

## 1. App Development

**TECH SET GO** (Page no. 7)

Do it yourself.

 **BYTE QUEST** (Page no. 8)

The application that is mainly developed for computer or laptop is called a desktop application whereas a Web app is an application program that is stored on a remote server and accessed over the Internet through a Web browser interface.

 **BYTE QUEST** (Page no. 10)



 **BYTE QUEST** (Page no. 20)

Design view contains all the components required to design an application.

### TECH READY

- A.** 1. (i)                      2. (i)                      3. (i)                      4. (i)                      5. (iii)
- B.** 1. Hybrid                      2. Desktop                      3. iOS                      4. Entertainment                      5. install
- C.** 1. F                      2. T                      3. F                      4. T                      5. F
- D.** 1. An app is a software program primarily developed for hand-held smart devices such as mobile and tablet.  
2. Web apps are actually web applications which give a user experience similar to native apps.  
3. Native apps are the type of Mobile apps. These are platform dependent which means that these apps are primarily developed for a specific platform.  
4. Backpack, Workspace, Trash

5. There are mainly three types of applications, which are:
- **Desktop:** The application that is mainly developed for computer or laptop is called a desktop application.
  - **Mobile:** Mobile application (also known as mobile app) is software program that is developed for hand-held devices such as smartphones and tablets.
  - **Web:** A Web app is an application program that is stored on a remote server and accessed over the Internet through a Web browser interface.
6. To change the display name of button, follow the given steps:
- Step 1** Click on the button in the View pane.
- Step 2** Type a new name for button in the Text box.
7. Web apps are different from websites. The major difference is that a web app can be a small part of a website which provides a particular functionality. On the other hand, a website can contain many web apps.
8. Educational apps provide a platform for children to learn from anywhere and anytime. These apps use advance methodologies and new concepts to make the learning easier. The most commonly used educational apps are Khan Academy, Vedantu, and Grammar EN.



### TECH TWISTER

- |                    |                     |                           |
|--------------------|---------------------|---------------------------|
| 1. Mobile apps     | 2. Google Playstore | 3. iOS                    |
| 4. Web application | 5. App Store        | 6. Hybrid app             |
| 7. Gaming app      | 8. Educational app  | 9. Social networking apps |

#### Competency-based/Application-based questions

1. Gaming app
2. Entertainment app

## 2. Krita—Image Editing

### TECH SET GO (Page no. 24)

Do it yourself.



### BYTE QUEST (Page no. 37)

1. Polygonal Selection Tool
2. Contiguous Selection Tool
3. Rectangular Selection Tool



## TECH READY

- A.** 1. (iii)                      2. (ii)                      3. (i)                      4. (iv)
- B.** 1. Freehand Selection                      2. Workspace                      3. Text                      4. Clone
- C.** 1. F                      2. F                      3. T                      4. T                      5. F
- D.** 1. Elliptical Selection Tool is used to select an oval or circular portion of an image.  
2. It displays different options and properties that are available for the selected tool.  
3. To make a contiguous selection, follow these steps:  
**Step 1** Click on the Contiguous Selection Tool.  
**Step 2** Click on the section to be selected.



### TECH TWISTER

1. Crop Tool
2. Freehand Brush Tool
3. Polygon Tool
4. Rectangle Tool
5. Smart Patch Tool

#### Competency-based/Application-based questions

1. He can use Crop Tool in Krita.
2. She can use Clone Tool.

## 3. Advanced Features of Excel 2016

### TECH SET GO (Page no. 42)

1. F                      2. T                      3. T                      4. F



### BYTE QUEST (Page no. 45)

1. Form                      2. New                      3. Close



### BYTE QUEST (Page no. 48)

1. ✓                      2. ✓                      4. ✓



## TECH READY

- A.** 1. (i) 2. (ii) 3. (ii) 4. (i)
- B.** 1. record 2. database 3. conditional formatting 4. subtotal  
5. pivot table
- C.** 1. T 2. T 3. T 4. F 5. T
- D.** 1. Data validation means to restrict the user to enter a specific range of values in a particular cell or a range of cells.  
2. Conditional formatting is used when you want to apply formatting as per your need—such as font, colors, icons, etc.  
3. Steps to search a particular record:  
**Step 1** Click on the Insert tab.  
**Step 2** Click on the Form command.  
**Step 3** Click on the Criteria button.  
**Step 4** Type the desired field value which you want to search and press the enter key.



