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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2022/2023**

COURSE NAME : MACHINING TECHNOLOGY 1

COURSE CODE : BBM20403

PROGRAMME CODE : BBA

EXAMINATION DATE : JULY / AUGUST 2023

DURATION : 2 HOURS

INSTRUCTION : 1. ANSWER ALL QUESTIONS.

2. THIS FINAL EXAMINATION IS CONDUCTED **CLOSED BOOK**

3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

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**SECTION A (60 marks)**

- Q1** Sometimes a machine operator has to draw various types of shapes on a workpiece or component. The following methods are used for profile turning except:
- (a) Using high speed and transmission rate
  - (b) Move the machine with the guidance of an example
  - (c) Using tool points that have been ground according to the required contours
  - (d) By controlling the simultaneous movement of the car and the transverse slip by hand
- (2 marks)
- Q2** What is the main function of a lathe machine?
- (a) Rotate in tap
  - (b) Smooth the surface of the work piece
  - (c) Cut various types of shoulders and grooves
  - (d) Machining the circumference of cylindrical materials
- (2 marks)
- Q3** 'The points of this type of drilling tool are usually made of high carbon steel and durable steel. One of the ends is forged according to the desired shape and then ground to a specific snout according to the type of run performed'. This statement refers to;
- (a) Set of rods, heavy duty drills
  - (b) Overlapping eye type drilling rods
  - (c) Boring Bar
  - (d) Throwaway Insert Holder
- (2 marks)
- Q4** What are the steps that need to be taken to get a beautiful flower pattern in the lathe process?
- (a) Use fluids in optimal quantities
  - (b) The surface of the flower must be parallel to the axis of the work piece
  - (c) Use different patterns to get a good finish
  - (d) Place the handle at a slightly inclined angle to the axis of the work piece
- (2 marks)
- Q5** The selection of tool point material for the lathe process is very important. Which of the following refers to the material properties of the tool points required?
- I. The material must be hard
  - II. Has thrust resistance
  - III. Withstands hardness properties at high temperatures during cutting
  - IV. Absorbs shocks while performing operations such as eccentric running and rough lining
- (a) I and II
  - (b) II and IV
  - (c) I, II and III
  - (d) I, II and IV
- (2 marks)

- Q6** The direction of the thread can be identified by means of?
- (a) Measure the distance between pitches
  - (b) Tested using a screw pitch
  - (c) Refer to the thread diagram either right or left
  - (d) Observe the direction of the slope of the helical angle when the thread is placed in a horizontal position
- (2 marks)
- Q7** What is the definition of Preventive Maintenance?
- (a) Maintenance performed regularly
  - (b) Maintenance performed only when deemed necessary
  - (c) Maintenance performed after the machine/equipment is damaged
  - (d) Maintenance performed before the machine/equipment is used
- (2 marks)
- Q8** Which of the following activities can cause damage to the machine?
- (a) Attempts to carry out treatment and recovery.
  - (b) Strive to increase product production
  - (c) Attempts to deal with the causes of the damage
  - (d) Attempts to maintain and control equipment
- (2 marks)
- Q9** The concept of Preventive Maintenance and Total Productive Maintenance control originates from the country?
- (a) Japan and Korea
  - (b) Malaysia and Singapore
  - (c) United States and Japan
  - (d) England and the United States
- (2 marks)
- Q10** What type of maintenance prevents problems from the machine?
- (a) Corrective Maintenance
  - (b) Preventive Maintenance
  - (c) Maintenance Prevention
  - (d) Corrective Prevention
- (2 marks)
- Q11** What is the method used for external thread grinding process?
- (a) Plunge form grinding
  - (b) Internal form grinding
  - (c) Traverse form grinding
  - (d) Shoulder form grinding
- (2 marks)



- Q12** Why do we need to do 'Reference Return' (Machine Zero Return) on CNC milling machine after the machine is turned on?
- (a) All previous alarms can be reactivated
  - (b) The battery can be recharged for a longer life
  - (c) The machine reference position can be returned to the home position state
  - (d) The last file used before shutdown can be removed again
- (2 marks)
- Q13** This process is very important to do before a milling process is done. It is intended to clean the face of the grinder wheel to reveal new cutting particles. What process is meant by the above statement?
- (a) Grinding
  - (b) Dressing
  - (c) Changing
  - (d) Sharpening
- (2 marks)
- Q14** Which of the following practices causes burns to occur on the surface of the workpiece?
- (a) Coolant is not given enough
  - (b) There are a lot of cuts
  - (c) The workpiece is not tied tightly
  - (d) Improper grinding wheel selection
- (2 marks)
- Q15** What are the advantages between grinding machine compared to milling machine?
- (a) Suitable for heavy work
  - (b) Speed up work time
  - (c) Get a more precise surface
  - (d) Able to do all work including drilling work
- (2 marks)
- Q16** What are the safety measures that need to be considered while performing the grinding process on a CNC milling machine?
- I. Make sure the machine's magnetic field is on.
  - II. Make sure all axes are in the home position.
  - III. Make sure safety gloves are worn at all times.
  - IV. Make sure the starting feed rate is at the maximum position
- (a) I, II and III
  - (b) I, II and IV
  - (c) I, III and IV
  - (d) II, III and IV
- (2 marks)

