

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



TTX5136 - ERGONOMICS FOR TEXTILE AND APPAREL INDUSTRY 015

FINAL EXAMINATION - 2006/2007

DURATION: THREE (03) HOURS

DATE: 28th March 2007

TIME: 0930 TO 1230 HOURS

Total number of questions = 09

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 nine (Q9) carry fifteen (15) marks.

Compulsory Question

- (Q1) (a) What do you understand by **ergonomics**? (02 marks)
- (b) What are the three (03) main goals of ergonomics? (03 marks)
- (c) What is meant by **physical fitness**? (03 marks)
- (d) Briefly explain the term "**Metabolism**". (03 marks)
- (e) List two (02) work place conditions, that could lead to stress at work. (02 marks)
- (f) List (03) types of task performance, which are common in the industry. (03 marks)
- (g) What is the standard unit of **sound**? (01 marks)
- (h) Write three (03) methods, that can be used to reduce exposure to **vibration**? (03 marks)
- (i) Briefly explain the term "**job rotation**". (03 marks)
- (j) What is an "**ideal posture**"? (02 marks)

Answer any five (05) questions from the following eight (08) questions

- (Q2) (a) Benefits of ergonomics can appear in many forms. Explain the above statement giving examples. (09 marks)
- (b) State three (03) main study areas of ergonomics and give two (02) examples for each category. (06 marks)

- (Q3) (a) What do you understand by "**intermittent work**" and "**prolonged work**"? (04 marks)
- (b) Briefly explain the terms "**stress**" and "**fatigue**". (04 marks)
- (c) Discuss the **methods** that can be applied to prevent stress and fatigue at work place. (07 marks)
- (Q4) (a) What is **human performance**? (02 marks)
- (b) Write a short note on "**human performance technology**". (05 marks)
- (c) Briefly explain the **process** of human performance technology. (08 marks)
- (Q5) (a) What do you understand by the term "**job analysis**"? (03 marks)
- (b) Briefly explain four (04) methods of personnel selection giving their advantages and disadvantages. (12 marks)
- (Q6) (a) Write a short note on "**favourable thermal conditions**" of a sewing department of a Sri Lankan garment factory. (09 marks)
- (b) Give suggestions to control the **thermal environment** at a work place. (06 marks)
- (Q7) A worker operates in section A which has a sound level of **70 dBA** for **03 hours** and then he is exposed to a sound level of **90 dBA** in section B for **04 hours**. Determine whether the operator is at risk or not. (15 marks)
- (Q8) (a) Explain the importance of **work rest schedules/work breaks** during work. (03 marks)
- (b) Explain the effect of shift work schedules on worker concerning "**physiological aspects**", "**psychological aspects**" and "**domestic and social factors**". (12 marks)
- (Q9) (a) Write the characteristics of an ergonomically designed work place. (06 marks)
- (b) Briefly discuss, what design aspects should be considered, when selecting **sewing machines** and **chairs** for a sewing work station. (09 marks)