



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DEI 2032
COURSE	: CIRCUIT DESIGN
SEMESTER/SESSION	: 2-2024/2025
DURATION	: 2 HOURS

Instructions:

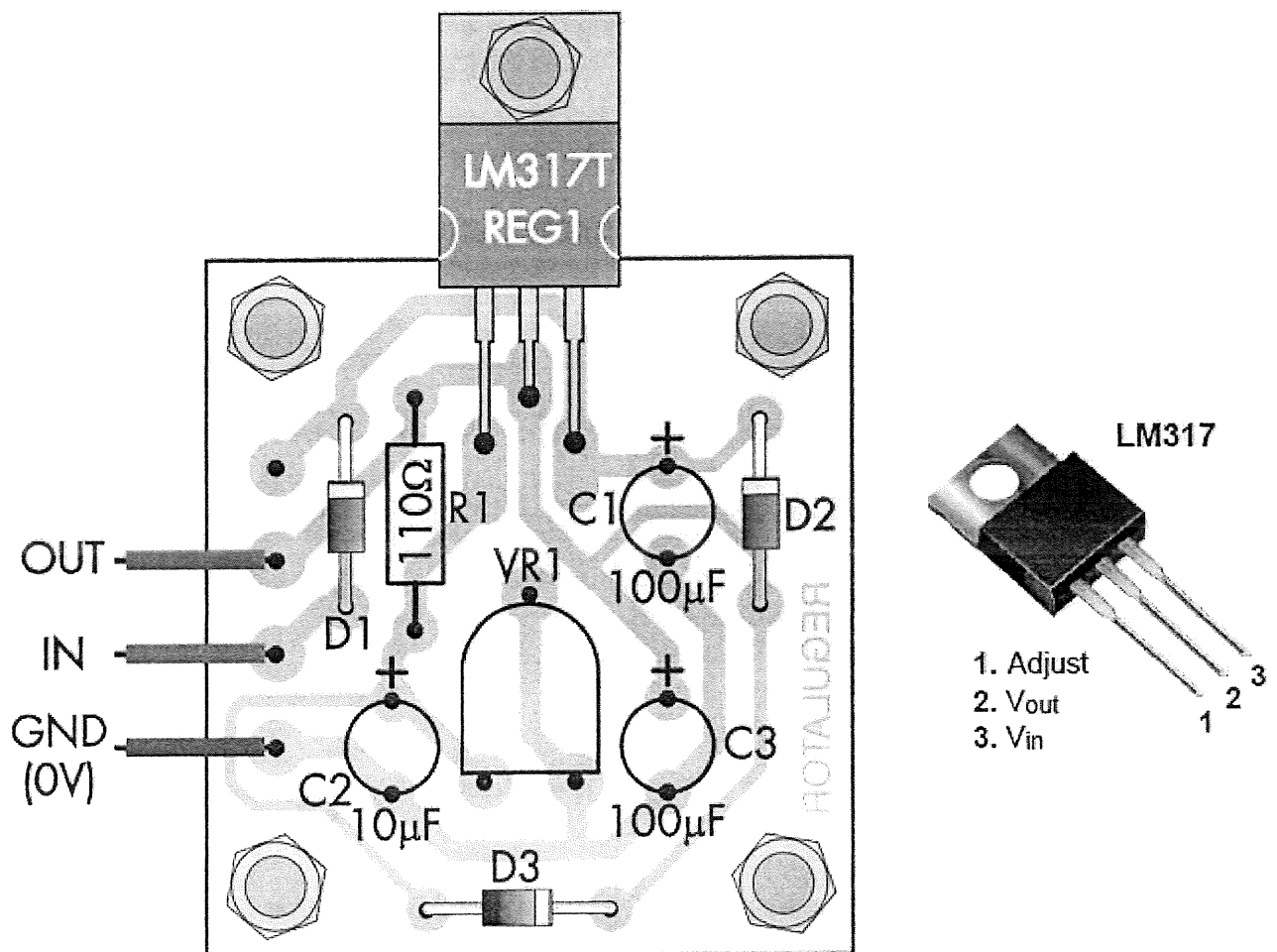
1. This booklet contains 4 questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise up your hands and ask the invigilator.

