

SULIT



**KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI**

**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI**

JABATAN KEJURUTERAAN MEKANIKAL

PEPERIKSAAN AKHIR

SESI I : 2025/2026

DJJ10243: WORKSHOP TECHNOLOGY

TARIKH : 25 NOVEMBER 2025

MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **SEPULUH (10)** halaman bercetak.

Struktur (4 soalan)

Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

This section consists of **FOUR (4)** structured questions. Answer **ALL** questions.

ARAHAN:

Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur. Jawab **SEMUA** soalan.

QUESTION 1**SOALAN 1**

- CLO1 (a) Name **SIX (6)** tools used to marking on workpiece?
Namakan ENAM (6) peralatan menanda benda kerja?

[6 marks]

[6 markah]

- CLO1 (b) Based on Figure 1(b), fill in parts of the micrometer below.
Berdasarkan Rajah 1(b), isikan bahagian – bahagian micrometer di bawah.

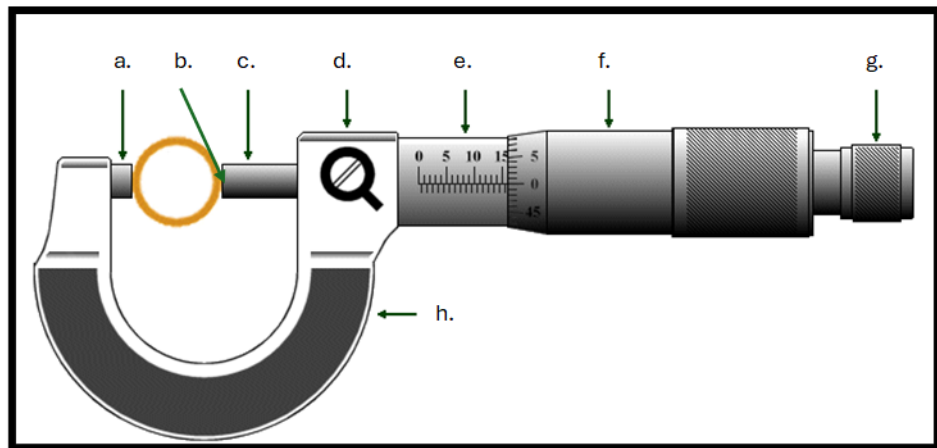


Figure 1(b) / Rajah 1(b)

[8 marks]

[8 markah]

- CLO1 (c) i) A hole of 20 mm diameter is to be drilled in a steel workpiece with a cutting speed (CS) of 30 m/min. Calculate the spindle speed (N).
Lubang berdiameter 20 mm hendak digerudi pada keluli dengan kelajuan pemotongan (CS) 30 m/min. Hitung kelajuan putaran (N).
- (3 Marks)
(3 Markah)
- CLO1 ii) Write **EIGHT (8)** main operations that can be performed on a drilling machine.
*Tuliskan **LAPAN (8)** proses utama yang boleh dijalankan menggunakan mesin gerudi.*
- (8 marks)
(8 markah)

QUESTION 2

SOALAN 2

CLO1

(a) List **SIX (6)** parts of Lathe machine.Senaraikan **ENAM (6)** bahagian mesin larik.

(6 marks)

(6 markah)

CLO1

(b) Interpret the process of lathe machine as Figure 2(b) shown.

Tafsirkan proses mesin larik seperti Rajah 2(b).

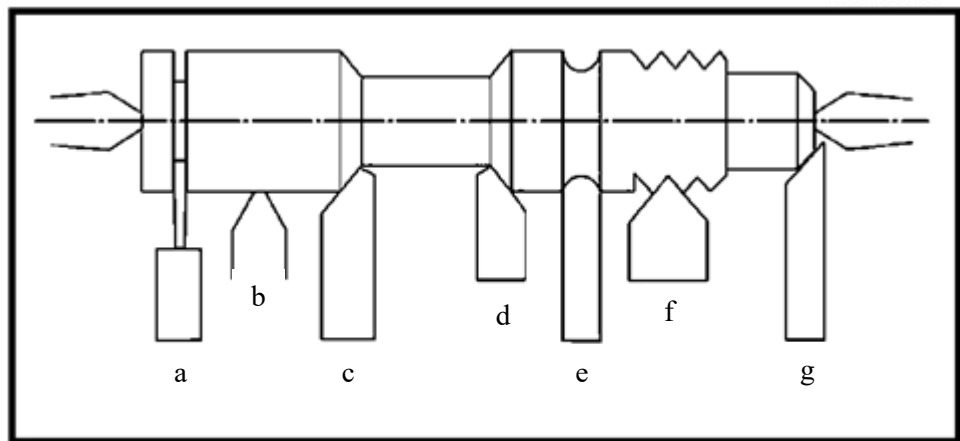


Figure 2(b) / Rajah 2 (b)

(7 Marks)

(7 Markah)

CLO 1

- (c) i) Show **THREE (3)** differences between Up Milling and Down Milling.
Tunjukkan TIGA (3) perbezaan "Up Milling" dan "Down Milling".

