

THE OPEN UNIVERSITY OF SRI LANKA  
 DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY  
 BACHELOR OF TECHNOLOGY / INDUSTRIAL STUDIES



TX6239 - ERGONOMICS

FINAL EXAMINATION - 2009/2010

DURATION: THREE (03) HOURS

DATE: 20<sup>th</sup> March 2010

TIME: 0930 TO 1230 HOURS

Total number of questions = 08

Number of questions to be answered = 06

Answer question one (Q1), which is compulsory and five (05) more questions.

Question one (Q1) carries 25 marks and questions two (Q2) to eight (Q8) carry fifteen (15) marks each.

**Compulsory Question**

- (Q1) (a) What do you mean by the term "Occupational Injury"? (03 marks)  
 (b) Write down three (03) physical aspects of man machine interface. (03 marks)  
 (c) Define the term "Physical Fitness". (03 marks)  
 (d) What do you mean by the term "Balanced Posture"? (03 marks)  
 (e) What is human cognition? (03 marks)  
 (f) Write down the desirable thermal conditions for a factory of a tropical country. (04 marks)  
 (g) Write down the human hearing perception threshold and the pain threshold. (02 marks)  
 (h) Define the term "Glare". (02 marks)  
 (i) State the two (02) conventional formats, which are widely used for arranging shift work along with the respective notations. (02 marks)

**Answer any five (05) questions from the following seven (07) questions**

- (Q2) Write short notes on followings.
- (a) Benefits of ergonomics..... (05 marks)  
 (b) Inter and multi-disciplinary nature of ergonomics (05 marks)  
 (c) Main study areas of ergonomics (05 marks)

- (Q3) (a) State the five (05) basic components of the physical fitness. (05 marks)  
(b) "Anthropometric data must be used to design machines, equipment, tools and work places in order to have better fit for the users". Briefly explain the above statement by giving suitable examples. (10 marks)
- (Q4) (a) Compare the two (02) types of work classified as "Intermittent Work" and the "Prolonged Work". (08 marks)  
(b) With the aid of suitable diagrams, briefly explain the oxygen consumption profiles for "Intermittent Work" and the "Prolonged Work". (07 marks)
- (Q5) (a) What is "Human Performance Technology"? (03 marks)  
(b) By giving examples, explain the four (04) major steps of the "Human Performance Technology" process. (12 marks)
- (Q6) Write short notes on followings.  
(a) Job analysis in the process of personnel selection (05 marks)  
(b) Causes for work place stress. (05 marks)  
(c) Effects of depression on work. (05 marks)
- (Q7) "Working in shifts affects the workers in many ways". By giving suitable examples, write a comprehensive note on the above statement. You may consider the effects on circadian system, domestic & social factors, performance, psychological and physical factors etc. (15 marks)
- (Q8) (a) Write the characteristics of an ergonomically designed work place. (06 marks)  
(b) Briefly explain the design aspects that should be considered, when selecting sewing machines and chairs for a sewing work station. (09 marks)