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

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a) List FIVE (5) advantages of using CAD systems to designing and simulation electronics circuits. (5 marks)
- b) List THREE (3) schematic software. (5 marks)
- c) Identify the best FIVE (5) schematic software package. (5 marks)
- d) Sketch the schematic circuit from the given PCB layout as shown by Figure 1. (10 marks)

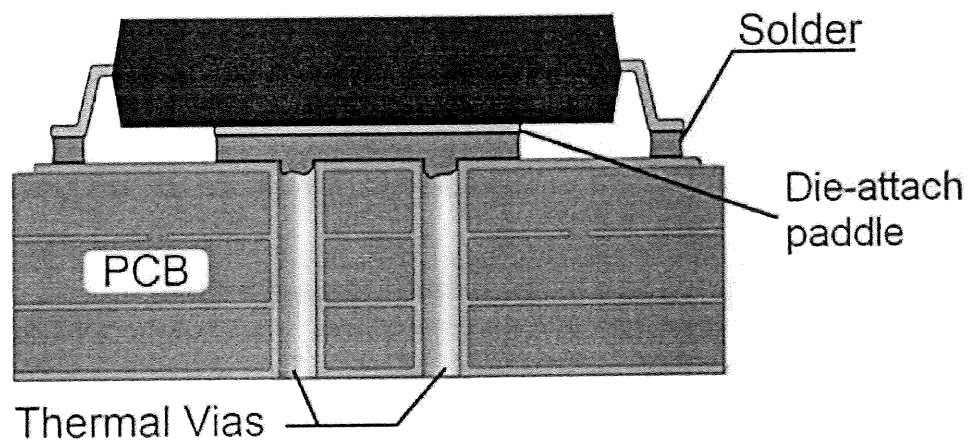
**Figure 1**

QUESTION 2

- a) State the difference between analog circuits and digital circuits. (2 marks)
- b) Printed circuit boards were assembled using both surface mount and through-hole processes. Describe the differences between these two mounting approaches. (5 marks)
- c) Describe the difference between a schematic diagram and a PCB layout. (6 marks)
- d) Explain the requirement for designing circuit layout on a printed circuit board. (6 marks)
- e) Explain the function of netlist in the PCB design layout. (6 marks)

QUESTION 3

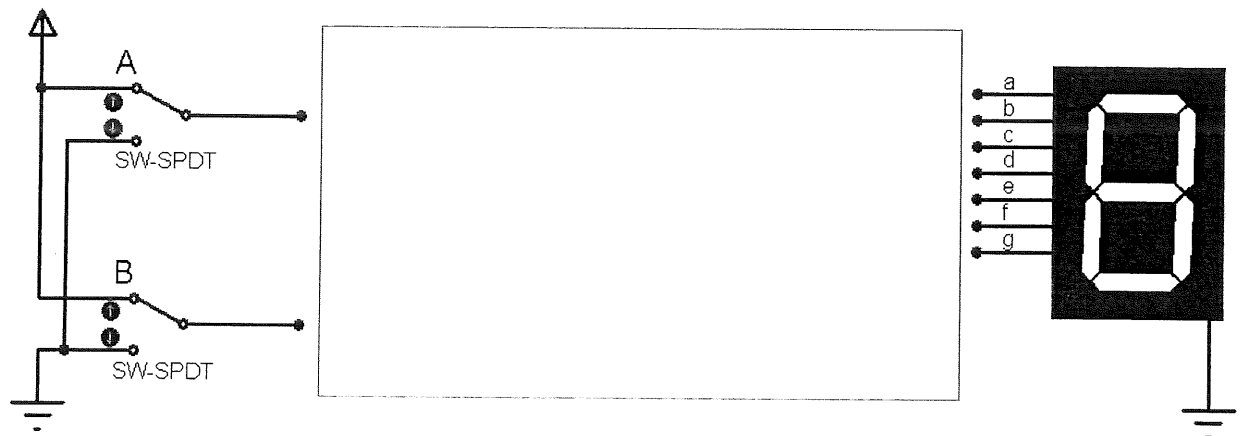
- a) State FOUR (4) advantages of using Printed Circuit Board software. (4 marks)
- b) Describe the proses of photolithography in designing PCB layout. (5 marks)
- c) Explain the process of PCB auto-routing work using Proteus. (8 marks)
- d) By referring to the Figure 2, explain in details the used of Thermal Vias. (8 marks)

**Figure 2**

QUESTION 4

- a) Identify the type of chemical and concentration used in a PCB etching process. (2 marks)
- b) List FIVE (5) types of layers in printed circuit boards. (5 marks)
- c) Produce the techniques used in PCB fabrication process at home. (6 marks)
- d) Produce the process designing circuit for displaying characters on one common-cathode Seven Segment Display based on given inputs (Table 1) and Figure 3. (12 marks)

Input Switch		Character to be display on 7 segments
B	A	
0	0	A
0	1	F
1	0	E
1	1	P

Table 1**Figure 3**

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