### TECH TWISTER

1. Data validation 2. Filter 3. Conditional Formatting 4. Data Bars

#### Competency-based/Application-based questions

Top/Bottom Rules

## Periodic Assessment 1





(Based on chapters 1 & 3)

- A.** 1. Uber Calculator  
2. Blinkit Paytm  
3. YouTube Netflix  
4. Facebook LinkedIn  
5. OLX Flipkart



B. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Match the following:

- |  |                               |
|--|-------------------------------|
| 1.  | a. Conntiguous Selection Tool |
| 2.  | b. Freehand Selection Tool    |
| 3.  | c. Elliptical Selection Tool  |
| 4.  | d. Polygonal Selection Tool   |

**Ans.** 1. (b)                      2. (c)                      3. (d)                      4. (a)

- C. 1. Data validation means to restrict the user to enter a specific range of values in a particular cell or a range of cells.
2. The Pivot Table feature of Excel 2016 allows you to analyse the large amount of data.
3. Conditional Formatting command is present under Home tab.

## 4. Algorithmic Intelligence

**TECH SET GO** (Page no. 56)

- |         |      |      |      |
|---------|------|------|------|
| 1. AA2  | BB4  | CC3  | DD8  |
| 2. AB   | DF   | GH   | JK   |
| 3. 1234 | 6789 | 2354 | 4567 |
| 4. 0001 | 1002 | 0101 | 0111 |

 **CODE QUEST** (Page no. 58)

- 0010, 0011, 0101, 0111
- 0010, 0100, 0110, 1000, 1010
- 1001
- 0011, 0110, 1001

A. Do it Yourself.

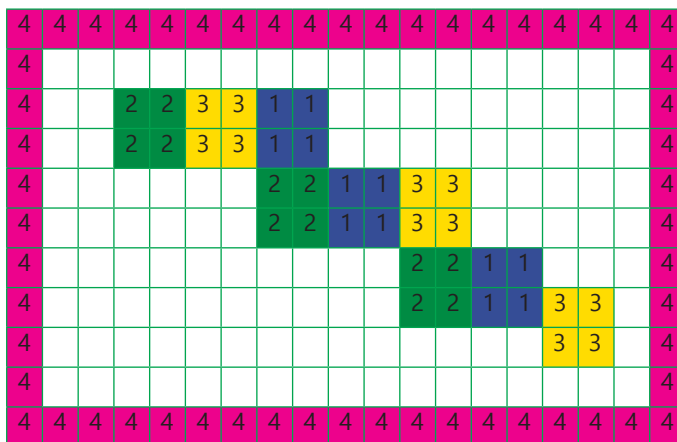
B. Do it Yourself.

## TECH READY

- A.** 1. (ii)                      2. (i)                      3. (ii)
- B.** 1. T                      2. T                      3. T                      4. F                      5. T
- C.** 1. Information processing involves acquiring, storing, analyzing, retrieving and displaying of information.
2. An algorithm is a set of step-by-step instructions in a sequential manner to solve a problem.
3. Computers store and processes data and information using binary code in the form of digital 1s and 0s inside the (CPU) and RAM. These digital numbers are electrical signals that are either ON (1) or OFF (0).
4. The program executes the statements written after 'if' when the condition is true. If it is false, the statements written after 'else' will be executed.
5. Read Day
- If day = Sunday
- Display Picnic
- Else
- Display School

## TECH TWISTER

**A.**



**B.** If

Remainder is 0, when number is divided by 3

Then

Print "Divisible by 3"

