



Tertiary & Vocational Education Commission

Welding Technology

NCT Equivalence Examination



Instructions:

01. This paper consist **five (05)** questions.
02. Each question has part A and Part B.
03. Answer only one part of each question.

1.0 Part A

- i. Give three engineering materials? (03 marks)
- ii. What are the properties of materials? (03 marks)
- iii. Define tensile strength, compressive strength and shear strength? (03 marks)
- iv. What is machinability, weldability and cast ability? (03 marks)
- v. Give the names of four main types of carbon steel? (04 marks)
- vi. Give the names of any four alloy-steel? (04 marks)

1.0 Part B

- i. Draw the diagrams for the structures bellow. (12 marks)
 - a) Body centered cubic structures.
 - b) Face centered cubic structures.
 - c) Hexagonal close-packed structure.
- ii. Describe an alloy metal with two examples? (04 marks)
- iii. What are the two main types of plastic? (04 marks)

2.0 Part A

- i. Calculate the resistance of 1200m of copper conductor having a diameter of 16mm (resistivity of copper is $1.7 \times 10^{-8} \text{ m}\Omega$) (05 marks)
- ii. Figure 01 below shows a 12 V battery connected to resistor network. Calculate the,
 - a) Current(I) (05 marks)

b) Power dissipated by R_1

(05 marks)

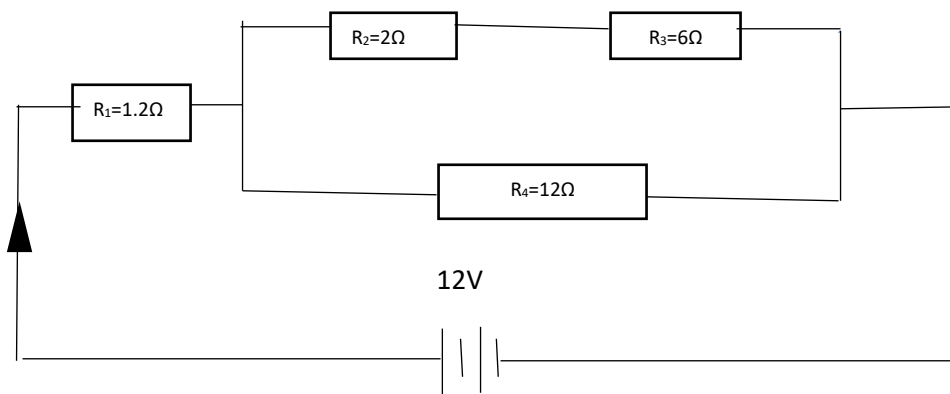


Figure-1

iii. What nature of hazards that are inevitable can happens in welding operation?

(05 marks)

iv. Explain briefly what precautions you take protect from the hazards.

(05 marks)

2.0 Part B

i. The figure 02 is represent the wins tan bridge the galvanometer reading is zero

a) Find the resistance of R_A

(10 marks)

b) Calculate the I_1 and I_2

(10 marks)

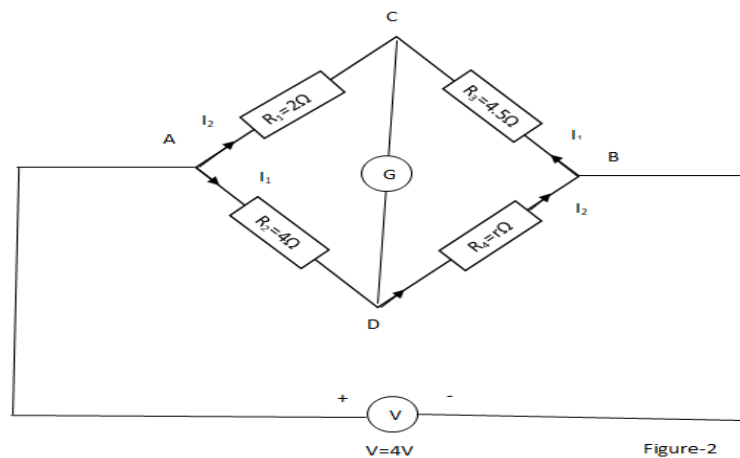


Figure-2

ii. Briefly explain about industrial safety and mention its objectives...

(05 marks)

3.0 Part A

- i. Draw (free hand) and briefly explain
 - a) Micro meter (05 marks)
 - b) Vernier caliper (05 marks)
 - c) Feeler gauge (05 marks)
- ii. What are the three stages of a heat treatment process? (03 marks)
- iii. Briefly explain the hardening process. (03 marks)
- iv. What are the applications of flame hardening and induction hardening? (04 marks)

3.0 Part B

- i. Draw (free hand) and name parts of it
 - a) Twist drill bit (05 marks)
 - b) Chisel (05 marks)
 - c) File (05 marks)
- ii. What are the basic welding joints? (05 marks)
- iii. Why pre heat is used for welding? (05 marks)
- iv. What are the purposes of hardening followed by tempering? (03 marks)

4.0 Part A

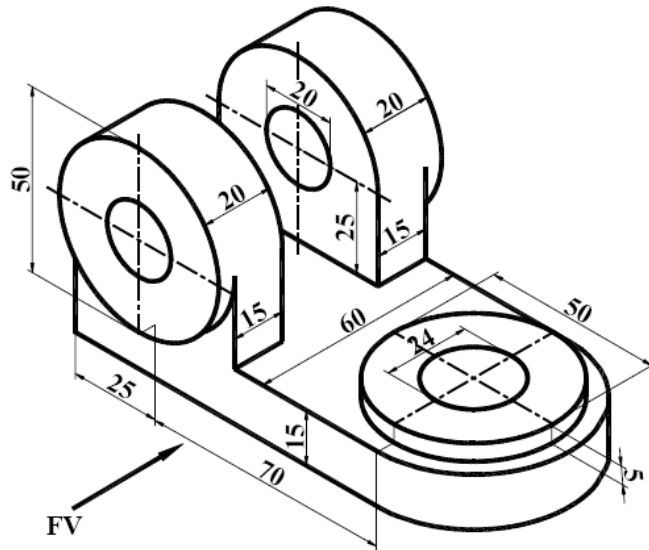
- i. Briefly explain “estimates”. (05 marks)
- ii. What are the advantages of the estimate? (05 marks)
- iii. What is welding quality management? (05 marks)

4.0 Part B

- i. Define followings
 - a) Cost (05 marks)
 - b) Profit (05 marks)
 - c) Price (05 marks)

5.0 Part A

Make a complete orthographic drawing with a front view, End view and a plan view of the model given below.



5.0 Part B

Make a complete orthographic drawing with a front view, End view and a plan view of the model given below. (Use A4 paper and instrument box)

