FINAL EXAMINATION
JANUARY 2016 SEMESTER

COURSE CODE	:	JQD 10302
COURSE TITLE	:	PRINCIPLES OF MANUFACTURING PROCESSES
PROGRAMME LEVEL	:	DIPLOMA
DATE	:	30 MAY 2016
TIME	:	2.30 PM – 4.30 PM
DURATION	:	2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consists of TWO (2) sections.
4. Answer ALL question in Section A. Choose TWO (2) questions in Section B.
5. Please write your answers on the answer booklet provided.
6. Please answer all questions in English only.

THERE ARE 6 PAGES OF QUESTIONS EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)

INSTRUCTION: Answer ALL questions.
Please use the answer booklet provided.

Question 1

Identify, describe and give an example of function in manufacturing process for every term below.

(a) 3D Printing

(5 marks)

(b) Lathe

(5 marks)

(c) Abrasive

(5 marks)

(d) Polymer

(5 marks)

Question 2

Essentially, there are **THREE (3)** different methods of knife manufacturing: stamping, forging, and casting.

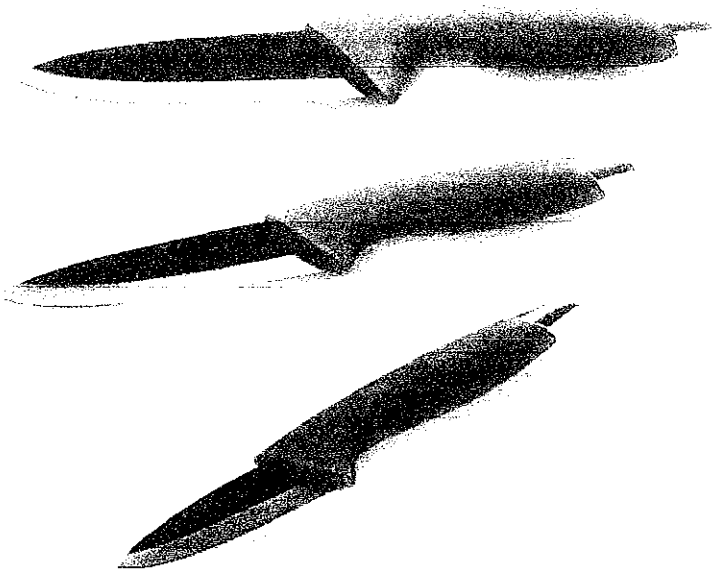

Figure 1: Knife

(a) Compare every single process to produce knife with it possible defects that may occur.

(15 marks)

(b) Decide which process will produces the optimum performance knife and justify your answer.

(5 marks)

Question 3

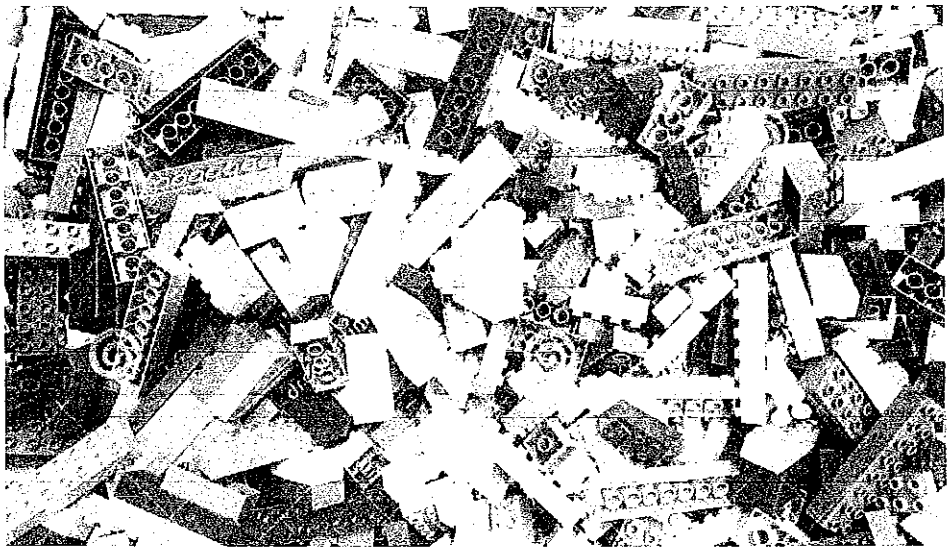

Figure 2: Lego bricks

(a) Lego bricks is a famous toy all over the world, it has been produce by utilize the injection moulding process. Illustrate the production process with description.

(15 marks)

(b) Manufacturer prefer plastic as their engineering materials but it gives negative impact to environment, from your point view, give your opinion to handle the pollution that produce from this material?