Else

Print "Not divisible by 3"

### Competency-based/Application-based questions

1. Do it yourself.
2. Do it yourself.

## 5. More on MakeCode Arcade

### TECH SET GO (Page no. 63)

1. Sprites blocks
2. Controller blocks
3. Game blocks
4. Music blocks
5. Scene blocks

### CODE QUEST (Page no. 74)

- |      |      |      |      |      |      |
|------|------|------|------|------|------|
| 1. T | 2. F | 3. T | 4. T | 5. T | 6. T |
| 7. T | 8. F |      |      |      |      |

### TECH READY

- A.** 1. (ii)                      2. (iii)                      3. (iv)                      4. (iii)                      5. (iii)
- B.** 1. undefined              2. data                      3. bug                      4. exit                      5. event handler
- C.** 1. T                          2. F                          3. T                          4. T                          5. F
- D.** 1. Datatype VariableName=Value;
2. While Loop executes a statement or group of statements till a given condition is true. Once the condition is false, the loop is terminated. Whereas the for loop is used to repeat a sequence a specific number of times.
3. Two benefits of using sequences in coding are:

- a. Our manner of thinking can be easily replicated in sequence programming.
  - b. Sequence of programming reflects logical thinking.
4. • Event is an action which has happened. You can consider event as a generalization of things on which the program responds.
- Event handler is a block of code which get executed when the event occurs and it is associated with the event.
5. Two example of collection are:
- a. Collection of cards
  - b. Telephone directory



## TECH TWISTER

- A.**
- Step 4 Have breakfast
  - Step 2 Brush your teeth
  - Step 5 Go to school
  - Step 3 Take a bath
  - Step 1 Wake up

**B.**

```
1. Program Start
for value i in a range 1 to 5
    display 'I am Good'
    increase the value of i by -1
Program End
```

```
2. Program Start
list = [10, 20, 30, 40, 50]
for a in list
    if a % 2 != 0
        print(a, end = ' ')
Program End
```

```
3. Program Start
set b to 0
while b is equal to 1
    display the value of b
    decrease the value of b by 1
Program End
```





```

4. Program Start
set a to 0
while a is more than 5
    decrease the value of a by 1
    display Hello World
Program End

```

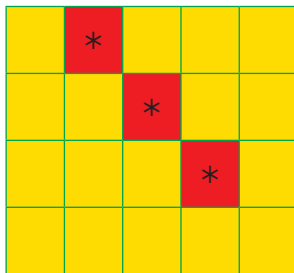
### Competency-based/Application-based questions

1. By using loops
2. (i) float

## Periodic Assessment 2

(Based on chapters 4 & 5)

**A.**



**B.** If

Number is divisible by 2

Then

Print "The number is EVEN"

Else

Print "The number is ODD"

**C.** If

Marks are greater than or equal to 60

Then

Print "Pass"

Else

Print "Fail"



- D.**
1. Variable is a name given to a location in the memory, to store values or data.
  2. Operand is a value on which the operator performed operation.
  3. A sequence in programming is an ordered set of instructions or tasks.
  4. A loop is a construct which executes a block of code multiple times until a specific condition is met.
  5. Entry criteria is a check for a looping condition, which needs to be true to ensure that the loop runs.

## Test Sheet 1

(Based on chapters 1 to 5)

