Class 8

Exercises

Chapter 1 – Cyber-Safety and Cyber Crime

A. Choose the correct answer.

1. b 2. c 3. d 4. b 5. d

B. Fill in the blanks.

1. Worm 2. Black Hat 3. SSL 4. Cyberattacks 5. Piracy

C. Answer the following questions.

1. Cyberbullying is an act of harassing someone online in different ways such as sending unsolicited, unconciliated messages, images or content: threatening online, mocking.

Children must always get in touch with their elders immediately in such a case without any hesitation or shame.

2. Trojans appear to be useful programs like games or utility but in fact, they causes harm to the computer. They can bypass antivirus software.

Worm is a mild threat. It replicates itself and spreads from one computer to another over a network. This way, worms consume all the hard disk capacity and slow down the systems.

Spyware quietly monitors all user activities on the computer as well as the data and transfers it to the external party. It is very small in size and hard to detect.

3. Cyber fraud is illegal activities conducted online or through digital means with the intention of deceiving individuals, organizations, or systems for financial gain or other malicious purposes.

E.g. Credit card information such as passwords and PIN are stolen by the hackers. These details are used to make unauthorised purchases.

In Email fraud, the user is sent a message informing about some lottery or some very attractive offer to lure the user into making heavy payments.

4. Following are the common security measures we must follow to be safe from cyber threats are:

i. When we use emails or log in to a bank's website to make a transaction, we should use a strong password. That is, there should not be a password that is easily guessed.

ii. Open the email attachment carefully, and do not open any email attachments from an unknown sender. After downloading them, make sure to scan with antimalware software.

iii. It is illegal to download pirated items for free, such as movies or commercial software, and it can also put our sensitive data at risk.

iv. We should not fall into the trap of free Wi-Fi anywhere. Otherwise, these free WI-FI hotspots can steal our personal information and misuse it.

5. i. Cybercrime: Unauthorised access with the intention of misuse of somone's personal data.

ii. Cyberthreat: Any threat that puts the computer, data and network to be stolen and misused.

iii. Cybersecurity: Measures to prevent cybercrime and fight cyberthreats.

iv. Cyberbullying: Act of threatening, harassing or mocking someone online.

Competency-Based, High Order Thinking Skills Questions

Read the statements. Write the reasons for the True ones and mention the true fact about the False ones.

1. Yes. To commit cybercrimes one should have deep knowledge of computer working, networks, and software.

2. False. Good people never indulge in cyber terrorism. Good people help fight it instead.

3. False. Spywares are installed by the cybercriminals to steal data from the computer user.

4. False. Software piracy harms the hard work of the developer and it is a punishable crime.
5. True. Public Wi-fi systems cannot be trusted for suitable security.

Chapter 2 – Excel Formula and Function

A. Choose the correct answer.

1. d 2. a 3. c 4. b 5. a

B. Fill in the blanks.

1. Aggregate 2. Autosum 3. Edit 4. Formula 5. Address, Referencing

C. Answer the following questions.

1. A formula is a user-defined expression to perform calculations. Formulas are designed by the users as per their requirements but functions are inbuilt feature to perform a variety of calculations over multiple values and data quickly and easily.

2. Cell referencing is the feature that allows automatic calculations because when we make changes in the values in the cells which are referred to in a formula or function then the results of the calculations change according to the changed values.

3. The $ sign is used to make the cell address absolute by putting the $ sign preceding both the column and the row.

4. SUM() : Returns total of given values in arrange or set of values.

E.g. =SUM(D2:D11)

=SUM(D2,D5,D7, D11)

COUNT(IF): Returns Count of given values on the basis of some criteria.

E.g. =COUNTIF(D2:D11,”>4000”) will return number with more than value 4000.

TODAY(): Returns Current system date.

E.g. =TODAY() Takes no arguments. Displays date in dd-mm-yyyy format.

LEN(): Returns the number of characters in a text value.

E.g. =LEN(“how are you?”) will return 12.

Competency-Based, High Order Thinking Skills Questions

Spot the errors in the usage of the following functions and rewrite their correct form.

1. =COUNTIF(“<=100”, A1:A20) =COUNTIF(A1:A20, “<=100”)
2. =IF(“TRUE”, “FALSE”, 100<80) =IF(100<80 , “FALSE” , “TRUE”)
3. =COUNT(“A”, 20, 40, “X”, 1, “D”) =COUNTA(“A”, 20, 40, “X”, 1, “D”)
4. =LEN(“life is beautiful”, 4, 7) =LEN(“life is beautiful”)
5. =MID(“CROSSROADS”, “ROAD”) =MID(“CROSSROADS”, “ROAD”, 4, 7)

Chapter 3 – Introduction To RDBMS

A. Choose the correct answer.

1. b 2. d 3. a 4. c 5. A

B. Fill in the blanks.

1. Null Value 2. Primary 3. Foreign key 4. Required 5. Database, RDBMS

C. Answer the following questions.

1. Data are raw facts, figures, or symbols that represent quantities, objects, or events. It is unprocessed and lacks context or meaning on its own.
Information is processed and logically related data that has been given meaning, relevance, and context. It is useful for decision-making or understanding.
2. Organised collection of data is called database. A database processes and gives information from the data stored in it and enables users to query, analyze, and retrieve specific data based on their needs or criteria.
3. Sharing data helps reduce redundancy because instead of storing the same information multiple times in different places, it is kept in one central location where everyone who needs it can access it. This prevents unnecessary duplication and ensures only one authoritative source for each piece of data.
4. Database management systems are used by all the industries such as schools to store students' and teachers' details, banks to store financial data, travel agencies to store vehicles and passenger details, hotels to store the details of rooms and guests, Ecommerce web sites to store details of products and customers, and hospitals to store diagnosis and treatment details.
5. To get the information we want from a database; we use query. It looks up the database what information we need for and how we want it organized. Then, the database searches through all the data it has and gives us back the results that matches our query.

