

EXAMINATION AND EVALUATION DIVISION
DEPARTMENT OF POLYTECHNIC EDUCATION
(MINISTRY OF HIGHER EDUCATION)

MECHANICAL ENGINEERING DEPARTMENT

FINAL EXAMINATION
JUNE 2012 SESSION

JJ104: WORKSHOP TECHNOLOGY 1

DATE: 19 NOVEMBER 2012(MONDAY)

DURATION: 2 HOURS (2.30 PM - 4.30 PM)

This paper consists of **FIVE (5)** pages including the front page.
Structured (6 questions – answer 4)

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**DO NOT OPEN THIS QUESTION PAPER UNTIL INSTRUCTED BY THE CHIEF
INVIGILATOR**

(The CLO stated is for reference only)

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JJ104: Workshop Technology 1

ESSAY (100 marks)

INSTRUCTION:

This section consists of **SIX (6)** questions. Answer **FOUR (4)** questions.

QUESTION 1

- a) List **TWO (2)** tools that are used as marking tool. CLO 1:C1
(2 marks)
- b) List **FIVE (5)** types of hammer. CLO 1: C1
(5 marks)
- c) State **THREE (3)** major hazards which may arise from the use of electrical
equipment and their causes. CLO 1: C1
(6 marks)
- d) List **SIX (6)** ways on how to care for a file. CLO 1: C1
(6 marks)
- e) i. Draw a chisel CLO 1: C1
(2 marks)
- ii. State the uses of a chisel CLO 1: C1
(2 marks)
- iii. Explain the differences between a hot chisel and a cold chisel CLO 1: C2
(2 marks)

QUESTION 2

- a) State **FIVE (5)** procedures of maintaining a micrometer. CLO 1: C1
(5 marks)
- b) Name **THREE (3)** types of micrometer and their uses. CLO 1: C1
(6 marks)
- c) State **THREE (3)** disadvantages of using a micrometer. CLO 1: C1
(6 marks)
- d) Draw a vernier calliper and label **SIX (6)** main parts. CLO 1: C1
(8 marks)

QUESTION 3

- a) Define of mandrel. CLO 2: C1
(2 marks)
- b) Name **THREE (3)** important parts of a lathe machine. CLO 2: C1
(3 marks)
- c) State **THREE (3)** effects on a drill bit and a work piece if the work is carried out without using any coolant. CLO 2: C2
(6 marks)
- d) Calculate the cutting speed if the twist drill diameter is 18 mm and the rotation per minute is 993. CLO 2: C3
(6 marks)
- e) State **FOUR (4)** types of manufacturing lathe machines and their functions. CLO 2: C2
(8 marks)

QUESTION 4

- a) Name **TWO (2)** types of bonding materials used in abrasive wheels. CLO 2: C1
(2 marks)
- b) List **THREE (3)** types of grinding machines and their usage. CLO 2: C1
(6 marks)
- c) State **FOUR (4)** types of cutters used on a milling machine and their usage. CLO 2: C1
(8 marks)
- d) Name **THREE (3)** important parts of a milling machine and their functions. CLO 2: C1
(9 marks)

QUESTION 5

- a) Define gas welding. CLO 2: C1
(4 marks)
- b) Explain how a blowout situation occurs and describe the ways to solve it. CLO 2: C2
(5 marks)
- c) List and sketch **THREE (3)** types of oxy-acetylene flames. CLO 2: C1
(6 marks)
- d) State and sketch **FIVE (5)** types of basic joints in welding. CLO 2: C1
(10 marks)

QUESTION 6

- a) Define arc welding process. CLO 2: C1
(2 marks)
- b) Describe the following factors which influence the quality of welding process . CLO 2: C2
- i. Arc speed
 - ii. Arc distance (4 marks)
- c) State **TWO (2)** types of arc welding machines and describe their functions . CLO 2: C2
(6 marks)
- d) Describe **THREE (3)** advantages and **THREE (3)** disadvantages of welding. CLO 2: C2
(6 marks)
- e) Sketch and label **FIVE (5)** parts of an arc-welding equipment. CLO 2: C1
(7 marks)