- A.**
- |          |        |         |        |         |          |          |
|----------|--------|---------|--------|---------|----------|----------|
| 1. (i)   | 2. (i) | 3. (iv) | 4. (i) | 5. (ii) | 6. (iii) | 7. (iii) |
| 8. (iii) |        |         |        |         |          |          |
- B.**
- |            |           |              |             |                |
|------------|-----------|--------------|-------------|----------------|
| 1. Desktop | 2. Hybrid | 3. Text      | 4. subtotal | 5. pivot table |
| 6. data    | 7. Bug    | 8. Workspace |             |                |
- C.**
- |      |      |      |      |      |
|------|------|------|------|------|
| 1. F | 2. T | 3. T | 4. F | 5. T |
| 6. T | 7. T | 8. T |      |      |
- D.**
1. An app is a software program primarily developed for hand-held smart devices such as mobile and tablet.
  2. Web apps are actually web applications which give a user experience similar to native apps.
  3. It displays different options and properties that are available for the selected tool.
  4. To make a contiguous selection, follow these steps:
    - Step 1** Click on the Contiguous Selection Tool.
    - Step 2** Click on the section to be selected.
  5. Steps to search a particular record:
    - Step 1** Click on the Insert tab.
    - Step 2** Click on the Form command.
    - Step 3** Click on the Criteria button.
    - Step 4** Type the desired field value which you want to search and press the enter key.
  6. Data validation means to restrict the user to enter a specific range of values in a particular cell or a range of cells.
  7. Event is an action which has happened. You can consider event as a generalization of things on which the program responds.
 

Event handler is a block of code which get executed when the event occurs and it is associated with the event.



8. Two example of collection are:
- Collection of cards
  - Telephone directory

## 6. More on Python

### TECH SET GO (Page no. 82)

- Sum of 3 and 2 is 5
- Enter days: 65  
Months = 2 Days = 5

### CODE QUEST (Page no. 90)

- Precedence of operators determines the order in which the operators are executed.
- Arithmetic operators perform arithmetic operations between two operands.
- Assignment operators are used to assign the value of the right expression to the left operand.

### TECH READY

- A.** 1. (i)                      2. (iv)                      3. (iv)                      4. (iii)                      5. (iv)
- B.** 1. assignment              2. operators
3. (This question was printed incorrectly in the book. Please correct it in your textbook.)
- Question:** Logical OR operator returns \_\_\_\_\_, if one of the operands is true.
- Ans.** true
4. false                      5. else
- C.** 1. F                      2. T                      3. F                      4. F                      5. T
- D.** 1. (This question was printed incorrectly in the book. Please correct it in your textbook.)
- Question:** Write the name of any three built-in numeric data types of Python.
- Ans.** Integer numbers, floating-point numbers, and complex numbers.
2. Data types are used to define the type of value a data can contain.

3. Following are the relational operators provided by Python:

- == Equal to
- != Not equal
- > Greater than
- < Less than
- >= Greater than or equal to
- <= Less than or equal to

For example, == operator: It checks if the values of two operands are equal or not. If yes, then the condition becomes true.

Program: `print (5 == 5)`

Output: True

4. Comments in Python can be used to explain parts of the code. It can also be used to hide the code as well. Comments enable us to understand the way a program works. In python, any statement starting with # symbol is known as a comment.

Python supports two types of comments: Single line comment and Multiline comment.

5. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:**

Define the following:

- a. Sequence Data Type
- b. Logical Operators

**Ans.**

- a. A sequence is an ordered collection of items of similar or different data types.
- b. Logical operators are used to evaluate and decide.

6. (i) AND returns true, if both operands are true.

Example: `(2 < 5) and (2 < 10)`. Output: TRUE.

OR returns true, if one of the operands is true.

Example: `(2 < 5) and (2 < 10)`. Output: TRUE.

(ii) Modulus Operator divides left hand operand by right hand operand and returns remainder.

Example: `7 % 3`. Output: 1

Division Operator divides left hand operand by right hand operand.

Example: `7 / 3`. Output: 2.33

7. Decision making in Python is done by called conditional statements which decide the flow of program execution.

1. 2.0

2. 12

3. 4

True

4. 6

5. Enter a First Number: 5

Enter a Second Number:4

First number is greater than second number

6. Positive number

7. Above ten

and also above 20!

