

SULIT

POLITEKNIK
Jabatan Pengajian Politeknik

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENGAJIAN POLITEKNIK
KEMENTERIAN PENGAJIAN TINGGI

JABATAN KEJURUTERAAN MEKANIKAL

PEPERIKSAAN AKHIR
SESI DISEMBER 2012

JJ104 : WORKSHOP TECHNOLOGY 1

TARIKH : 25 APRIL 2013
TEMPOH : 2 JAM (8.30 AM - 10.30 AM)

Kertas ini mengandungi **DUA BELAS (12)** halaman bercetak.
Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

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JJ104: WORKSHOP TECHNOLOGY 1

INSTRUCTION:

This paper consists of **SIX (6)** structured questions. Answer **FOUR (4)** questions only.

ARAHAN:

Kertas ini mengandungi **ENAM (6)** soalan struktur. Jawab **EMPAT (4)** soalan sahaja.

QUESTION 1

SOALAN 1

CLO1
C1

- (a) List **FIVE (5)** safety precautions should be taken while being in a workshop (Machining, Fitting, Welding).
*Senaraikan **LIMA (5)** langkah keselamatan yang perlu dipatuhi ketika berada di dalam bengkel (Mesin, Gegas, Kimpalan).*

[5 marks]

[5 markah]

CLO1
C2

- (b) Explain the phrase of 'marking out / lay out'.
Jelaskan maksud "menanda / menyusun tanda".

[3 marks]

[3 markah]

CLO1
C2

(c) Explain the use of following marking tools:

- (i) Scriber
- (ii) Protractor
- (iii) Center punch

Terangkan kegunaan alatan menanda berikut:

- (i) Penggarit
- (ii) Jangka sudut
- (iii) Penebuk pusat

[3 marks]

[3 markah]

CLO1
C1

(d) Draw and label the parts of hacksaw

Lukiskan dan labelkan bahagian-bahagian gergaji besi

[8marks]

[8markah]

CLO1
C1

(e) List **SIX (6)** procedures on how to care of a file.

Senaraikan **ENAM (6)** cara penjagaan kikir.

[6 marks]

[6 markah]

QUESTION 2

SOALAN 2

CLO1
C1

(a) List **FOUR(4)** types of common measuring tool that in workshop.

Senaraikan **EMPAT(4)** jenis alat pengukuran yang biasa digunakan di bengkel.

[4 marks]

[4 markah]

CLO1
C1

(b) Draw and label the parts of micrometer

Lukiskan dan labelkan bahagian-bahagian yang terdapat pada sebuah micrometer.

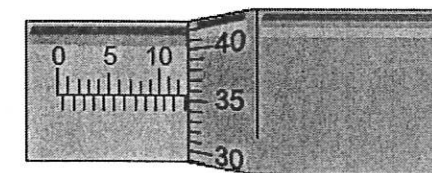
[10 marks]

[10 markah]

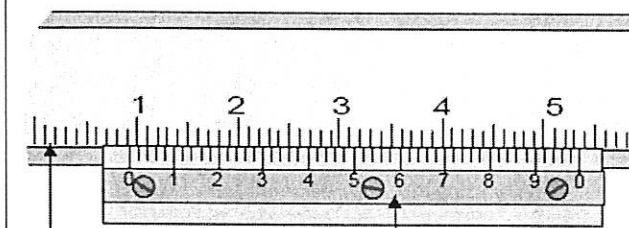
CLO1
C2

(c) Calculate micrometer and vernier caliper reading as shown below.

Kirakan bacaan micrometer dan angkup venier pada rajah di bawah.



SLEEVE READS FULL mm =
 SLEEVE READS ½ mm =
 THIMBLE READS =
 TOTAL MEASUREMENT =



MAIN SCALE READ =
 VERNIER SCALE READ =
 TOTAL MEASUREMENT =

MAIN METRIC SCALE

HUNDREDTHS OF mm

[8 marks]

[8 markah]

CLO1
C2

(c) A locking screw is present on a vernier caliper. What could happen if the locking screw is not tightened, after measurement has been taken?

Nat pengunci terdapat pada angkup vernier. Apakah yang akan berlaku jika nat

pengunci ini tidak diketatkan setelah membuat pengukuran.

[3 marks]

[3 markah]

QUESTION 3

SOALAN 3

CLO2
C3

(a) State **FOUR (4)** methods of determining the size of a drill bit.

