

**UNIVERSITY COLLEGE TATI (UCTATI)****FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE	: BME 2033
COURSE	: MOULD DESIGN (ACAD)
SEMESTER/SESSION	: 1-2023/2024
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 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

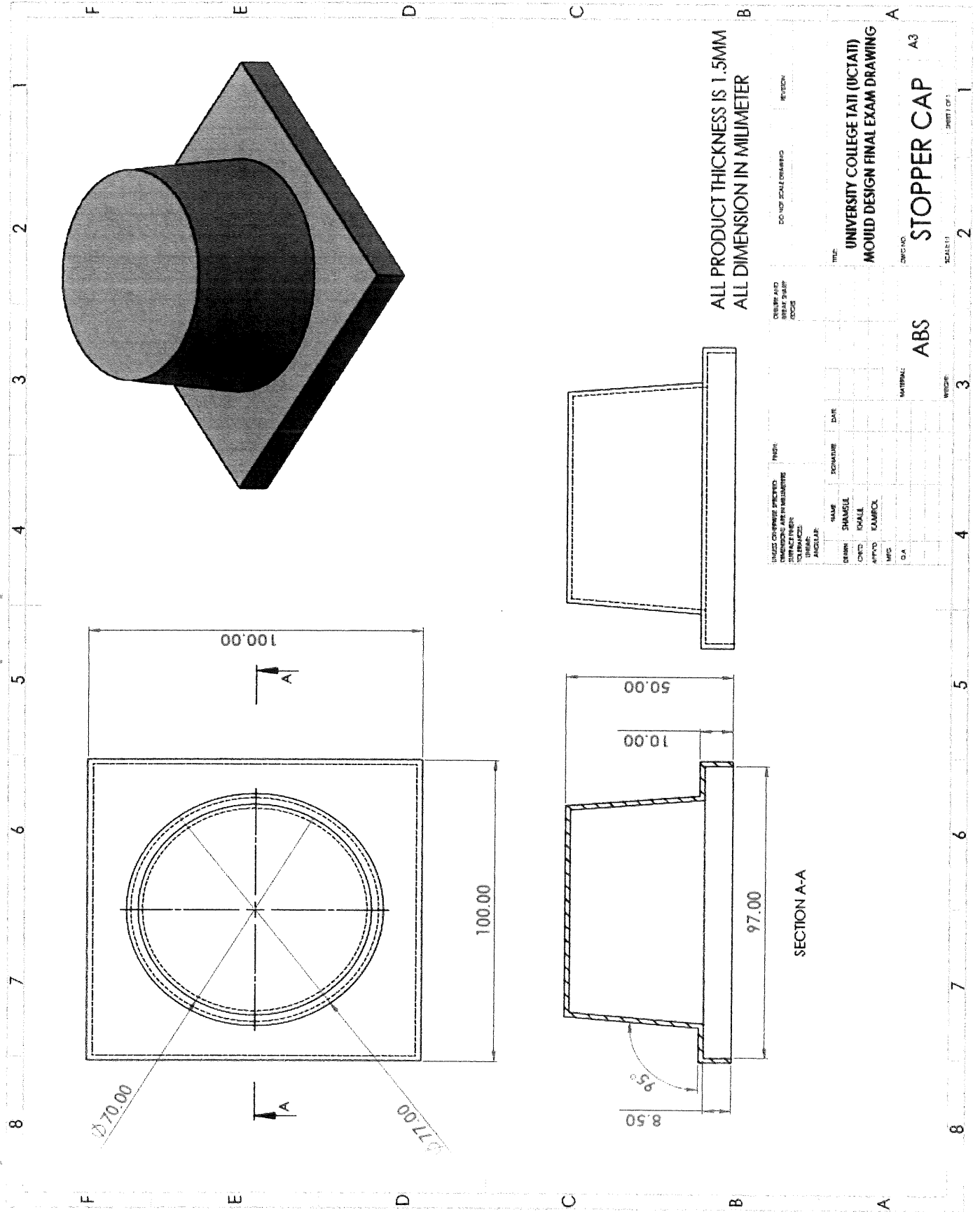
**QUESTION**

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



-----End of question-----



## 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**

$$h = n \times t$$