8. b is not greater than a

### Competency-based/Application-based questions

Conditional Statement

## 7. AI Terminologies

**TECH SET GO** (Page no. 103)

S. No.	Human Intelligence	Artificial Intelligence
1.	Created by nature	Created by human intelligence
2.	Processes information slower	Process information with high speed
3.	Less accurate	More accurate
4.	Capable of adapting changes	Can't easily adapt changes
5.	Has the capacity of multi-tasking	Performs single task more efficiently



1. a. Intention  
b. Selection
2. Once the course of action is set it moves for the execution. In this stage the action is performed. When a person picks up her friends and relatives in a car and drives to reach the hotel and also orders his/her meal.



K	W	L	J	Q	F	P	T	S	X	G	S
A	X	K	E	V	R	V	P	X	S	R	M
F	L	G	C	Y	E	G	Q	P	U	T	A
T	D	Z	V	Z	U	J	Z	E	Z	B	R
3	D	P	R	I	N	T	I	N	G	C	T
U	J	E	D	W	J	K	X	P	U	N	W
W	L	F	J	I	H	T	E	K	C	I	A
H	X	L	O	I	V	D	A	T	A	R	T
L	P	Z	A	T	Z	H	T	H	I	Z	C
F	B	T	U	M	F	K	I	P	V	T	H
P	E	N	I	A	C	Z	U	C	N	S	D
Y	J	F	J	B	Q	W	E	R	T	Y	M

## TECH READY

- A. 1. (iv) 2. (i)
3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Which product was launched in 2016?

- (i) Daxmo (ii) Doxmo  
(iii) Dexmo (iv) None of these

**Ans.** (iii)

4. (i) 5. (ii) 6. (ii)

- B. 1. 1967 2. Voice User Interface 3. John Mauchly and John Presper Eckert  
4. Edmund Huey 5. Seiko 6. Nintendo Wii

- C. 1. F 2. F

3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** HMI mainly focuses on this computer interface.

**Ans.** T

4. T

5. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Christopher Latham Sholes, an American inventor, invented QWERTY.

**Ans.** T

**D.** 1. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** What is menu driven interface?

**Ans.** This interface lets its user to interact using screens or menus. It is also a very common way of interaction. You switch between menus to reach your goal.

2. Intention, Selection, Execution and Evaluation.

3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write any one advantage and one disadvantage of Command Line Interface.

**Ans.** Advantage: It is good for expert users as system gives immediate response, it needs the least computer resources.

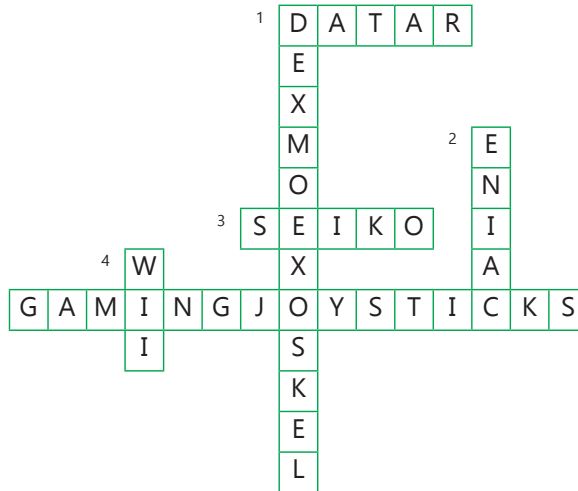
Disadvantage: It needs knowledge of commands or languages and is not user friendly.

4. Ivan Sutherland created the first head mounted display called Sword of Damocles in 1968. It was connected to a computer. The idea behind its creation was to change the perspective image as the user moved his head.

5. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write a short note on the future of human-machine interaction.

**Ans.** In future, the user interface is going to achieve a new level with the integration of AI. The keyboard and mouse will be replaced by smart gloves that will be able to recognise gestures and act accordingly. For example, instead of selecting series of menus, user wearing a smart glove which will have an integrated camera system, will just make small gestures in a closed environment and the menu would appear.



### Competency-based/Application-based questions

Voice User Interface

## Periodic Assessment 3

(Based on chapters 6 & 7)

**A.** (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write a Python program to print whether the entered number is even or not using the conditional statement.

