



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER 2  
SESI 2021/2022**

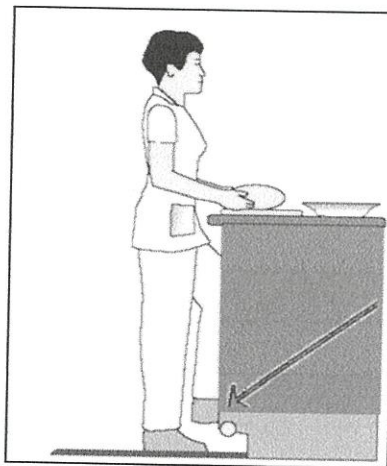
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|------------------|---|---|
| COURSE NAME      | : | ERGONOMICS &<br>ANTHROPOMETRICS   |
| COURSE CODE      | : | BPP 10202   |
| PROGRAMME        | : | BPP   |
| EXAMINATION DATE | : | JULY 2022   |
| DURATION         | : | 2 HOURS   |
| INSTRUCTIONS     | : | <ol style="list-style-type: none"><li>1. ANSWER <b>ALL</b> QUESTIONS.</li><li>2. THIS FINAL EXAMINATION IS AN ONLINE ASSESMENT AND CONDUCTED VIA <b>CLOSED BOOK</b>.</li><li>3. STUDENTS ARE <b>PROHIBITED</b> TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES THE EXAMINATION CONDUCTED VIA CLOSED BOOK.</li></ol> |

THIS PAPER CONSISTS OF **FIVE (5)** PAGES



- Q1**
- (a) Explain the importance of ergonomics. (2 marks)
  - (b) Explain **TWO (2)** clearance requirements of the largest workstation. (4 marks)
  - (c) As a designer at FR Furniture Sdn Bhd, you need to design and recommend working postures for standing workstation.

Outline the optimal recommended working posture for a standing workspace as in **Figure Q1 (c)**.



**Figure Q1 (c) : Working posture for a standing workplace.**

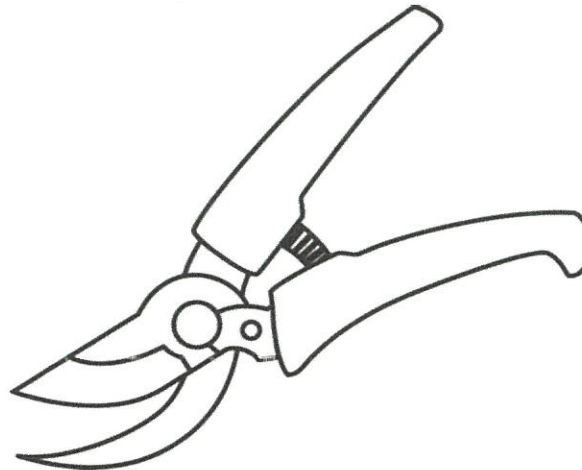
(14 marks)

- Q2** Manual material handling (mmh) is the most common cause of occupational fatigue and low back pain. About 3 of every 4 employees whose jobs includes MMH suffer pain due to back injury at some time. Borhan is a worker in Production Department at Seman Global Furniture Bukit Rambai, Melaka. He is involving in occasional box lifting at his working place. Recently he diagnoses long term effect due to his work.
- (a) Explain the most common long-term effects that he faced by Borhan. (6 marks)
- (b) Illustrate **ONE (1)** appropriate posture(s) for Borhan. (6 marks)
- (c) Explain **FOUR (4)** handling tips for Borhan. (8 marks)
- Q3** (a) State **FOUR (4)** hand injuries and disorders. (4 marks)
- (b) Yahya is CAD designer at Tat Naka Sdn Bhd, Alor Star, Kedah. He spent his work almost 12 hours per day in front of computer. He spent many hours in the same positions doing the same task without break. Recently, his hand felt pain especially at the wrist part.
- Indicate **FOUR (4)** treatments to reduce pain. (4 marks)

- (c) As a farmer, you need to tagging and recommend hand tool as shown in **Figure Q3 (c)**. Use the appropriate tagging of important ergonomic factors to consider in selecting tools requiring high grip forces.

Label the suitable ergonomic features on cutter as in **Figure Q3 (c)**

(12 marks)



**Figure Q3 (c) : Cutter**

- Q4** (a) (i) Describe the development of muscles (5 marks)

- (ii) State the function of muscles (5 marks)

- (b) The following population as in **Table Q4 (b)** can influence the design of facilities and equipment :

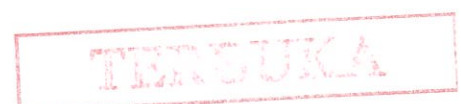
**Table Q4 (b) : Percentiles of population**

|                             |                      |       |
|-----------------------------|----------------------|-------|
| 5 <sup>th</sup> percentile  | Man                  | Women |
| 95 <sup>th</sup> percentile | Man                  | Women |
| 50 <sup>th</sup> percentile | Member of population |       |

Identify the number of the population that most influences the designs listed below with explanation.

- (i) Mass rapid transit (MRT) door.

(2 marks)



- (ii) Electric train service (ETS) aisle. (2 marks)
- (iii) Height of the supermarket cashier counter. (2 marks)
- (iv) Maximum shelf height for women's lockers. (2 marks)
- (v) Height of baby cot. (2 marks)

**- END OF QUESTIONS -**

