UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET		
COURSE CODE	:	BMT 3113
COURSE	:	ELECTRO HYDRAULIC
SEMESTER/SESSION:		1 – 2024/2025
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, rise up your hands and ask the invigilator.

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

THIS BOOKLET CONTAINS 6 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) The use of electrical and electronic components in hydraulic systems provides many advantages. Briefly describe the three factors that support this advantage.

(6 marks)

b) Describe the two principal subassemblies in an electro hydraulic system.

(4 marks)

QUESTION 2

a) Figure 1 shows a simple hydraulic circuit. Convert the existing circuit to an electro hydraulic system with a direct actuation **double solenoids valve**.

(6 marks)

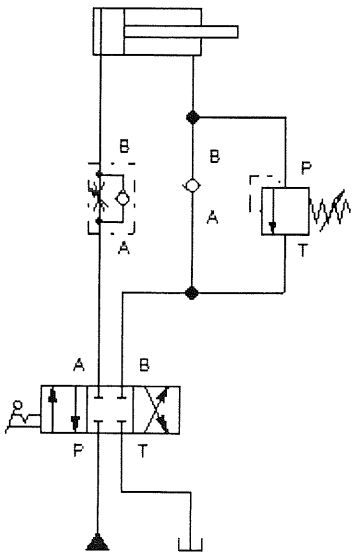

Figure 1

b) Figure 2 below shows an electro hydraulic circuit for a particular system. Interpret this circuit by giving a step-by-step explanation on what will happen to the relay coils, contact, valve and actuator when S1 and S2 button is pressed.

(12 marks)

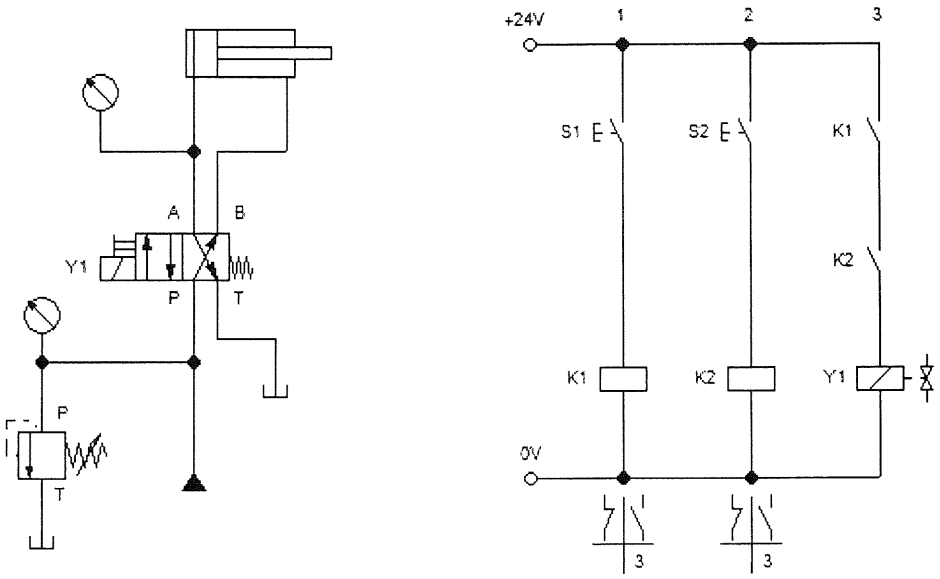

Figure 2

QUESTION 3

Figure 3 shows two assembly lines travelling towards each other carry workpieces which are to be alternately placed on a conveyor belt.

- The conveyor should be possible to affect the swivel motion of the switchover mechanism from both workplaces via a control switch.
- The switchover mechanism is moved back and forth by a double-acting cylinder.

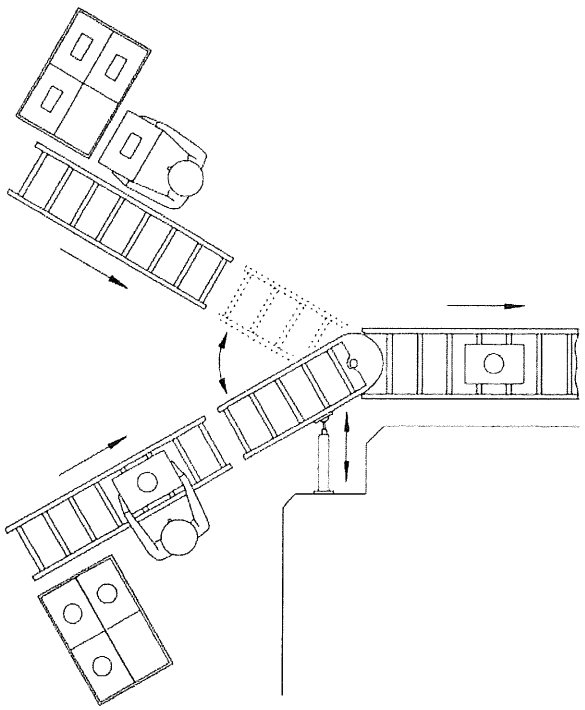

Figure 3

a. Classify the required components. (18 marks)

b. Produce an electro hydraulic circuit to operate the production system. (18 marks)

QUESTION 4

An electro hydraulic system using two double acting cylinders is to be actuated according to the sequence **A+ B+ B- A-**.

a. Illustrate a time motion diagram. (18 marks)

b. Produce an electro hydraulic circuit. (18 marks)

----------End of questions----------

Attachment

ELECTRO HYDRAULIC (BMT 3113)