**Ans.**

```
a= int(input('Enter a number: '))
if a % 2 == 0:
    print(a, 'is an even number.')
else:
    print(a, 'is not an even number.')
```

- B.**
1. Performs exponential (power) calculation on operands.
  2. It multiplies right operand with the left operand and assigns the result to left operand.  $x*=3$  is equivalent to  $x=x*3$ .
  3. It returns true, if both operands are true.



4. It checks if the values of two operands are equal or not. If the values are not equal, then the condition becomes true.

C. 1. To perform a dialog between human and a computer system there are three components that are interconnected— **Human, Machine** and the interface between them.

2. Voice User Interface

This interface allows audio mode to interact with the computer system. The most common example of this system is the voice assistant available in the smartphones. Practically speaking, you can perform almost every action on your smartphone through voice commands.

Command Line Interface

This is also known as text based interface. This is mostly used by operating system that allows the user to type a command line and respond to the user in the same way. The advantages of this interfaces are many. It is good for expert users as system gives immediate response, it needs the least computer resources.

3. Dexmo was launched in 2016. This was world's first commercial portable two-handed wireless force feedback glove, combining hand motion capture and force feedback to deliver interactive experience in the field of aerospace, industrial training, educational research, medical rehabilitation, etc.

## 8. Types of AI

**TECH SET GO** (Page no. 117)

Do it Yourself.

 **AI QUEST** (Page no. 120)

1. T                                      2. F                                      3. T                                      4. F

### TECH READY

A. 1. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** AI learns, thinks and behaves like \_\_\_\_\_.

- |              |                    |
|--------------|--------------------|
| (i) cats     | (ii) butterflies   |
| (iii) humans | (iv) None of these |

**Ans.** (iii)





4. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write any one difference between the categories of AI.

**Ans.**

- Weak AI: Performs specific task
- Strong AI: Performs a wider range of different tasks with human like intelligence
- Super AI: Surpasses human intelligence

### Competency-based/Application-based questions

(ii) Weak AI

## 9. Smart Living

**TECH SET GO** (Page no. 124)

1. Mainly four steps are involved in face recognition technology which are as follows:
  - a. Detects face using camera
  - b. Analyses the face by reading the geometry of the face
  - c. Converts the image into data
  - d. Matches the data with the existing database
2. Four areas where AI-Powered Face Recognition is being used are:
  - a. It is used in criminal identification.
  - b. It is used in phones to unlock them.
  - c. It is used in social media websites to spot faces when you upload a photo.
  - d. It is used in surveillance cameras.

 **AI QUEST** (Page no. 129)

1. Two benefits of Smart Cities are:
  - They have better transportation facilities.
  - It improves economic growth opportunities.
2. Four devices used in Smart Home are:
  - a. Smart Thermostat
  - b. Smart Hubs
  - c. Video Doorbells
  - d. Smart Cameras



1. CCTV based monitoring using AI can help in building surveillance systems to keep a check on potential criminal incidents and security of the residents.
2. AI will have a huge impact on automated transport. Automated transportation will ensure that there are fewer accidents.

## TECH READY

- A.** 1. (i) 2. (ii)
3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Which of the following device sounds an alarm when smoke is detected?

- |                       |                            |
|-----------------------|----------------------------|
| (i) Smart Cameras     | (ii) Smart Smoke detectors |
| (iii) Video Doorbells | (iv) Smart Hubs            |

**Ans.** (ii)

4. (ii) 5. (ii)
- B.** (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Fill in the blanks using the words given below.

Smartphones, Third, surveillance, Smart Thermostats, gateways
---

1. The \_\_\_\_\_ stage of AI had systems that receive, understand and process applications without human intervention.
2. CCTV based monitoring using AI can help in building \_\_\_\_\_ systems.
3. \_\_\_\_\_ is used to automatically control the temperature of a smart home.
4. Smart Hubs are known as \_\_\_\_\_ .
5. The Smart home provides instant alerts on the \_\_\_\_\_ if the house is hit by fire, flood or any other disaster.