(6 Marks)

(6 Markah)

CLO 1

- ii) Calculate the feed rate in mm/min for a six-tooth helical carbide milling cutter with a diameter of 75mm for machining a cast iron work piece (CS = 60). Use the value chip per tooth, CPT is 0.25.

Hitungkan kadar suapan dalam mm/min bagi pemotong kisar helical karbida enam gigi yang mempunyai diameter 75 mm untuk mengisar bahan besi tuang (cast iron) dengan kelajuan pemotongan (CS) = 60 m/min. Gunakan nilai cip setiap gigi (CPT) = 0.25 mm.

(6 Marks)

(6 Markah)

QUESTION 3

SOALAN 3

CLO 2

(a) Based on the diagram below, name the following type of gear.

Berdasarkan gambarajah dibawah, Namakan jenis gear berikut?

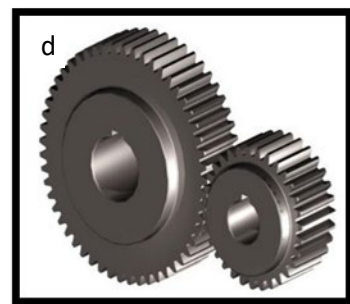
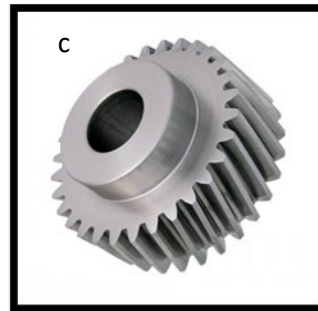
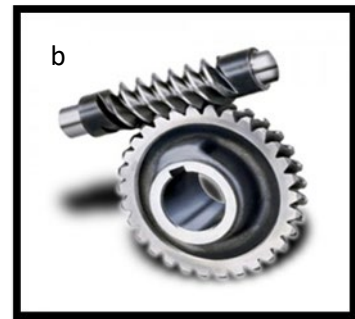
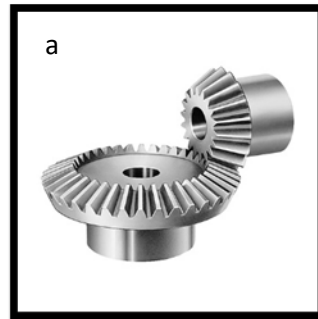


Figure 3(a) / Rajah 3(a)

(4 Marks)

(4 Markah)

CLO 2

- (b) Based on Figure 3(b) Spur gear below, explain **FOUR (4)** parts of spur gear.
Berdasarkan rajah 3(b) Spur gear dibawah, terangkan EMPAT (4) bahagian spur gear.

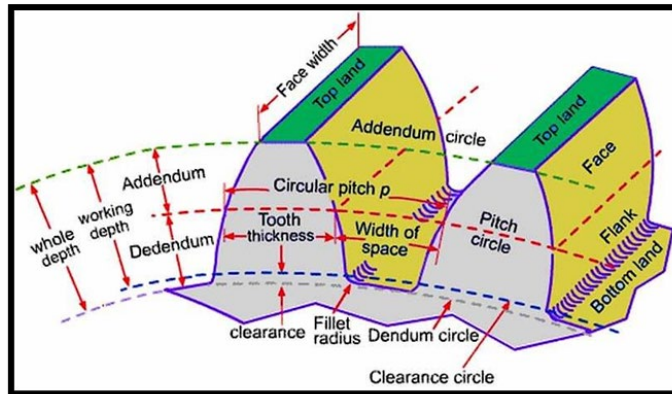


Figure 3(b) / Rajah 3(b)

(8Marks)

(8Markah)

CLO 2

- (c) i) Write a formula for calculating metric gear for Addendum.
Tulis formula untuk mengira Addendum bagi gear metrik.

(1 Mark)

(1 Markah)

- ii) Two (2) identical gears in mesh have a CD of 120mm. Each gear has 24 teeth.

