

**UNIVERSITI KUALA LUMPUR  
MALAYSIAN INSTITUTE OF INDUSTRIAL TECHNOLOGY**

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**FINAL EXAMINATION  
JANUARY 2016 SEMESTER**

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**COURSE CODE : JQB 30503**  
**COURSE TITLE : WORK DESIGN AND ERGONOMICS**  
**PROGRAMME LEVEL : BACHELOR**  
**DATE : 26 MAY 2016**  
**TIME : 02.30 PM – 05.30 PM**  
**DURATION : 3 HOURS**

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**INSTRUCTIONS TO CANDIDATES**

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1. Please **CAREFULLY** read the instructions given in the question paper.
  2. This question paper has information printed on both sides of the paper.
  3. This question paper consists of **ONE (1) section ONLY**.
  4. Answer **FOUR (4) questions ONLY**.
  5. Please write your answers on the answer booklet provided.
  6. Answer all questions in English language **ONLY**
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**THERE ARE 4 PAGES OF QUESTIONS EXCLUDING THIS PAGE.**

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(Total: 100 marks)

**INSTRUCTION: Answer FOUR (4) questions only.**

**Please use the answer booklet provided.**

**Question 1**

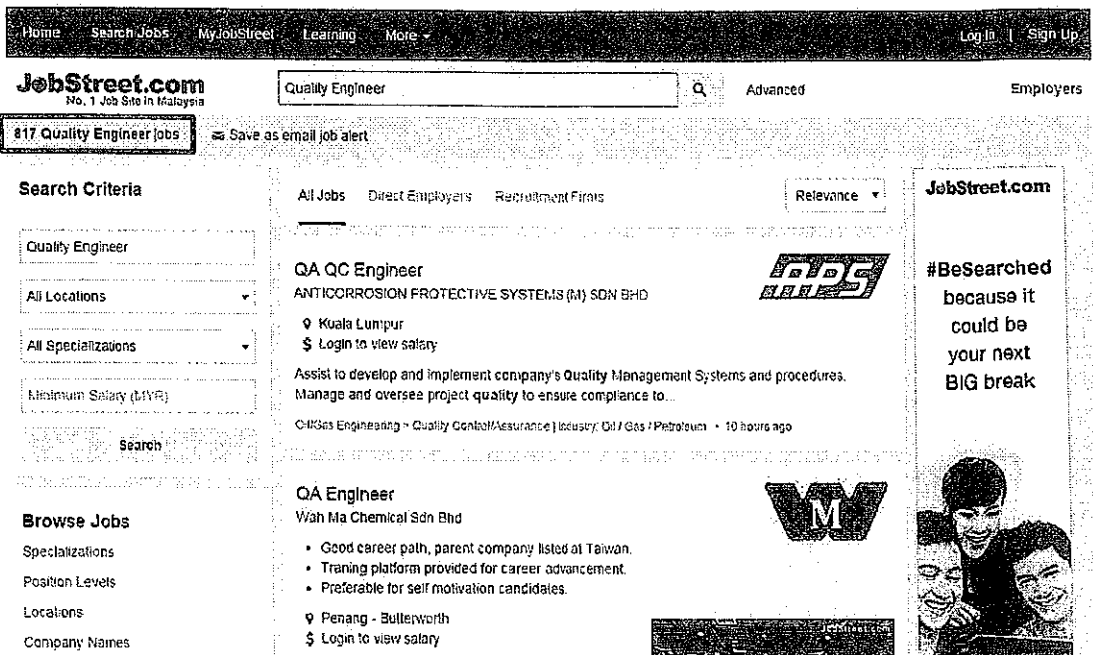


Figure 1: Job search for Quality Engineer at JobStreet.com

Figure 1 shows a view of most popular job search website in Malaysia. From the search engine, total of 817 jobs for Quality Engineer founded all over Malaysia whereby it shows that Quality Engineer is one of the demanded jobs in Malaysia. Prior advertising their job vacancy at JobStreet.com, employer should carried out job analysis at their company to ensure that the applicants meet the job requirement.

