UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

الإمارات العربية المتحدة
وزارة التربية والتعليم

Creative Design & Innovation

Grade 11 ADV Sample Term 3 - Answer Key

Where student responses may vary please use your professional judgment. Be reasonable and award marks **ONLY** when deserved for answers given.

Marks will be awarded as indicated on the examination paper. Specific mark breakdowns for questions will be written when necessary.

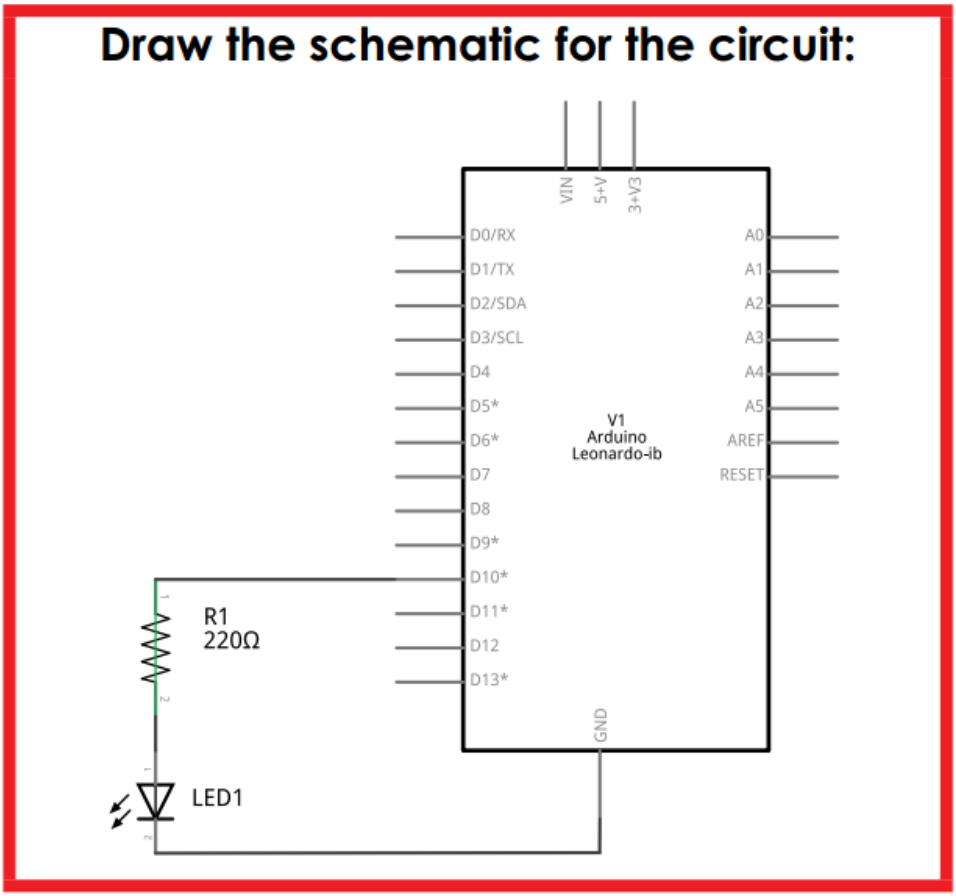
Section 1 – Multiple Choice	
Question	Answer
1	C
2	B
3	A
4	C
5	C
6	D
7	D
8	B
9	B
10	D

Section 2 – True or False	
Question	Answer
1	T
2	F
3	F
4	T
5	T

Section 3 – Core content	
Question	Answer
1 – Matching	D A E B C
2 – SAQ **2 marks for each advantage as described.**	**Answers must make 2 points for each advantage**. • Rapid prototyping that enables testing of ideas at minimal costs. • Less expensive to produce complex shapes that would not be possible with conventional methods of manufacture. • Designs can be customized quickly without the need for new tools or extra processes.
3 – SAQ	Thermoplastic
4 – Diagram **1 mark (name)** **1 mark (description)**	**Part A** – Touch screen panel / Control panel – used to control the settings & operations of the 3D printer. **Part B** – Heated nozzle – this is where the heated plastic flows out. **Part C** - Build platform – platform on which the design is printed.
5 – Word bank	Words in sequence of placement – charge / current / switch / conductors / electrons / wires / copper / insulated.

6 – Calculations	Voltage = V / Current = I / Resistance = R **a.** Voltage = Current x Resistance **OR** V = I x R **b.** **V = 12A x 80Ω = 960 Volts** **c.** Resistance = Voltage over Current **OR** R = V / R **d.** **R = 45 / 3 = 15 Ohms (Ω)**
7 – SAQ	IDE = Integrated Development Environment
8 - SAQ	Baud rate is a number that defines the speed of transmitting bits per second

Section 4	
Question	Answer
1 –	Power drill – DC motor / Printer - Servomotor Robotic arm – Servomotor / Metro doors – DC motor
2 –	Switch or reverse the polarity of the power source.
3 –	PWM (Pulse Width Modulation) generates an analog signal using digital means. It creates a square wave (digital signal) by switching between HIGH (on) and LOW (off) states.
4 -	Servomotors have **HIGH** torque DC motors have **LOW** torque.
5 – Coding **1 mark for each line given.**	**a.** Line 9: 9600 instead of 8650 Line 11: } instead of) Line 15: digitalRead instead of analogRead Line 24: missing } **b.** digitalWrite(buzzer,LOW); delay(300); **c.** Line 20: Serial.println(“The LED is ON”); Line 23: Serial.println(“The buzzer is OFF”); **d.** If the switch is On, then - (a) Led will be ON for 5 sec. (b) Buzzer will be OFF for 0.3 sec.

6 - Schematic **1 mark for each correct PIN.** **(2 marks)** **2 marks for each correct component symbol.** **(4 marks)** **1 mark for each component label.** **(2 marks)**	a –  b – The short leg (cathode) of the LED should be connected to the GND pin. c – Reset button d – CPU / USB jack / power jack / reset button / LED set / power socket / analog socket / digital socket – **ANY THREE** from this list.