Answers

Task 1

Purchasing stock as late as possible using a ‘Just in Time’ process has many advantages   
and disadvantages to a business. For each of the following statements in the table below,   
tick whether it is an advantage or a disadvantage. The first one has been done for you.

|  |  |  |
| --- | --- | --- |
|  | **Advantage** | **Disadvantage** |
| Capital is freed up to invest elsewhere in the business | Checkmark |  |
| Production can be disrupted by minor delays in the  supply chain |  | Checkmark |
| Premises/warehouse to store stock can be smaller | Checkmark |  |
| Reduces the concern of shelf life for perishable goods | Checkmark |  |
| May not be able to meet an unexpected high demand  for stock |  | Checkmark |
| The purchasing price of stock may vary |  | Checkmark |

Task 2

Watch the video at: <https://www.youtube.com/watch?v=xPe1jMuX32s>

(a) Describe some of the automated processes that were shown in making chocolate. As part of your description, explain why any automation is preferable to a human doing this process.  
  
**Cracking cacao beans:**

Beans are separated into shells and nibs. A machine allows vast quantities to be processed in a short space of time.

**Refining nibs:**

Nibs are ground ready to be made into chocolate. A machine can run continuously until the nibs are ready. A human doing this task would likely need regular breaks and might not be as consistent in what they produce.

**Heating and melting the chocolate:**

Chocolate is turned and heated overnight. This can be done over a long period of time when the factory is not manned. The machinery does not need to stop at the end of a shift or be replaced by someone else.

**Recoating particles in fat:**

Rollers spread fat over the chocolate. This is automated so that it is consistently applied over all the chocolate. If a human were doing this, they would probably not be as accurate and consistent.

**Tempering the chocolate:**

Particles are aligned to make the chocolate shiny. Again, this is a repetitive task that needs to be done consistently over a long period of time.

**Portioning the chocolate:**

Dispenser squirts chocolate onto trays. This is always measured accurately to reduce wastage. This can be done quickly and accurately by a machine. A human would struggle to dispense the correct amount each time.

**Packaging:**

Conveyor wraps and labels the chocolate. This is a repetitive task that machines can do quickly and in large numbers. Many humans would be required to complete the same task.

(b) Growing cacao in tropical countries is affected by seasonal weather conditions.   
This can affect the supply of stock around the world.

Explain how a chocolate manufacturer can analyse weather data to adjust the   
amount of cacao stock it purchases throughout a year.  
  
Weather patterns can be predicted based on historical data. Current weather that is being logged can be compared against similar weather patterns to see if supply will be low. If there are low potential future supplies, the manufacturer could stockpile cacao so that production won’t be affected.

If weather conditions look favourable to growing, the manufacturer may wish to reduce their stocks as much as possible as if they buy later the price may be cheaper.

Task 3

Automation has many positive benefits. It can be efficient and release people from doing mundane or repetitive tasks. There are though a number of negative impacts.

Discuss the negative impacts that automation and the use of technology has on the workforce of a population.

Some points that can be considered:

Low-skilled jobs that traditionally would have been completed by a human are now being completed by computers and technology instead. This means there are less of these types of jobs and more people either need to retrain or face being unemployed.

Wider use of technology means less face-to-face contact with workers. This may have an isolating effect on people in general.

Skills that may have once been completed by hand are now completed by technological systems. This means these skills may be lost as they are less frequently practiced.

Task 4

Visit and read the following webpage:

<https://uk.pcmag.com/old-news/92577/ai-has-been-creating-music-and-the-results-areweird>

Using the above article and your own knowledge, how are IT systems used in music production?  
  
**From the above article:**

* Machine learning algorithms / AI is able to create music – e.g. folk-rnn can make folk music
* Folk-rnn uses 23,000 irish transcripts for the machine learning training
* Flow Machines produced a Beatles style song by training with the lead sheets from 40 Beatles’ songs
* Human input may be needed to refine songs, but this is often minimal

**Other ways that IT is used:**

* Recording tracks
* Synthesisers, electric pianos
* MIDI and digital audio workstations (DAW)
* CDs/players and streaming services for distribution of music
* Sound desks at concerts that can play backing tracks or individual artists
* Pitch-bend that can take an out of tune vocal and make it in tune

Task 5

Measuring the effectiveness of a traditionally would be done by comparing before and after sales figures together with customer surveys.  
  
How can online advertising provide further insights as to the effectiveness of a promotional campaign?

* Adverts online can be tracked
* The number of people who click an advert can be studied
* How long people spend on a page after they have clicked can be monitored
* The number of page impressions that an advert was seen on can be recorded
* The actions that people take after clicking an advert can all be monitored
* The conversion rate to a particular action (buying a product, subscribing, reading a page) can be monitored
* Information about adverts that people interact with can be analysed to find trends about their interests