WEST COAST COLLEGE
WESKUS KOLLEGE

INSTRUCTIONS:

1. Answer **ALL** the questions.
2. Read the instructions for each question carefully and do only what is required.
3. Number the answers correctly **according to the numbering systems** used in this assessment or make use of the answer books (Write down your name, surname and ID number on your answer sheet).
4. Please write neatly and legibly.
5. **ALL** work that you do not want to be marked must be clearly crossed out.

TOPIC ONE: FUNDAMENTALS OF ELECTRONICS

QUESTION 1

1.1

(a) (b) (c)

FIGURE 1

Figure 1 above shows **THREE** rectifier output waveforms as displayed on the oscilloscope screen. Describe the waveforms in terms of rectification. (3)

1.2 What is the purpose of an oscilloscope? (4)

1.3 1.3.1 What is the **FIRST** check you do before taking measurements with a multimeter?

1.3.2 What is the **LAST** thing you do when you are finished measuring? (2)

1.4 What instrument do we use for measuring power? (1)

(10)

QUESTION 2

2.1 Match the following statements:

2.1.1 Valence shell…	A	Positive temperature co-efficient	(1)
2.1.2 The L shell can hold a maximum of…	B	Is the outermost shell	(1)
2.1.3 Electrons...	C	Large energy gap	(1)
2.1.4 Insulators have a…	D	Have a negative charge	(1)
2.1.5 Conductors have a…	E	8 electrons	(1)

2.2

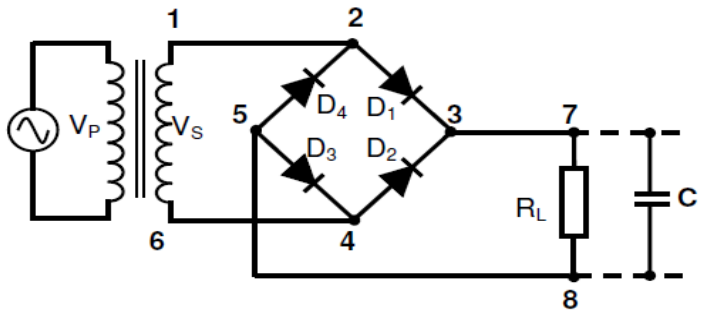

FIGURE 3

Use **FIGURE 3** to draw the voltage waveforms you would expect across points 3 and 5:

(a) Without the capacitor connected (2)

(b) With the capacitor connected (2)

2.3 When you are selecting a replacement diode, you usually need to look up the specifications. What do the following represent:

(a) I_F

(b) V_R (4)

2.4

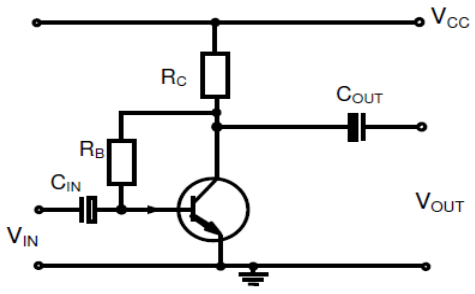

FIGURE 4

2.4.1 **Figure 4** is a common collector amplifier. True or False? (1)

2.4.2 Draw the input waveform and the output waveforms. (2)

2.4.3 Explain, in a **FEW** words, the basic working principle of transistor switching. (4)

2.5 List **FOUR** precautions when handling electrostatic sensitive devices. (8)

2.6 Name the **TWO** categories of JFETs. (2)

(30)

TOPIC TWO: DIGITAL ELECTRONICS

QUESTION 3

3.1 Add $CD,8_{16} + 77,7_8$(calculate in binary and write answer in binary) (5)

3.2 Divide 64_{10} by 1000_2 (calculate in binary and write answer in hexadecimal) (5)

3.3 Draw the complete output truth table for a 3-bit **UP** counter. The first output is shown below:

Q4	**Q2**	**Q1**
0	0	0

(7)

(17)

TOPIC THREE: ASSEMBLING A PERSONAL COMPUTER

QUESTION 4

4.1 What is a **PERIPHERAL** device? (1)

4.2 You switch the PC (personal computer) on and everything works OK, but the **WIRELESS KEYBOARD** does not work.

What is the **FIRST** thing you will check? (2)

4.3 The pictures and text on the monitor (screen) are **VERY SMALL**. Should you sit closer or buy a smaller screen? Eish, what will you do? (1)

4.4 How do you initiate (start) a **HOT** boot? (2)

4.5 You notice the time and date on the screen is wrong. You're using Windows, so where will you navigate to, to fix this problem? (2)

4.6 Name **FOUR** examples of secondary memory (4)

4.7 What is a **VGA** port? (1)

(13)

TOTAL [70]