(5 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Choose TWO (2) questions only
Please use the answer booklet provided

Question 1

(a) Explain **TWO (2)** effects of implementing wrong manufacturing process

(6 marks)

(b) Malaysia and Singapore will have a Mega Project by 2020 for high speed train. Propose and justify suitable layout to manufacture this train.

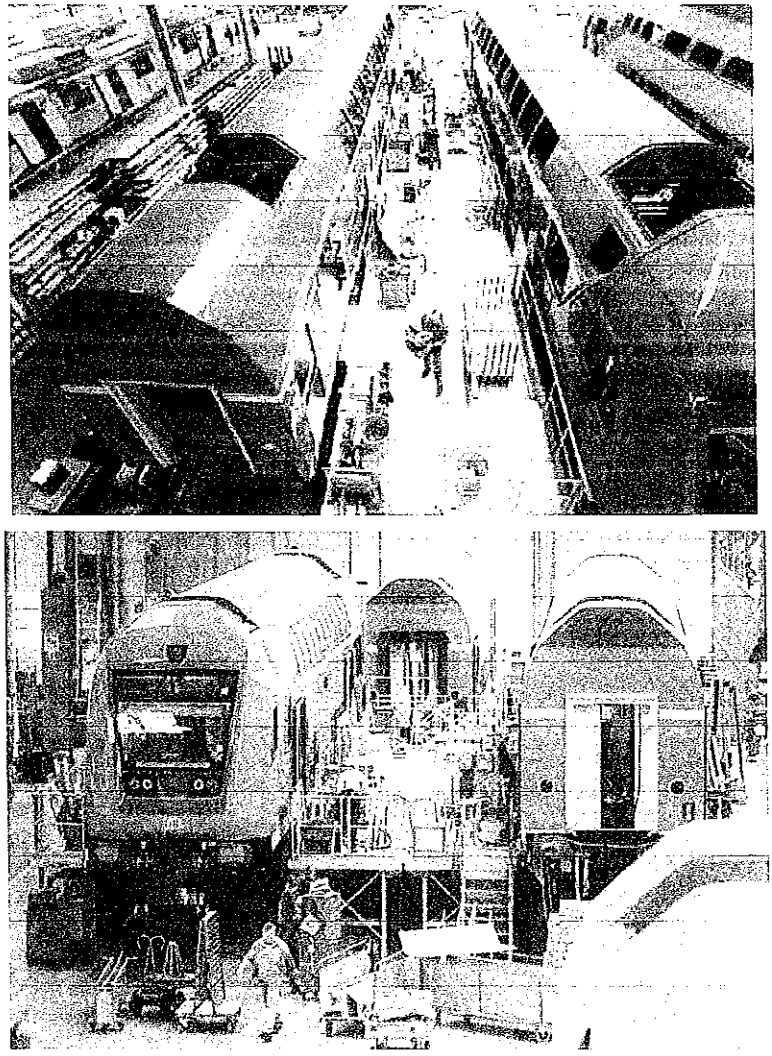

Figure 3: Production of Electric Train

(14 marks)

Question 2

At the end of the day, it all comes down to "ringgit and sense". As much as this shootout is concerned, both cars have their strengths and weaknesses. While they are on par in terms of looks and comfort, the Altis was the more enjoyable car to drive. The Cerato on the other hand, is jam-packed with gadgets and safety equipment. At RM136, 000, the Altis is among the most expensive models in its class, and what it has to offer doesn't seem to justify the asking price. Yes, it looks great and performs brilliantly, but this is the C-segment that we are talking about, where the standard equipment is ultimately what people are looking for in a car, more than handling. For its price, features like the seven airbags and GPS navigation should have been offered as standard. And then we have the Cerato, asking for RM119, 000, with all the bells and whistles you can ever imagine in an Asian C-segment car. Not only is it better equipped, but it is safer and just as comfortable, refined, and good looking as the Toyota. The best part is that it is about RM17, 000 cheaper.