- (a) From above information, identify **FOUR (4)** types of information that should be collected prior determining the types of jobs to be advertised. (8 marks)
- (b) Based on above information, propose type of wages that suitable for above position. Justify your answer. (8 marks)
- (c) Identify **THREE (3)** benefits of above job analysis. (9 marks)

**Question 2**

- (a) The main purpose of operation analysis is to increase productivity and reduce unit cost while maintaining or improving product's quality. List out **FOUR (4)** elements that involved in operation analysis. (8 marks)
- (b) Concurrent Engineering defined as a method of designing and developing products in which the different stages is run simultaneously rather than consecutively. Sketch the graph that shows the different of stages in Concurrent Engineering. (8 marks)
- (c) From your answer in (b), give an example of process that you know have implemented the concept of Concurrent Engineering. Justify your answer. (9 marks)

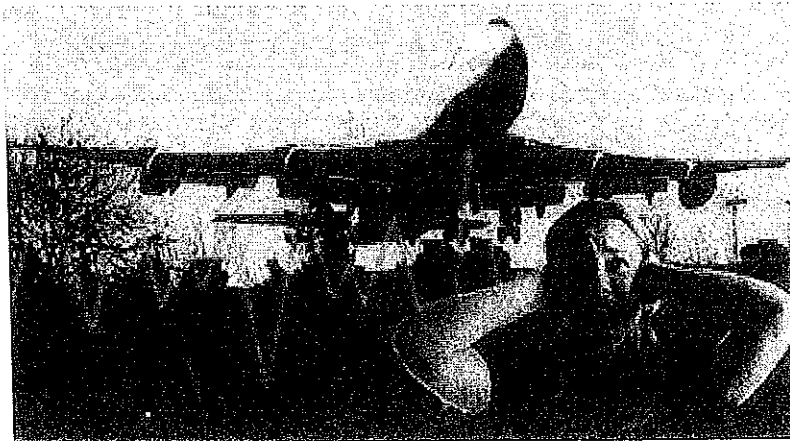
**Question 3**

Figure 2: Noise Pollution

Noise pollution would be a form of pollution done by different audio sources that either distract, irritate or damage certain environment. Noise is really any unwanted sound, some sound that is not natural to given environment and it causes disturbance to not only natural processes but can also cause harm to human society.

- (a) Identify **THREE (3)** types of noise control principle. (6 marks)
- (b) Explain **TWO (2)** approaches that can be taken from one of your answer in (a). (6 marks)

- (c) List out **TWO (2)** other work environment factors that can be considered as hazardous to the worker. Justify your answer.  
(7 marks)
- (d) Based on your identification and assessment of the above factors, propose **TWO (2)** "reasonable and practical changes" that you might recommend to management level in order to reduce risk.  
(6 marks)

**Question 4**

- (a) Cognitive ergonomics, defined by the International Ergonomics Association "is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system. Identify the application of cognitive ergonomics compared to physical ergonomics.  
(5 marks)
- (b) Identify **THREE (3)** limitations of human working memory.  
(6 marks)
- (c) Describe **FOUR (4)** ways on how to minimize error while using working memory.  
(8 marks)
- (d) Suggest **TWO (2)** methods that help learner or students to transfer information accurately from working memory to long-term memory.  
(6 marks)

## Question 5



Figure 3: Aircraft Maintenance

Figure above shows a group of mechanics perform maintenance on aircraft external fuel tank in shipboard hangar bay.

- (a) Explain **THREE (3)** Work-related Musculoskeletal Disorders (WMSDs) that resulted from above task. (9 marks)
- (b) Based on answer that you stated in (a), propose **FOUR (4)** improvements that should be taken in order to reduce the risk on WMSDs. (8 marks)
- (c) Identify **FOUR (4)** advantages of redesign the workplace by considering human factors to an organization. (8 marks)

END OF EXAMINATION PAPER

