



## UNIVERSITY COLLEGE TATI (UCTATI)

### FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: BME 2033
COURSE	: MOULD DESIGN (ACAD)
SEMESTER/SESSION	: 2-2023/2024
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 AZMI SHAH***

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:-

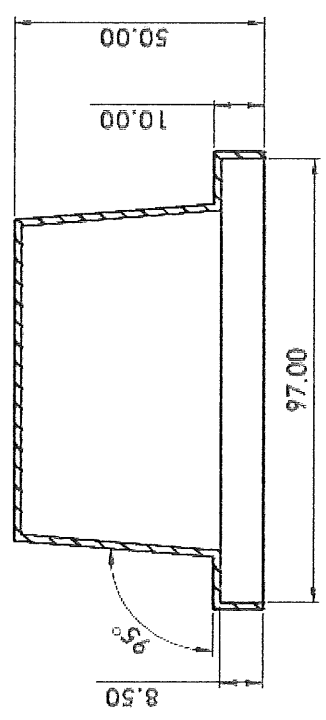
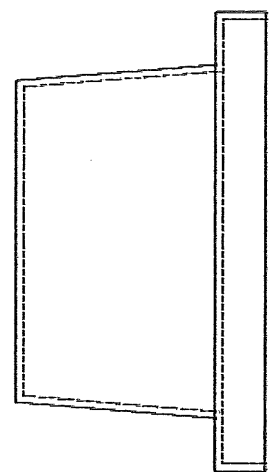
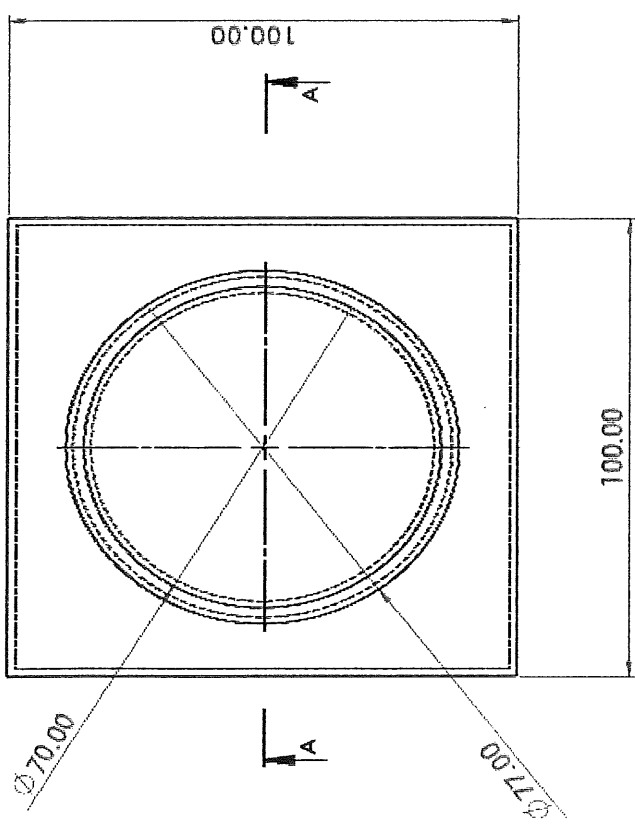
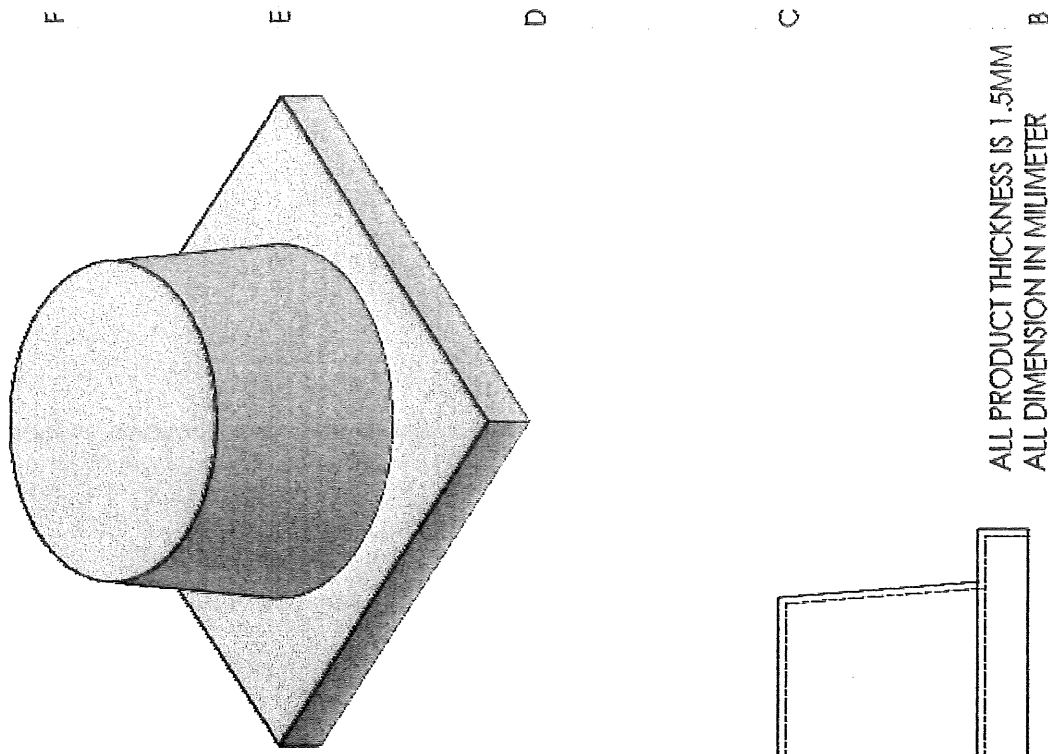
Product material	:	ABS
Shrinkage	:	1.5 %
No of cavity	:	2
Wall thickness	:	1.5 mm

**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 MILLIMETER

UNLESS OTHERWISE SPECIFIED:	UNIT:	DESIGN AND DRAWING CODE	NO. OF SCALE DRAWING	PERSON
DIMENSIONS ARE IN MILLIMETERS	MILLIMETER			
TOLERANCES				
FINISH				
ANGLE				
NAME	DATE			
DESIGN	SIGNATURE			
CHECK	DATE			
APPROVE				
MTC				
QA				
TITLE: UNIVERSITY COLLEGE TATI (UCTATI) MOULD DESIGN FINAL EXAM DRAWING				
MATERIAL: ABS				
SCALE: 1:1				
SHEET NO. 1				
TOTAL SHEETS 1				

End of question

BME 2033 MOULD DESIGN

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## RUBRIC

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

**Appendix B****Recommended Runner**

<b>Material</b>	<b>Recommended Runner Diameter (mm)</b>
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**

<b>Material</b>	<b>n</b>
PE, PS, PA, PC	0.6
PP	0.7
PA, Cellulose acetate acrylic	0.8
PVC	0.9

**The width of the gate controls flow rate**

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

**Depth of Gate**

$$h = n \times t$$