**Ans.** 1. Third 2. surveillance 3. Smart Thermostats 4. gateways

5. Smartphones

- C.** (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** State whether these statements are true or false.

1. Facial recognition technology can replace credit cards in the future.
2. Right now AI is a subject of education.



3. The scope of Artificial Intelligence is narrowing over the last few decades.
4. Smart Homes are great in saving power.

**Ans.** 1. T                      2. T                      3. F                      4. T

- D.** 1. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** What do you mean by smart highway?

**Ans.** A smart highway is green, which means there are plants and trees all around the road. In case of space constraints, there could be vertical gardens. There is a system which gives SMS alerts on traffic and medical information in case of medical emergencies and requirements.

2. AI will have a huge impact on automated transport. Automated transportation will ensure that there are fewer accidents.
3. General Motors, Ford
4. Four challenges of establishing smart cities are:
  - a. Financial challenges due to lack of proper funds.
  - b. Growing population.
  - c. Digital security issues.
  - d. Lack of high-speed internet facility and connectivity issues.
5. Following are some of the benefits of Smart Cities:
  - They have adequate water supply.
  - They have better transportation facilities.
  - It improves economic growth opportunities.
  - The public utilities are very efficient.
  - They have smart and more efficient energy grids.
6. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write a short note on Google's DeepMind.

**Ans.** Google's DeepMind has already beaten doctors in detecting fatal diseases like breast cancer in its early detection. It will not be very far that AI will detect even common diseases as well.



I	K	S	A	S	Y	M	H	I	N	D	F
C	C	T	V	M	B	R	E	L	I	Z	A
J	Y	B	H	A	N	D	D	U	T	R	N
U	G	N	I	R	P	F	L	U	V	Z	C
S	M	A	R	T	H	I	G	H	W	A	Y
F	L	N	S	C	B	G	Y	V	M	V	S
Q	K	S	N	I	O	V	F	K	L	N	V
S	W	V	J	T	O	D	V	E	H	J	V
W	R	P	G	Y	B	G	C	S	A	L	V
G	G	T	C	J	V	R	V	V	C	D	E
S	M	E	B	V	H	S	R	J	T	Y	E
D	E	E	P	M	I	N	D	K	O	D	U

### Competency-based/Application-based questions

1. Smart Cameras, CCTV based monitoring using AI
2. AI-assisted Military technology

## 10. Fields Where Robots Are Used

**TECH SET GO** (Page no. 139)

Do it yourself.

 **AI QUEST** (Page no. 140)

Do it Yourself.

 **AI QUEST** (Page no. 143)

Da Vinci is a complete surgical system which performs complex surgeries with great skills of heart, head, neck and other sensitive areas.

 **AI QUEST** (Page no. 145)

1. c
2. d
3. b
4. a

## TECH READY

**A.** 1. (i) 2. (iv) 3. (iii) 4. (i) 5. (ii)

**B.** 1. security 2. Nadine 3. Gravity  
4. Material handling 5. Shipwreck

**C.** 1. T 2. F

3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Unimate was the first robot joined the assembly line in 1961.

**Ans.** T

4. T 5. F

**D.** (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Answer the following questions:



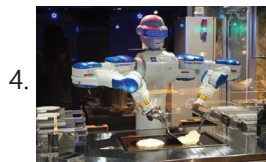
a. Agriculture Robot



b. Military Robot



c. Chef Robot



d. Manufacturing Robot



e. Surgical Robot

**Ans.** 1. (b) 2. (a) 3. (e) 4. (c) 5. (d)

- E.**
1. Merlin and Root AI
  2. Robotic arms
  3. Two uses of robots in healthcare are as follows:
    - Surgical robots help doctors in performing surgery in healthcare field.
    - They are also used as prosthetic limbs.
  4. NASA has made a number of robotic devices to support or substitute astronauts to perform high risk tasks. DARPA is a humanoid robot that can function like humans. Currently R1 and R2 are working as Robonaut. Robonaut 2 or R2 was the first humanoid robot sent to space as a part of STS-133 mission. RASSOR (pronounced as "Razor") is a lunar robot, Spidernaut is a robot constructed for maintenance and repair projects in space.

