TEVETA
Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN BIOMEDICAL ENGINEERING TECHNOLOGY

LEVEL 6 YEAR II EXAMINATION

FINAL INTEGRATED SUMMATIVE EXAMINATION

SITTING: JULY / AUGUST 2026

SUBJECT: ANALOGUE ELECTRONICS (PRACTICAL)

TIME: TWO (2) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. Write your Examination number and National Registration Card (NRC) number on the space provided on the cover page of this question paper.
2. Write your answers in the space provided in the question paper
3. Perform ALL tasks according to the procedures given
4. Tasks carry different marks
5. Diagrams may be used where necessary to clarify your answer.
6. Cell phone and programmable calculators are not allowed in the examination room

CANDIDATE'S EXAM NO.	
CANDIDATE'S NRC NO.	

TITLE: BIPOLAR JUNCTION TRANSISTOR CIRCUITS

OBJECTIVE: To design a Common Emitter Transistor Circuit

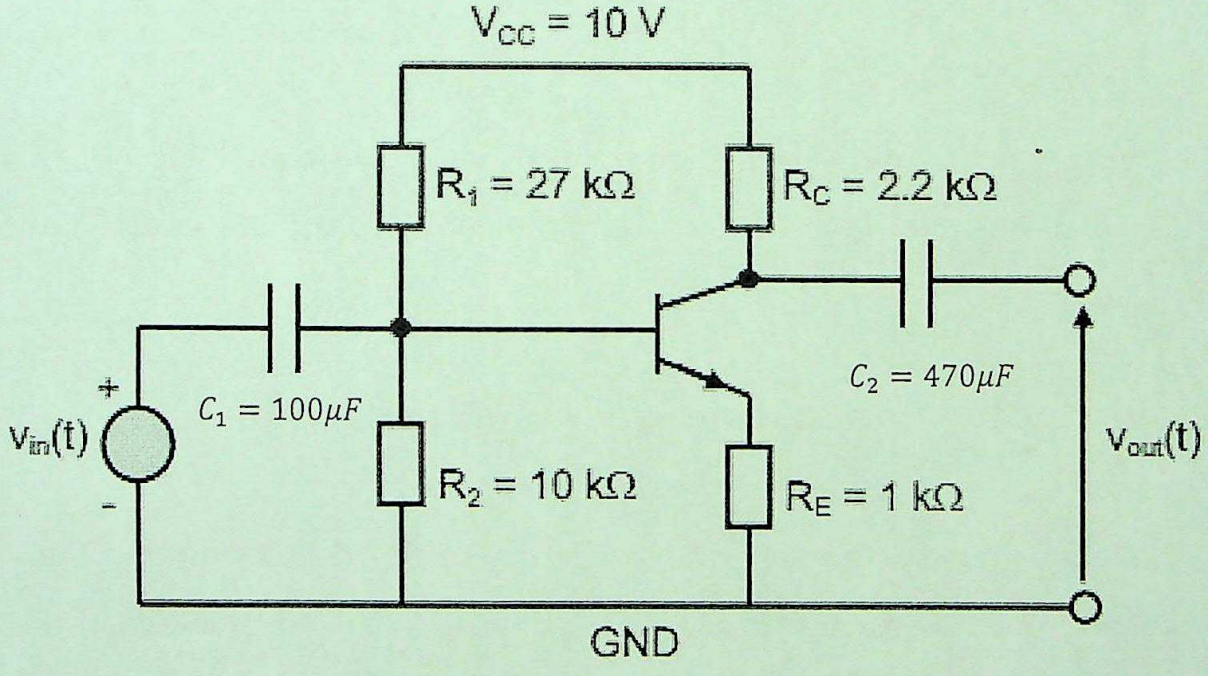
MATERIALS REQUIRED **QUANTITY**

The following are the major materials to be used in this project.

1. DMM (Digital Multi-meter) [x 1]
2. DC Regulated Power Supply (RPS) [x 1]
3. Oscilloscope [x 1]
4. Prototyping Breadboard [x 1]
5. Resistors [x 4]
6. Capacitors [x 3]
7. NPN BJT Transistor [x 1]
8. Connecting Wires.

PROCEDURE

1. Connect a common-emitter amplifier using an NPN transistor. [20 Marks]



2. Measure the values indicted in Table 1 below. [20 marks]

Table 1: Measured Values

	Measure	Record
1	Base Voltage , V_B	
2	Collector Voltage, V_C	
3	Emitter Voltage, V_E	
4	Base Current, I_B	
5	Collector Current, I_C	
6	Emitter Current, I_E	
7	Input AC Voltage (V_{in})	
8	Output AC Voltage (V_{out})	

3. Calculate and record in the table 2 below using the values in table 1. [20 marks]

Table 2: Calculated Values

	PARAMETERS	**CALCULATIONS**
i.	Base – Emitter Voltage, V_{BE}	
ii.	Base – Collector Voltage, V_{BC}	
iii.	Collector – Emitter Voltage, V_{CE}	

4. Identify transistor circuit mode of operation and justify your answer. [10 marks]

5. Calculate the Quiescent point (I_{CQ}, V_{CEQ}) [15 marks]

6. Explain the calculated value in (5) with respect to the measured values. [15 Marks]