Chapter 14 – Computer Controlled Devices

EXERCISES

Short Answer Type Questions

Question 1:
How does a sensor work? Describe its usages at various places.

Answer 1:

Sensors usages at various places:

- The commonly sensor collects data and makes it computer readable is Barcode. Barcodes are familiar black and white stripes on packaged goods, containing information on the type of an item, identity of its manufacturer, its price.

- Motion detectors have sensors that detect movement and send a signal to a sound device that produces a sound alarm. Motion of an object is detected electronically using infrared light or laser technology and acoustic devices.

- Technology that allows the driver of an automobile, truck, or commercial vehicle to be alerted to nearby objects in their path is Parking sensors. Parking sensors are also known as backup sensors, parking sonar or just sonar depending on the automaker.

- Sensor that collects data and converts it into result in a unit appropriate for the particular physical attribute that is being measured is smart sensor. A smart sensor can monitor voltage, radiation, temperature, humidity etc. and process the information by itself and adjust the system.

- The Global Positioning System (GPS) tells us where we are on earth by generating absolute location data. GPS satellites orbit the earth twice a day and transmit signals to GPS receivers on earth. These receivers are equipped with smart sensors to capture the signals and calculate the exact location of an object.

Question 2:
What are different sectors where robots find their usage? Discuss your response with at least three examples.

Answer 2:

<u>The different sectors where robots find their usage are:</u>

1. The automobile industry utilizes robots that play out a large group of minds boggling and redundant capacities with exactness, precision and speed. They are computer-controlled devices where a particular program. Guidance is introduced and afterward it is executed through a computer. Regardless of whether it is to collect extras or to put the fibres sheets into explicit moulds as a vehicle, robots work successfully with incredible measure of effectiveness. The use of robots has upset the automobile industry.

2. Large scale infrastructure industries particularly in high danger inclined regions utilize electric arm robots to deal with the electrical association framework for power appropriation. These robots are computer controlled to perform such high danger errands with exactness and precision.

3. Security organizations additionally receive such devices to find explosives and unexploded material at public spots like air terminals, ventures railroads, streets and stations to give some examples. These robots not exclusively are capable to recognize the explosives heretofore however now and again they can be additionally be utilized to de-circuit a dangerous get together with no human interface. This aides in lessening losses of officials on the job in security organizations impressively.

Question 3:
What are some of the limitations of computer-controlled devices? By looking at the examples derive the probable limitations of computer-controlled devices.

Answer 3:

Computer controlled devices has a wide scope of employments, however it likewise has barely any constraints.

Some of the limitations of Computer controlled devices are:

1. Computer controlled devices will work or reacts in the manner it is intended to be modified.

2. Computer controlled devices will be planned so that chips away at the premise of programming which likewise has the danger of winding up with blunder reaction.

3. They are modified to do just explicit capacities and they can't do different capacities than that.

Question 4:
“Weather monitoring through GPS is an example of computer-controlled device.” Analyse this statement and present your views either for or against the statement.

Answer 4:

“Weather monitoring through GPS is an example of computer-controlled device.” My views are for the statement:

- With the help of GPS, we would then be able to utilize that information to all the more precisely measure climatic temperatures and utilize this to improve temperature fields and adjust other satellite readings.
- Forecasting has become more accurate with GPS to improved temperature fields and calibration of satellite readings.
- GPS Satellites Could Help Predict the Weather- Monitoring the atmospheric boundary layer with GPS helps improve weather prediction.
- Better Forecasts through GPS: GPS tracking also enables scientists to monitor climate change.
- Using GPS for Better Weather Prediction: Water vapour in the atmosphere can cause GPS signal delays, which can affect forecasting.
- Receivers Gather Data for Climate, Weather Prediction: Data collected via GPS can be used for producing weather models and weather forecasts.
- Microsatellites are offering new advances for weather sensing due to their smaller size and faster speeds.

Question 5:
Explain the functioning of an Automated Teller Machine (ATM) and how it makes the banking services more convenient to both the service provider and the customer

Answer 5:

This electronic machine is connected to the bank database with the help of a computer-controlled system which has the audacity to perform functions based upon the information that is provided by the customer through its banking card, it can be a debit card or credit card.

- The magnetic tape on the card is read by the ATM machine that checks the credentials of the user, once it is verified, a list of services is visible on the screen of the ATM. The customer as per his requirement can choose one option at a time, further this request of customer is taken by the machine and it then processes it and delivers the service requested by the customer.

- Computer controlled devices can be synchronised between the service provider (Bank) and the customer and make the entire banking service very much convenient and can be utilised by the customer round the clock suiting his/her convenience.