### **TECH TWISTER**

1. Customer service
2. Security and Surveillance
3. Space Exploration
4. Underwater Research

### Competency-based/Application-based questions

Do it Yourself.

## Periodic Assessment 4

(Based on chapters 8 to 10)

- A.** Weak AI is also known as Narrow AI. It is the most common type of AI that we can see and use all around us. Characteristics of this AI are :
- Narrow AI performs dedicated tasks with intelligence.
  - It has a limited scope of functionality and can perform a specific task only.
- B.**
1. Smart Hubs
  2. Video Doorbells
  3. Smart Cameras
  4. Smart Smoke detectors



5. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** I help in saving and conserving the energy and can be programmed to control the brightness.

**Ans.** Smart Lighting

- C.**
1. Robots can be deployed as security guards to protect humans.
  2. Unimate was the first robot joined the assembly line in 1961.
  3. MAARS looks like a tank and it contains tear gas and lasers to confuse enemies.
  4. Nadine, a humanoid robot in Singapore can recognise people from the database of their previous visits.
  5. Suzumo Sushi Chef prepares Japanese food.
  6. Surgical robots help doctors in performing surgery in healthcare field.
  7. Spidernaut is a robot constructed for maintenance and repair projects in space.
  8. Root AI is a tomato picking robot.

## Test Sheet 2

(Based on chapters 6 to 10)

- A.**
1. (i)
  2. (i)
  3. (ii)
  4. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** AI learns, thinks and behaves like \_\_\_\_\_.

- |              |                    |
|--------------|--------------------|
| (i) cats     | (ii) butterflies   |
| (iii) humans | (iv) None of these |

**Ans.** (iii)

- |        |         |         |         |
|--------|---------|---------|---------|
| 5. (i) | 6. (ii) | 7. (ii) | 8. (iv) |
|--------|---------|---------|---------|
- B.**
- |               |              |                |
|---------------|--------------|----------------|
| 1. assignment | 2. Operators | 3. Edmund Huey |
| 4. Seiko      | 5. emotions  | 6. smartphones |
| 7. Nadine     | 8. security  |                |
- C.**
- |      |      |      |      |
|------|------|------|------|
| 1. T | 2. F | 3. F | 4. F |
|------|------|------|------|

5. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Weak AI has a limited scope of functionality.

**Ans.** T



6. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Unimate was the first robot joined the assembly line in 1961.

**Ans.** T

**D.** 1. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write the name of any three built-in numeric data types of Python.

**Ans.** Integer numbers, floating-point numbers, and complex numbers.

2. Data types are used to define the type of value a data can contain.

3. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** What is menu driven interface?

**Ans.** This interface lets its user to interact using screens or menus. It is also a very common way of interaction. You switch between menus to reach your goal.

4. Intention, Selection, Execution and Evaluation.

5. The characteristics of Strong AI are:

- These machines have human like intelligence.
- These machines have problem solving and learning capabilities.

6. (This question was printed incorrectly in the book. Please correct it in your textbook.)

**Question:** Write any one difference between the categories of AI.

**Ans.**

- Weak AI: Performs specific task
- Strong AI: Performs a wider range of different tasks with human like intelligence
- Super AI: Surpasses human intelligence

7. Four challenges of establishing smart cities are:

- a. Financial challenges due to lack of proper funds.
- b. Growing population.
- c. Digital security issues.
- d. Lack of high-speed internet facility and connectivity issues.

8. Two uses of robots in healthcare are as follows:

- Surgical robots help doctors in performing surgery in healthcare field.
- They are also used as prosthetic limbs.