Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESI 2022/2023

COURSE NAME	:	FUNDAMENTAL OF ELECTRICAL TECHNOLOGY
COURSE CODE	:	BBP 10703
PROGRAMME CODE	:	BBG
EXAMINATION DATE	:	JULY / AUGUST 2023
DURATION	:	3 HOURS
INSTRUCTION	1.	ANSWER **ALL** QUESTIONS
	2.	THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**
	3.	STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **SIX** (6) PAGES

Q1 (a) Explain how an electricity is produced from light.

(5 marks)

(b) Explain how an electricity is produced in chemical action.

(6 marks)

(c) Explain how an electricity is produced in wet cells and give **TWO** (2) examples of its uses.

(6 marks)

(d) Discuss the principal of operation of the thermocouple and use a sketch to support your answer.

(8 marks)

Q2 (a) Define a resistor in detail.

(4 marks)

(b) List **FIVE** (5) uses of resistor.

(5 marks)

(c) In some motor vehicles, the length of the motor copper cable (motor stator) is 1.3m. Cable resistance is 0.007Ω. Calculate the value of the diameter of the cable if the copper resistance is 1.92 x 10−8Ωm.

(8 marks)

(d) Interpret the value of the resistance according to the colors below. Obtain your answer using the resistor color code in **Figure Q2(d)**; indicate the maximum and the minimum values of the resistor.

1) Violet.
2) Yellow.
3) Black.
4) Green.
5) Gold.

(8 marks)

Q3 (a) Sketch the following Figures as instructed below:

a) T-Connection and Star Equivalent Network.
b) Pi -Connection and Delta equivalent network.

(6 marks)

(b) Calculate the power consumed in the circuit in **Figure Q3(b)**.

(6 marks)

(c) Discuss the procedure steps to measure a resistance using a multimeter.

(7 marks)

(d) Calculate the total current (I_T) of the series-parallel circuit as shown in **Figure Q3(d)**, if the source voltage (V) applied to the circuit is 25volts.

(6 marks)

Q4 (a) State the Ohm's Law.

(4 marks)

(b) Calculate the total inductance (L_{AB}) for the circuits in **Figure Q4(b)**.

(5 marks)

(c) Identify the different types of capacitor symbols in **Figure Q4(c)**.

(3 marks)

(d) Calculate the total Capacitance (C_{AB}) for the circuits in **Figure Q4(d).**

(5 marks)

(e) Analyze the graph in **Figure Q4(e)** and write down the different information in the provided squares.

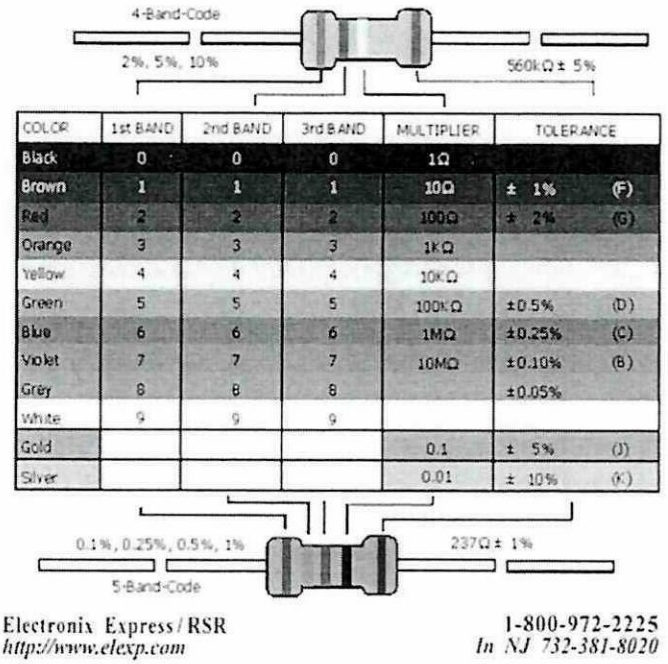
(8 marks)

