MODULE A SYSTEMS ARCHITECTURE · A6

Embedded systems

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 3.1.5

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 2 marks

(a) Describe the purpose of an embedded system. **[2]**

2

Total: 3 marks

(a) Circle **three** devices that are most likely to contain an embedded system. **[3]**

electric oven	desktop computer	street-lighting controller
laptop	train-ticket machine	paper notebook

3 **Total: 5 marks**

A plant nursery has a greenhouse with automatic roof vents. A control unit inside the vent motor reads a temperature sensor. When the air is too warm, it opens the vents. When the air has cooled, it closes them.

(a) State the dedicated function of the control unit. **[1]**

(b) Explain why the control unit is an embedded system. **[2]**

(c) Give **two** characteristics of an embedded system. **[2]**

1

2

4 **Total: 4 marks**

(a) Tick (✓) **one** box in each row to show whether each statement is true for an embedded system, a general purpose computer, or both. **[4]**

Statement	Embedded system	General purpose computer	Both
It performs one dedicated function			
The user can install many different applications on it			
It contains a processor that runs instructions			
It is built into a larger device, such as a car			

5 **Total: 4 marks**

An architect uses a personal computer (PC) at work. Her home has a security system with a keypad, door sensors and an alarm.

(a) Explain the difference between the security system's control unit and the architect's PC. Refer to both in your answer. **[4]**

6 **Total: 2 marks**

(a) Give **two** examples of embedded systems that can be found in a car. **[2]**

1

2

Total for this worksheet: 20 marks