- Q17** The following is the effect of the insensitivity of the mill operator to the safety elements and accuracy of the workpiece. Choose between the following statements that are most accurate?
- I. The dresser process is not performed.
  - II. Uneven wheel rotation rate
  - III. Difficulty getting an accurate reading
  - IV. The surface of the workpiece is black and burnt
- (a) I, II and III
  - (b) I, II and IV
  - (c) II, III and IV
  - (d) I, II, III and IV

(2 marks)

- Q18** What is the use of a limit gauge?
- (a) Test the accuracy of the measurement
  - (b) Measure the depth of the hole
  - (c) Measure the distance of a space/relief
  - (d) Measure the outer diameter of the product surface

(2 marks)

- Q19** What is the accuracy of measurement using a micrometer?
- (a) 0.1 mm
  - (b) 0.01 mm
  - (c) 0.001 mm
  - (d) 0.0001 mm

(2 marks)

- Q20** What are the advantages of using a micrometer?
- (a) Measurements can be performed quickly
  - (b) Able to measure various shapes of workpieces
  - (c) Can be readjusted if the reading is inaccurate
  - (d) Easy to care for and does not require careful care

(2 marks)

- Q21** State the correct reading position for reading analog micrometer readings
- (a) The eye view is located on the side of the sleeve
  - (b) Eyesight should be parallel to the reading range
  - (c) Eyesight should be at a high position from the reading range
  - (d) Eyesight should be in a low position with a reading range

(2 marks)

- Q22** Which is a true statement about the setting of zero on a measuring instrument?
- (a) Zero setting records should be filled in if required
  - (b) The zero setting is flexible and can be set in any situation
  - (c) Zero setting on the equipment can be done before and after the measurement
  - (d) The use of block gauge should be in line with the size of the product/  
material to be inspected
- (2 marks)
- Q23** Which of the following statements refers to the correct way of storing tools?
- (a) Store in a sunny place for easy viewing
  - (b) Group all types of equipment according to size suitability
  - (c) Sensitive measuring instruments should be placed at the very top
  - (d) Arrange each piece of equipment based on usage requirements
- (2 marks)
- Q24** Calculate the size of the tap drill used to cut the M10 x 1.5 thread?
- (a) 8.5 mm
  - (b) 7.0 mm
  - (c) 8.0 mm
  - (d) 9.0 mm
- (2 marks)
- Q25** What equipment needs to be installed when doing threading work on a workpiece using a grinding machine?
- (a) Work objects
  - (b) Drill Bits
  - (c) Head of Divider
  - (d) Additional threading tools
- (2 marks)
- Q26** What is the first process that needs to be done before the threading work on the workpiece is carried out?
- (a) Make an alignment on the vise
  - (b) Holes should be tapped with a cutting tool first
  - (c) The hole to be threaded must be drilled first.
  - (d) Make a beautiful engraving on the mark of the hole to be drilled
- (2 marks)
- Q27** If the drill size is  $\text{Ø } 20$ , what is the size of the tap to be used?
- (a) M26 X 2
  - (b) M18 X 2
  - (c) M22 X 2
  - (d) M24 X 2
- (2 marks)



**Q28** What kind of tool are always used to cut pockets?

- (a) End mill
- (b) Gear cutter
- (c) Face mill cutter
- (d) Plain milling cutter

(2 marks)

**Q29** What is meant by pollution?

- (a) Floating particles fill the machining area
- (b) Rusting in the area where the machining process will be done on the workpiece
- (c) Too much rusting occurs on the wire causing sparking to be obstructed
- (d) Too many negative ions cause the formation of conductive channels to be prevented

(2 marks)

**Q30** Which of the following statements explains the importance of safety factors in the production process?

- I. Finishes as well as sharp corners should be avoided.
  - II. The designed product must be stable for use.
  - III. Place static and moving product/machine part guards.
  - IV. Emphasize safety aspects for products that involve electrical systems.
- (a) I and IV
  - (b) II and III
  - (c) I, II and III
  - (d) I, II and IV

(2 marks)

**SECTION B (40 marks)**

- Q31** (a) What are the consequences/impacts that occur if there is an error in using coolant in the CNC milling machining process?  
(6 marks)
- (b) Define at least 3 (three) cutting parameters of CNC lathe machine.?  
(6 marks)
- (c) Describe function of T and S code in CNC lathe machine.?  
(8 marks)
- Q32** (a) Explain the advantages of using IoT Internet of Things in Preventative Maintenance - CNC Machining?  
(10 marks)
- (b) Explain the advantages of using IoT Internet of Things in product quality control on CNC Machining.?  
(10 marks)

**-END OF QUESTIONS –**