Nyatakan EMPAT (4) kaedah sistem penentuan saiz mata gerudi.

[4 marks]

[4 markah]

CLO2
C4

(b) Compare between the straight rod drill and taper rod drill.

Bezakan antara gerudi batang lurus dan gerudi batang tirus

[4 marks]

[4 markah]

CLO2
C2

(c) Name and sketch **FOUR (4)** of the angles for turning tool bit.

Namakan dan lakarkan EMPAT (4) sudut yang terdapat pada mata alat melarik..

[8 marks]

[8 markah]

CLO2
C2

(d) Explain the lathe operation below

i. Straight turning

ii. Facing

iii. Knurling

Jelaskan maksud operasi melarik di bawah

i. Melarik selari

ii. Melarik muka

iii. Melorek

[9 marks]

[9 markah]

QUESTION 4

SOALAN 4

CLO2
C1

- (a) State **FIVE (5)** safety procedures while using the milling machine.

Nyatakan LIMA (5) langkah keselamatan semasa menggunakan mesin peraut.

[5 marks]

[5 markah]

CLO2
C3

- (b) With the aid of diagrams, describe the method of up milling and down milling.

Dengan bantuan gambarajah, terangkan kaedah meraut atas dan meraut bawah.

[8 marks]

[8 markah]

CLO2
C1

- (d) Define the meaning of 'dressing' in grinding wheel maintenance.

Takrifkan maksud menyagat dalam penyelenggaraan roda pencanai.

[3 marks]

[3 markah]

CLO2
C3

- (e) Explain the following grinding wheel specifications:

- a. Wheel grade
- b. Wheel structure
- c. Bonding material

Terangkan spesifikasi roda pencanai berikut:

- i. *Gred roda*
- ii. *Struktur roda*
- iii. *Bahan ikatan*

[9 marks]

[9 markah]

QUESTION 5

SOALAN 5

CLO2
C1

- (a) Define of Gas Welding

Berikan definisi Kimpalan Gas

[3 marks]

[3 markah]

CLO2
C3

- (b) Sketch and name
- SIX (6)**
- oxy-acetylene welding equipment.

Lakarkan dan namakan ENAM (6) alat kelengkapan kimpalan gas oksasi-asetilena.

[10 marks]

[10 markah]

CLO2
C3

- (c) Categorize the characteristics and function of the oxygen gas and acetylene gas for gas welding.

Kategorikan sifat dan fungsi bagi gas oksigen dan gas asetilena dalam kimpalan gas.

[4 marks]

[4 markah]

CLO2
C2

- (d) The system used to deliver the gas through steel pipes is known as a manifold system in gas welding. Explain
- FOUR (4)**
- advantages of the system.

Sistem yang digunakan untuk menyalurkan gas melalui paip keluli dikenali sebagai sistem pancarongga dalam kimpalan gas. Jelaskan EMPAT (4) kebaikan sistem tersebut.

[4 marks]

[4 markah]

CLO2
C3

- (e) Differentiate between brazing process and brass weld process.

Bezakan diantara proses meloyang dan proses kimpal Loyang.

[4 marks]

[4 markah]

QUESTION 6

SOALAN 6

- CLO2
C4 (a) Distinguish between direct current reverse polarity and direct current straight polarity in the arc welding process using arc welding machine.
Bezakan di antara arus terus kecutuban berbalik dan arus terus kecutuban lurus dalam proses kimpalan menggunakan mesin kimpalan arka.
- [6 marks]
[6 markah]
- CLO2
C1 (b) Describe the following factors with influence the quality of welding process.
Huraikan faktor-faktor berikut dengan pengaruh kualiti proses kimpalan
- i. Arc speed
Kelajuan Arka
- ii. Arc Distance
Jarak Arka
- [4 marks]
[4markah]
- CLO2
C3 (c) Compare **THREE (3)** advantages and **THREE (3)** disadvantages of arc welding.
Bezakan TIGA (3) kelebihan dan TIGA (3) keburukan kimpalan arka
- [6marks]
[6 markah]

- CLO2
C2 (d) Explain the meaning of **E6011** electrode in arc welding.
Terangkan maksud elektrod E6011 dalam kimpalan arka .
- [5 marks]
[5markah]
- CLO2
C3 (e) Sketch and label basic standard welding symbol
Lakar dan labelkan simbol asas welding.
- [4marks]
[4 markah]

SOALAN TAMAT