UNIVERSITY COLLEGE TATI (UCTATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: BME 2033
COURSE	: MOULD DESIGN (ACAD)
SEMESTER/SESSION	: 2-2024/2025
DURATION	: 6 HOURS

Instructions:

1. This booklet contains **8** questions.

2. All answers should be drawn in **AutoCAD software**.

3. Save your drawing files in to the created folder **22B0XXXX_FINAL BME2033_MOULD DESIGN_NAME** (22B0XXXX is your matrix number).

4. Write legibly and draw sketches wherever required.

5. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE

ANSWER ALL QUESTIONS:

Instruction: You may refer to *Standard Mould Base* **and answer the following questions. Save your drawing as your Name and Matric Number to the thumb drive or pendrive given, for example:**
        A100XXXXX_FINALBME2033_ADAM MIKAEL BIN ADAM HAIKAL

Referring to the **figure below,** the products is to be produce by using injection moulding process. Design a **two cavities** mould to produce *Stopper Cap* as shown below. Details of the product as follow:-

Product material	:	ABS
Shrinkage	:	1.5 %
No of cavity	:	2
Wall thickness	:	1.5 mm

QUESTION

1. **Reproduce** the detail drawing of the product and given in three views (Front, Top and Side view). Refer to the drawing below.   (15 marks)

2. **Construct** the detail core and cavity inserts by given three views (Front, Top and Side view).   (10 marks)

3. **Illustrate** the top and front view the whole parts molding in full assembly mould with the all constraints relationship properly.   (25 marks)

4. **Construct** plan view and sectional view of fixed half assembly.   (10 marks)

5. **Construct** plan view and sectional view of moving half assembly.   (10 marks)

6. **Identify** the suitable injection system for the product; including locating ring, sprue bush and gate.   (10 marks)

7. **Identify** the suitable ejection system for the product; including ejection pins, and sprue puller.   (10 marks)

8. **Build** the cooling system used in that mould.   (10 marks)

Note: All the detail drawing must be including with the full dimension.

Appendix A
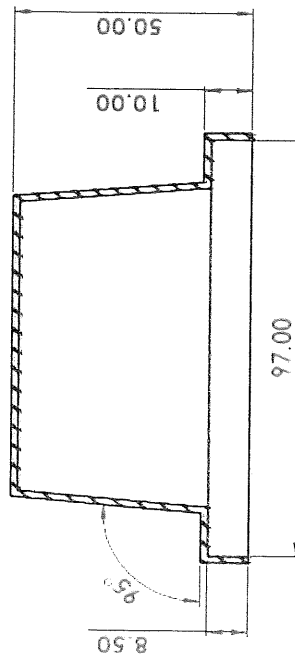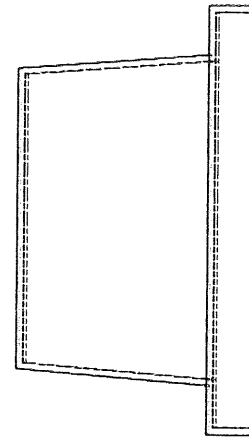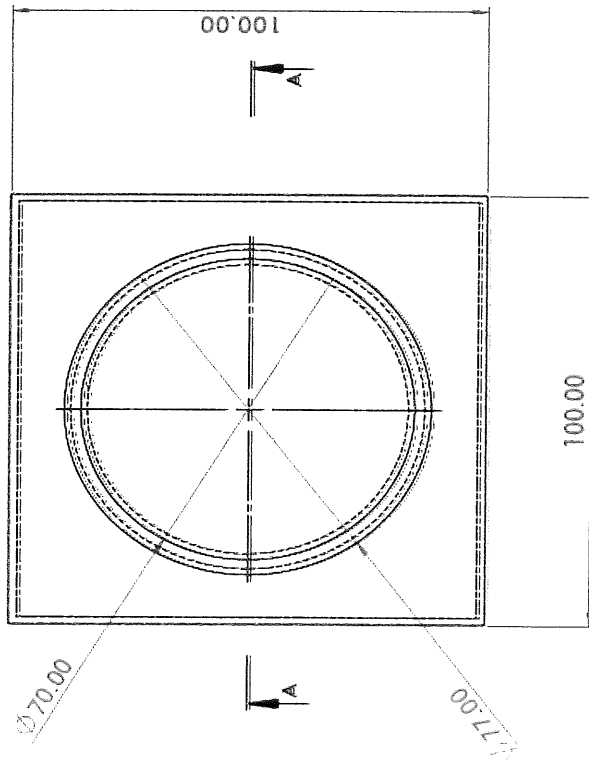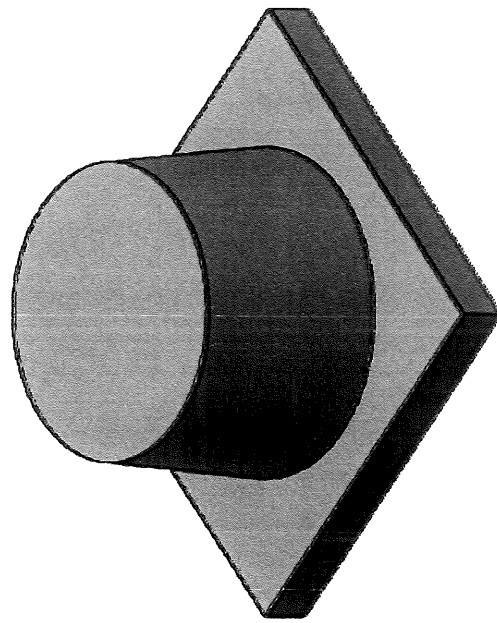
ALL PRODUCT THICKNESS IS 1.5MM
ALL DIMENSION IN MILIMETER

DO NOT SCALE DRAWING

REVISION

TITLE:

UNIVERSITY COLLEGE TATI (UCTATI)
MOULD DESIGN FINAL EXAM DRAWING

STOPPER CAP

A3

DWG NO.

SCALE:1:1

SHEET 1 OF 1

MATERIAL: ABS

WEIGHT:

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
SURFACE FINISH:
TOLERANCES:
   LINEAR:
   ANGULAR:

FINISH

	NAME	SIGNATURE	DATE
DRAWN	SHAMSUL		
CHK'D	KHALIL		
APPV'D	KAMARUL		
MFG			
Q.A			

100.00

100.00

Ø70.00

Ø77.00

A

A

50.00

10.00

97.00

8.50

95°

SECTION A-A

RUBRIC

Criteria	Marks
All question answered will be marked according to the answer schema	/100

Appendix B

Recommended Runner

Material	Recommended Runner Diameter (mm)
ABS, SAN	4 – 10
Acetal	3 – 10
Acrylic	7.5 – 10
Impact Acrylic	8 – 12
Nylon	1.5 – 10
Polycarbonate	4 – 10
Polyethylene	1.5 – 10
Polypropylene	4 – 10
Polystyrene	3 – 10
PVC (Plasticized)	3 – 10

Material constant

Material	n
PE, PS, PA, PC	0.6
PP	0.7
PA, Cellulose acetale acrylic	0.8
PVC	0.9

The width of the gate controls flow rate

$$D = \frac{n \cdot \sqrt{A}}{30}$$

Depth of Gate

$$h = n \times t$$