



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

PEPERIKSAAN AKHIR SEMESTER I SESI 2009/2010

NAMA MATA PELAJARAN : PEMESINAN MODEN
KOD MATA PELAJARAN : BDD 4073
KURSUS : 4 BDD
TARIKH PEPERIKSAAN : NOVEMBER 2009
JANGKA MASA : 2 ½ JAM
ARAHAN : JAWAB **SEMUA EMPAT** (4)
SOALAN DI BAHAGIAN A DAN
SATU (1) SOALAN DI
BAHAGIAN B

KERTAS SOALAN INI MENGANDUNGI TIGA (3) MUKA SURAT

SECTION A : Answer all four (4) questions.

- Q1**
- a) Briefly explain what is Electrical Discharge Machining or EDM (5 marks)
 - b) State clearly what are the important differences of EDM compared to the conventional machining processes. (5 marks)
 - c) Discuss the various flushing methods and suggest one which you think is the best justify your selection. (10 marks)
- Q2**
- a) Briefly describe what is a Chemical Machining Process or CHM. (5 marks)
 - b) Explain about the various steps of CHM and describe each step in detail. (15 marks)
- Q3**
- a) Describe the material removal mechanisms in Laser Beam Machining (LBM) and also Electron Beam Machining (EBM) (10 marks)
 - b) Discuss in detail about parameters that will affect the quality of a laser-drilled holes. (10 marks)
- Q4**
- a) What is Ultrasonic Machining (USM)? (5 marks)
 - b) With a clear diagram explain how USM process is carried out. (10 marks)
 - c) How do you obtain a good surface finish in USM? (5 marks)

SECTION B : Answer one question only.

Q5 A company producing ceramic automotive parts has decided to use Electron Beam Machining (EBM) as one of the process to produce the parts. The number of parts produced are high and should have very accurate dimension.

a) Discuss the companies decision as to why EBM is a good or bad choice compared to other non-conventional machining process especially Laser Beam Machining (LBM)

(10 marks)

b) Sketch a schematic diagram of EBM and explain the process involved

(10 marks)

Q6 In Electrical Discharge Machining (EDM) explain in detail the following :

- a) pulse on-time
- b) pulse off-time
- c) spark gap
- d) duty cycle
- e) intensity

Relate the above items with the performance of the EDM process. If necessary include appropriate diagrams.

(20 marks)

Q7 A company named Potong Saja Sdn. Bhd. is involved in a cutting and forming process of sheets of fibre-glass for speed boats. They are also involve in manufacturing thin sheets of intricate parts for the same purpose. The CEO of the company would like to invest in a non-conventional machining process and would like to seek your advice on this. Please advice the company and justify your suggestions. The sheet metal is very thin with intricate patterns on it. The fibre glass are to be the main part of the boat as well as some part on the deck.

(20 marks)