E10.2

UNIT E10 · WORKSHEET

Mixed timed exam practice

UNIT PROGRESS

Core BUILD THE BASICS

C1 **State** the formula for electrical power. **[1]**

C2 **State** the number of rows for 3 inputs. **[1]**

C3 **State** the transistor switching voltage used in N5 questions. **[1]**

C4 **Calculate** the total resistance of 1.2 kΩ, 3.3 kΩ and 470 Ω in series. **[2]**

C5 **Calculate** the current when 9 V is across 4.7 kΩ. **[2]**

C6 **Calculate** the resistance of two 10 kΩ resistors in parallel. **[2]**

C7 **State** the formula for efficiency. **[1]**

C8 **State** the logic gate whose output is 1 only when all inputs are 1. **[1]**

C9 **State** the flowchart symbol for a delay. **[1]**

Stretch GO FURTHER

S1 **Calculate** the current in the divider in Q1. **[2]**

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S2 **Calculate** V_2 for R_1 = 10 kΩ, R_2 = 4.7 kΩ across 6 V. **[3]**

S3 A 12 V motor draws 1.5 A for 2 min. **Calculate** the energy used. **[3]**

S4 A motor takes in 500 J and gives out 350 J of useful energy. **Calculate** its efficiency. **[2]**

S5 **State** the number of rows in a truth table with 4 inputs. **[1]**

Exam Ready QUALIFICATIONS SCOTLAND STYLE

E1 **Explain** why a protection diode is fitted across a relay coil. **[2]**

E2 **Explain** why a transistor is used between a microcontroller pin and a motor. **[2]**

E3 **Describe** one energy loss in an electric motor. **[1]**

E4 **State** which engineer would program the controller in a ferry ramp. **[1]**

Total: 29 marks. Use the Data Booklet. Show your working and give units.