- END OF QUESTIONS -

FINAL EXAMINATION

SEMESTER / SESSION: SEM II 2022/2023
COURSE NAME : FUNDAMENTAL OF ELECTRICAL TECHNOLOGY

PROGRAMME CODE: BBJ
COURSE CODE : BBP10703



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE	
Black	0	0	0	1Ω		
Brown	1	1	1	10Ω	± 1%	(F)
Red	2	2	2	100Ω	± 2%	(G)
Orange	3	3	3	1KΩ		
Yellow	4	4	4	10KΩ		
Green	5	5	5	100KΩ	±0.5%	(D)
Blue	6	6	6	1MΩ	±0.25%	(C)
Violet	7	7	7	10MΩ	±0.10%	(B)
Grey	8	8	8		±0.05%	
White	9	9	9			
Gold				0.1	± 5%	(J)
Silver				0.01	± 10%	(K)

Figure Q2(d)

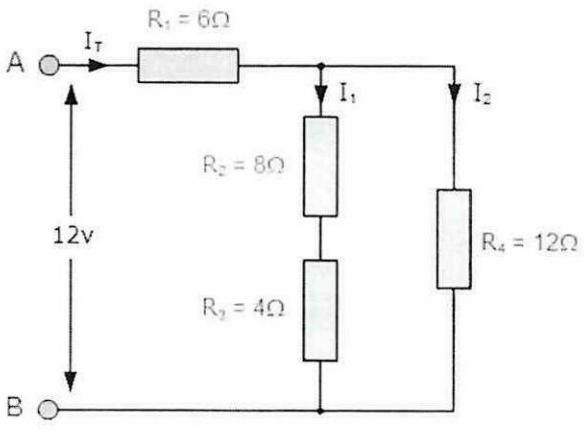


Figure Q3(b)

FINAL EXAMINATION

SEMESTER / SESSION: SEM II 2022/2023
COURSE NAME : FUNDAMENTAL OF ELECTRICAL TECHNOLOGY

PROGRAMME CODE: BBJ
COURSE CODE : BBP10703

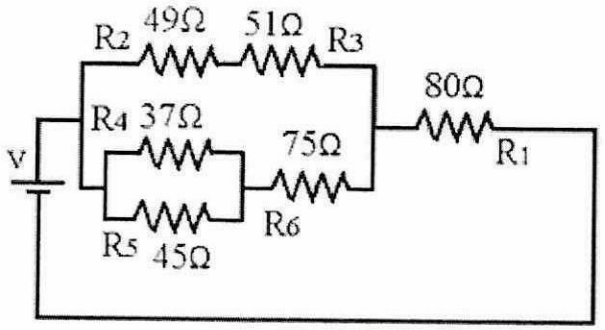


Figure Q3(d)

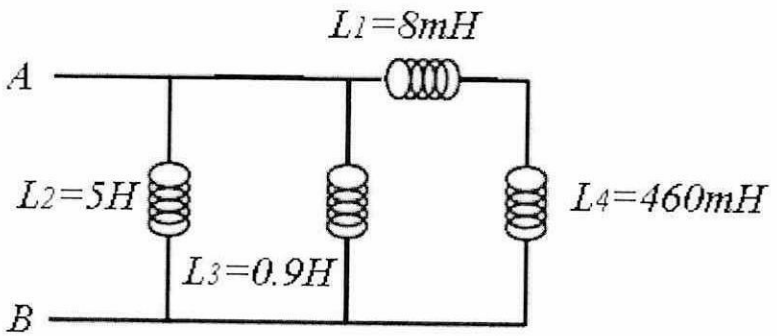


Figure Q4(b)

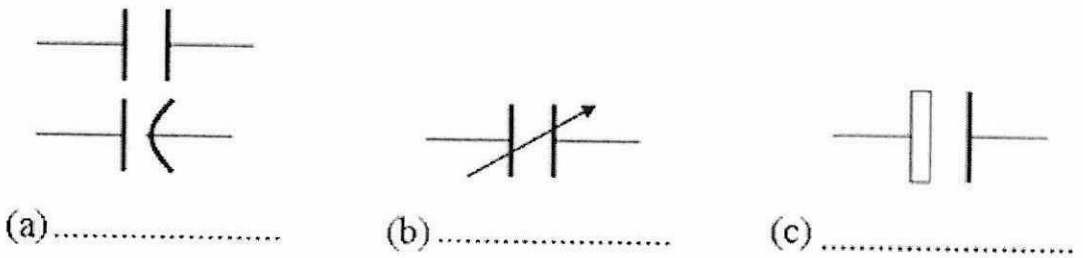


Figure Q4(c)