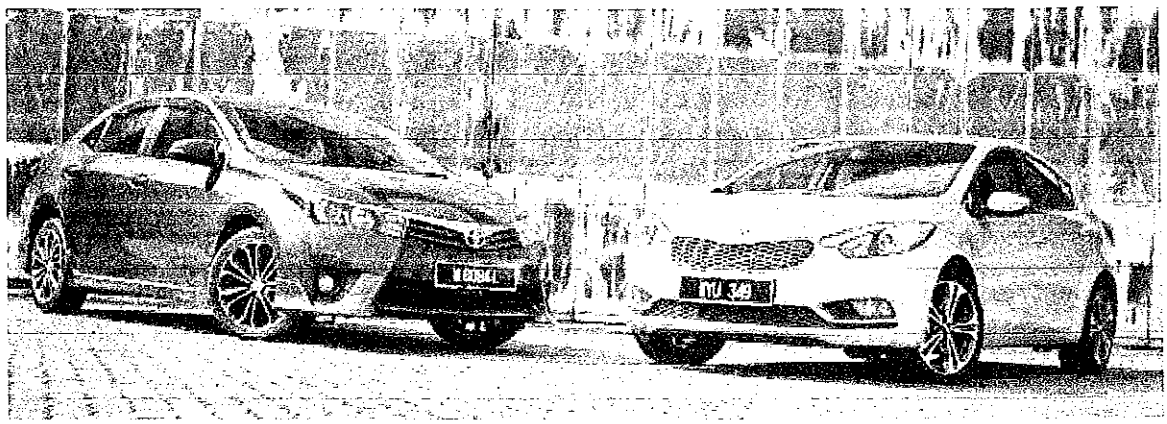

Figure 4: Toyota Altis vs Kia Cerato review

(a) Suggest **THREE (3)** approaches that the life of the product can be extended.

(12 marks)

(b) Sketch a product life cycle graph and briefly explain.

(8 Marks)

Question 3

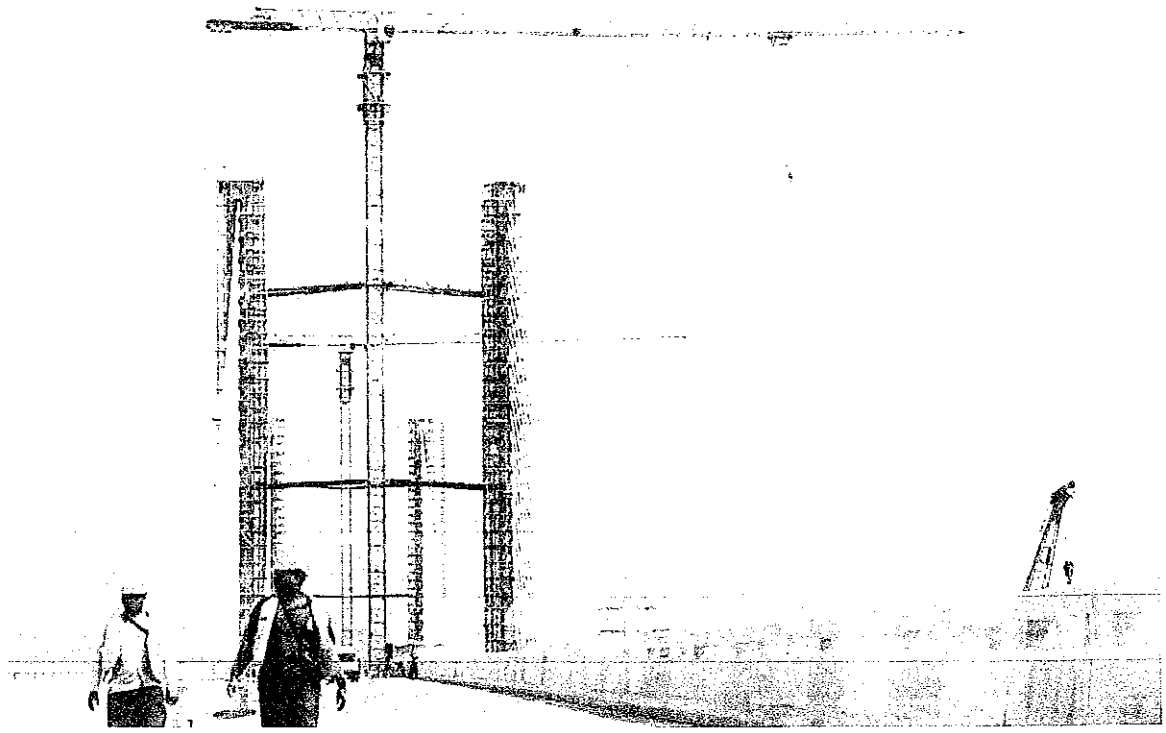

Figure 5: Penang Second Bridge

The Penang Second Bridge is a new bridge under construction in Penang, Malaysia. It will connect Batu Kawan on the mainland Seberang Perai and Batu Maung on Penang Island. It will be the second bridge to link the island to the mainland after Penang Bridge. A cable-stayed bridge has one or more towers (or pylons), from which cables support the bridge deck.

(a) Determine and illustrate the process to produce the cable ropes in this construction

(17 marks)

(b) Suggest how to ensure the reliability of the product.

(3 marks)

END OF EXAMINATION PAPER