

**UNIVERSITY COLLEGE TATI (UC TATI)****FINAL EXAM QUESTION BOOKLET**

COURSE CODE : DEI 2123 / DEE2113

COURSE : ELECTRICAL INSTALLATION

SEM/SESSION : 2 - 2022/2023

DURATION : 3 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 your hands and ask the invigilator.





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

THIS BOOKLET CONTAINS 8 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a) Explain two (2) purpose of electrical drawing in the electrical installation. (2 marks)
- b) Differentiate two (2) differences between a contactor and a relay protection. (4 marks)
- c) Table 1, show the symbols of electrical drawing. State the description for every symbol.

Table 1

Symbol	Description
	
	
	
	

(4 marks)

- d) Figure 1 show D.O.L starter schematic diagram connected with electric motors. Illustrate the D.O.L wiring connecting to the 15A socket in **APPENDIX 1**.

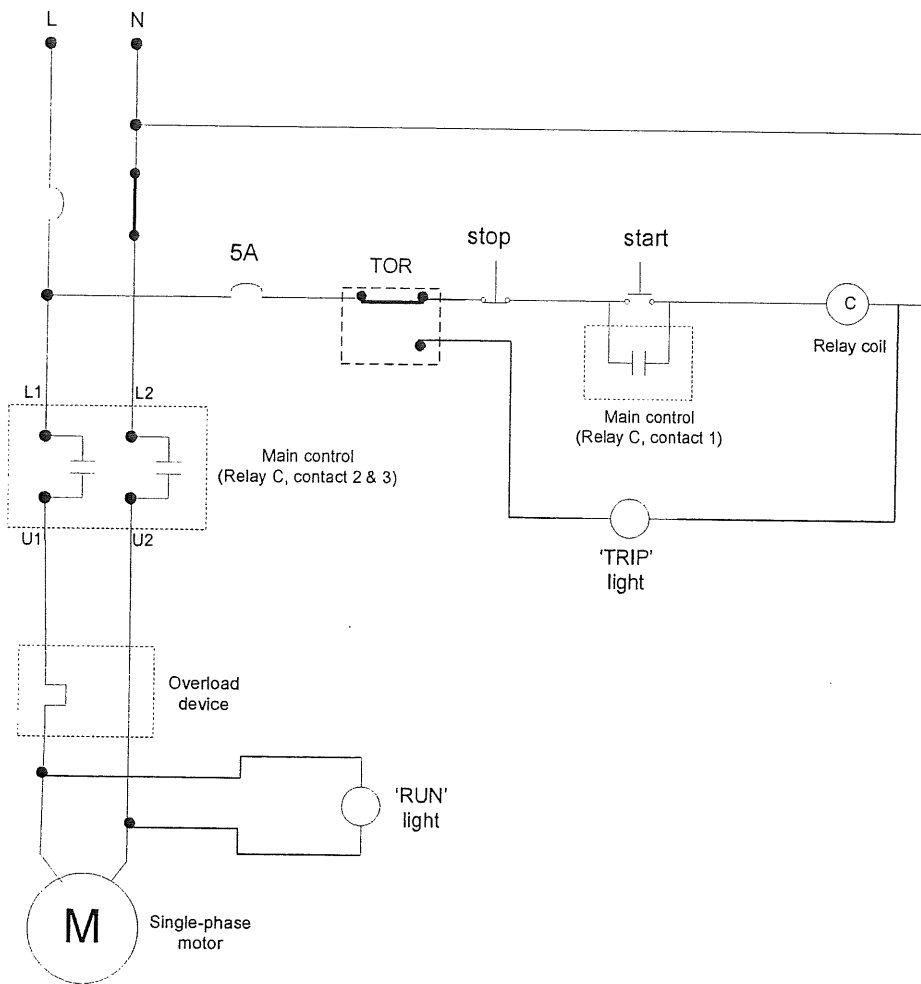


Figure 1

(8 marks)

QUESTION 2

a) An electrical conduit is a tube used to protect and route electrical wiring in a building or non building structure.

i. List three (3) types of conduits. (3 marks)

ii. Briefly explain each type of conduit (6 marks)

b) Explain about cable installation in wiring system. (4 marks)

c) From the schematic diagram shown below in Figure 2, illustrate the drawing in **APPENDIX 2** to produce a complete wiring diagram for the wiring task:

- Switch S1 and S3 controlling lamp B
- Switch S2 controlling both lamp A and C

(14 marks)

QUESTION 3

- a) List three (3) types of protection device. (3 marks)
- b) Explain about earth fault protection device. (2 marks)
- c) As a senior wiring man at YTL Power Generation Berhad, describe how tripping can occur in circuit breaker (4 marks)
- d) Domestic electrical testing ensures the impedance is correctly measured and the safety can be confirmed.
- List three (3) tests to be done during installation. (3 marks)
 - Briefly explain each type of testing (6 marks)
- e) Explain the testing and commissioning procedure for earthing system as shown in Figure 3 below.