FINAL EXAMINATION

SEMESTER / SESSION: SEM II 2022/2023 PROGRAMME CODE: BBJ
COURSE NAME : FUNDAMENTAL OF ELECTRICAL TECHNOLOGY COURSE CODE : BBP10703

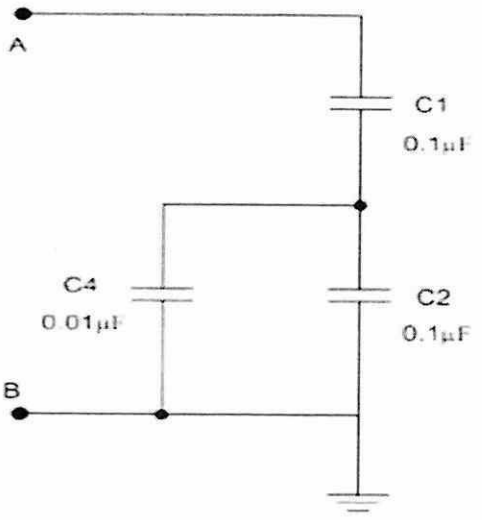


Figure Q4(d)

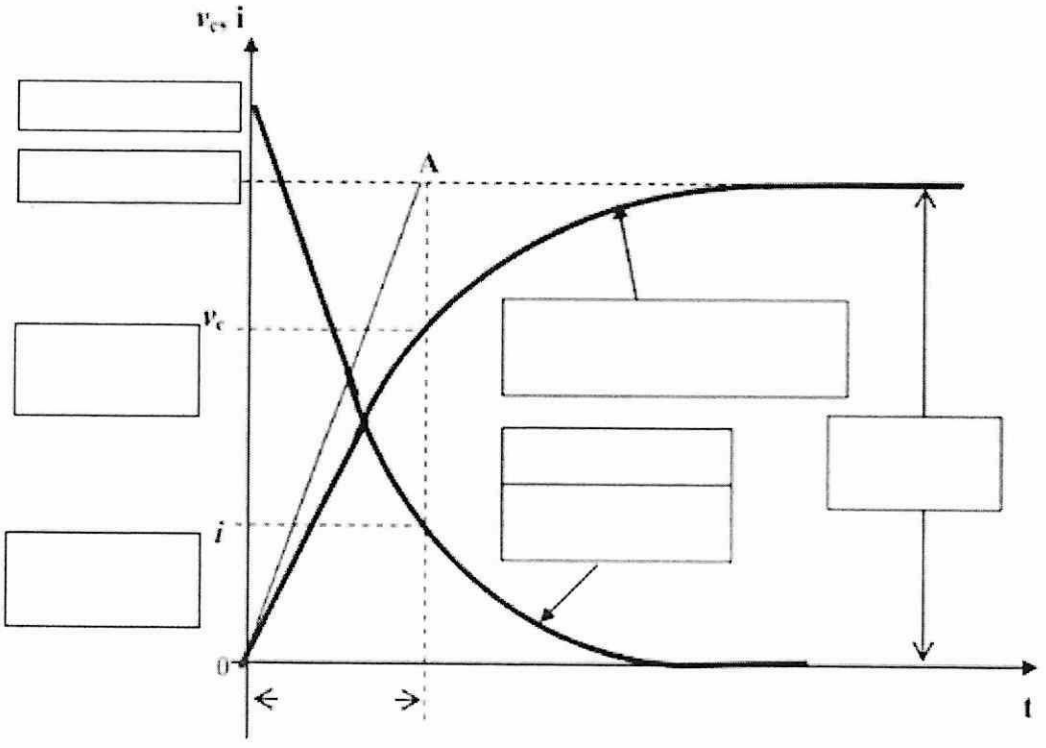


Figure Q4(e)