Calculate:

- i. Module
- ii. Whole Depth
- iii. Chordal thickness

Dua (2) gear sepusat selari mempunyai jarak pusat (CD) sebanyak 120 mm. Setiap Gear mempunyai 24 gigi.

Kirakan :

- i. Modul*
- ii. Kedalaman Keseluruhan*
- iii. Chordal thickness*

(12 Marks)

(12 Markah)

QUESTION 4

SOALAN 4

CLO 2

- (a) List
- SIX (6)**
- advantages of Computer Numerical Control (CNC)?

Senaraikan ENAM (6) kelebihan Computer Numerical Control (CNC)?

(6 Marks)

(6 Markah)

CLO 2

- (b) Based on the drawing below, fill in the Programming Code with Absolute Coordinate (G90).

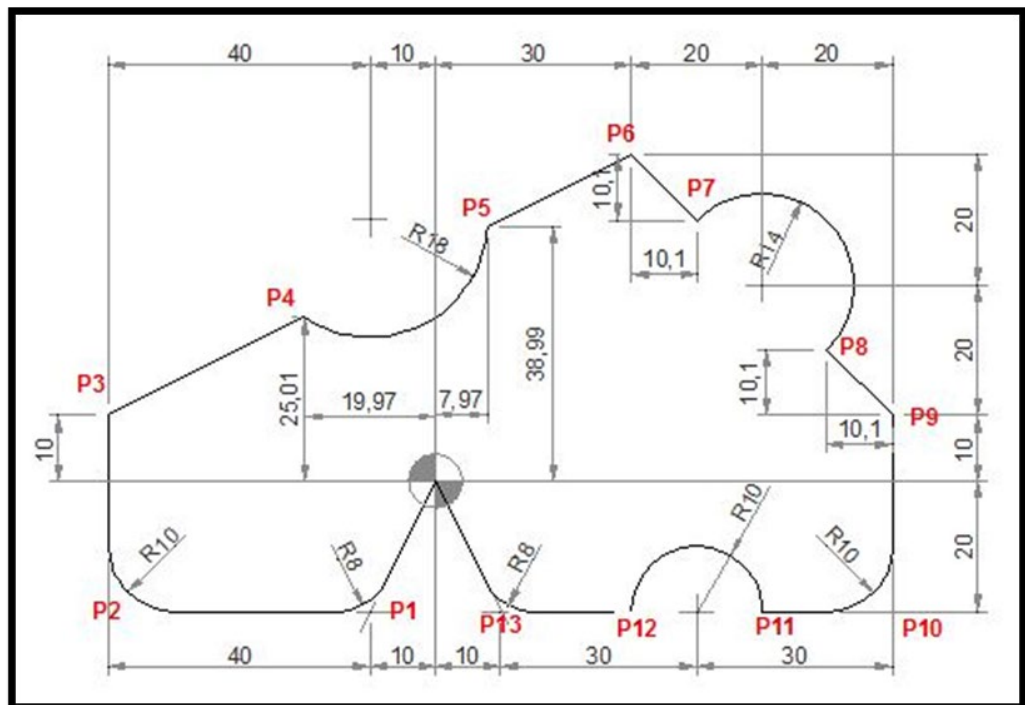
Berdasarkan lukisan di bawah, isikan kod pengaturcaraan CNC dengan menggunakan Koordinat Mutlak (G90).

Figure 4(b) / Rajah 4(b)

N40 G90 G00 X0 Y0
 N50 G01 X___ Y___ R8 (P1)
 N60 G01 X___ Y___ R10 (P2)
 N70 X___ Y___ (P3)
 N80 X___ Y___ (P4)
 N90 G03 X___ Y___ R18 (P5)
 N100 G01 X___ Y___ (P6)
 N110 G91 X10.1 Y-10.1 (P7)
 N120 G90 G02 X59.9 Y20.1 R14 (P8)
 N130 G01 X70 Y10 (P9)
 N140 X___ Y___ R10 (P10)
 N150 X50 (P11)
 N160 G03 X___ Y___ (P12)
 N170 G01 X10 R8 (P13)
 N180 X0 Y0

(8 Marks)

(8 Markah)

CLO 2

(c) i) Write briefly the general meaning of welding?

Tuliskan dengan ringkas maksud kimpalan?

(1 Mark)

(1 Markah)

ii) Sketch and name **FIVE (5)** types of joints in welding.*Lakar dan namakan **LIMA (5)** jenis sambungan proses kimpalan.*

(10 Marks)

(10 Markah)

SOALAN TAMAT