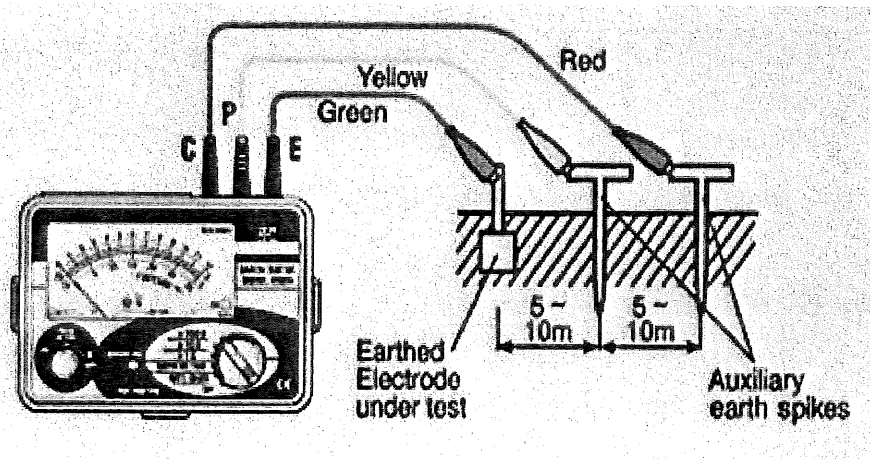


Figure 3

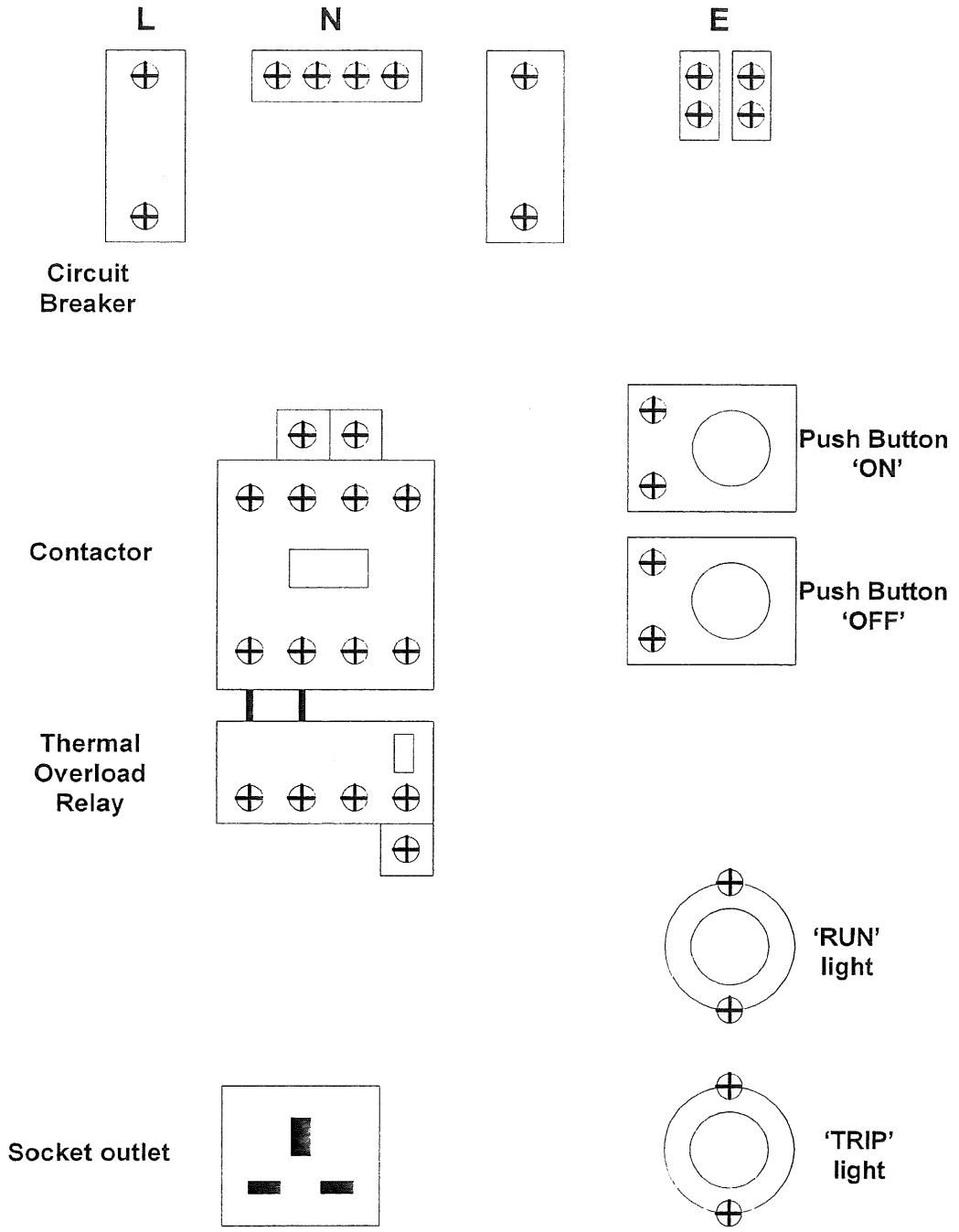
(10 marks)

QUESTION 4

- a) Define the induction motor (1 marks)
- b) List the three (3) types of speed control for three phase induction machines. (3 marks)
- c) Describe the general working principle of induction motor (6 marks)
- d) Explain how a rotating magnetic field is produced in a three-phase induction motor. (3 marks)
- e) Classify five (5) types of single phase induction motor. (5 marks)
- f) A 208-V, 10HP, 4 pole, 60 Hz, Y-connected induction motor has a full-load slip of 5%. Calculate:
- i. Synchronous speed of this motor (2 marks)
 - ii. Rotor speed of this motor (2 marks)
 - iii. Rotor frequency of this motor (2 marks)
 - iv. Shaft torque of this motor (3 marks)

.....**END OF QUESTION**.....

APPENDIX 1



ELECTRICAL INSTALLATION (DEE 2113 & DEI 2123)

APPENDIX 2

Red Wire = Live, L
Black Wire = Neutral, N
Green Wire = Earth, E

