MODULE A SYSTEMS ARCHITECTURE · A6

Embedded systems

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.1.3

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: 1 mark

(a) Define the term **embedded system**. **[1]**

2

Total: 4 marks

An office building contains the devices below.

(a) Tick (✓) **one** box in each row to show whether the device is an embedded system. **[4]**

Device	Embedded system	Not an embedded system
The digital thermostat that controls the heating		
A laptop that staff use for email, spreadsheets and video calls		
The controller in the lift that moves it between floors		
A desktop PC that runs any software the IT team installs		

3 **Total: 8 marks**

A garden centre has a greenhouse with an automatic watering controller. A small circuit board inside the watering pump reads a soil moisture sensor. When the soil is too dry, it switches the pump on. When the soil is wet enough, it switches the pump off. It has no screen, only a power light.

(a) State the dedicated function of the watering controller. **[1]**

(b) Explain why the watering controller is an embedded system. **[3]**

(c) Describe **two** characteristics of embedded systems. Link each one to the watering controller. **[4]**

1

2

4 **Total: 5 marks**

A hotel room contains: an electronic key-card door lock, a wooden wardrobe, an air-conditioning unit with a temperature setting, a paper guidebook, a coffee machine with programmable brew settings, and a guest's own laptop.

(a) Identify **three** items in the room that are likely to contain an embedded system. **[3]**

1

2

3

(b) The guest's laptop is a computer, but it is **not** an embedded system. Explain why. **[2]**

5 **Total: 2 marks**

A delivery company runs a fleet of vans.

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

1

2

Total for this worksheet: 20 marks