Competency-Based, High Order Thinking Skills Questions

Write True against the correct statements and write the correct fact below False statements.

1. False. Information is generated by relating the data logically. Without data there cannot be information.
2. True. Databases are installed on computers and servers which can crash anytime.
3. False. Education field includes schools, colleges and all educational institutes which need to store the bulk data about students, courses and teachers in a database.
4. True. Tables are symmetrical in structure.
5. False. Primary key only identifies a record in a table uniquely. To relate tables on common fields and matching values, we need foreign key also.

Chapter 4 – Working with RDBMS

A. Choose the correct answer.

1. c 2. d 3. b 4. d 5. c

B. Fill in the blanks.

1. Sort Z to A 2. Sort Largest to Smallest 3. Design View 4. Cascade update 5. One-to-many

C. Answer the following questions.

1. Text Filters are applied on a field which contains text type of values. They are used to filter the records on the basis of text values. Date Filters are applied on the fields that contain dates or time. Number Filters are applied on the fields that store numeric values.
2. To display Student_name and Marks from the table Exam using Query Design (Change Query Wizard to Query Design):
    a. Under Create tab, in Queries group, click on Query Design.

b. In Show Table popup, select table Exam. Click on Add button. Then click on Close button.
c. Double click on the Fields Student_name and Marks to include them in the query
d. Close the Query Design window and select Yes to save it.
Specify a relevant name and click OK.

3. Criteria in a query determines which records will be returned by the query after execution. The records that meet the criteria are returned by the query. Criteria are designed depending on the user requirements. For example, if we need to see the student records who are in class 7 and who secured marks more than 70 then the criteria will be: class = 7 and marks>=70.

4. The steps to relate the two tables are:

a. Database Tool tab > Relationships group > Relationships option > Show Table popup > Add both the tables one-by-one by double clicking on them.
b. In the Relationships window, drag the common field from one table on to the same common field of the other table.
c. Select the checkboxes for referential integrity as you need.
d. Click on Create button.
e. Close Relationship window and save when prompted.

5. To ensure correct and valid data is stored in the tables is called referential integrity.

Example 1: Any change in the primary key value is reflected in the matching values in related tables.

Example 2: Deletion in child table is not allowed if related master table has a matching record.

Example 3: Any deletion in master table will delete the related records in the related child tables.

Competency-Based, High Order Thinking Skills Questions

Write the possible reason/consequence for each of the statements given below.

1. The common fields must have the matching values to take out desired data from both the tables.
2. All the records in the table will be displayed.
3. The data of similar type can be matched. E.g. a number type will not match with a date type.
4. Any deletion in master table will automatically delete all the matching records in all the related tables.
5. Email IDs and Phone numbers for a user are treated as primary key values in the database.

Chapter 5 – HTML Lists and Forms

A. Choose the correct answer.

1. c 2. a 3. c 4. a 5. b

B. Fill in the blanks.

1. Hollow circles 2. Type 3. Reset 4. Textarea 5. Select, Option

C. Rewrite the following HTML code snippets in correct form.

1. <input value="save" type="submit">
2. <select multiple>
3. <textarea rows="5" cols="80">
4. <dl><dt>OL</dt><dd>Ordered list</dd></dl>
5. 2023
Jan
Feb

D. Answer the following questions.

1. Type attribute in OL tag determines the numbering style the list items for example <ol type= “i”> will display the list items in lowercase roman numerals. In UL tag, the Type attribute determines the shape of the bullet as circle, disc or square. Example: <UL type= “square”>

2.
```
<dl>
    <dt>Photosynthesis</dt>
    <dd>Process in plants to make food with Carbon dioxide, sunlight, water and chlorophyl.</dd>
    <dt>Refraction</dt>
    <dd>Process of bending of light when it enters from one medium to other.</dd>
</dl>
```

3. Radio buttons are grouped by giving them same name using Name attribute and unique IDs. For example:

```
<Input type= “radio” name= “agree” ID= “ryes”>
<Input type= “radio” name= “agree” ID= “rno”>
```

Here, both the radio buttons belong to the group “agree” and their unique IDs are “ryes” and “rno” respectively.

4. Reset type of button clears all the controls in the form and resets it to the original form. Submit button sends the data entered on the form to the web server.

5. Multiple attribute of Select tag indicates that multiple items in a list can be selected using Shift/ Ctrl keys. Selected attribute of Option tag shows that option (item) in the list already selected.

Chapter 6 – Programming in Python

A. Choose the correct answer.

1. b 2. c 3. d 4. d 5. c

B. Fill in the blanks.

1. strings, numbers 2. == , = 3. String 4. Zero 5. Continue

C. Answer the following questions.

1. Comparisons operators help in decision-making by comparing values. For example, the expression age >= 18 means that value in variable age is compared to be equal or more than 18. Such an expression is called “condition”. Multiple conditions are combined with the helps of logical operators. For example, (age>=18) AND (income<=5000) – here two conditions are combined with logical operator AND which means both the conditions should be true. If AND is replaced by OR then it will return true if any one of the conditions is true.

2. Variables identify the data on our programs. When program runs, the values may change. Using a variable makes it easy to handle the changing values. When we mention a variable name in the program, it is substituted by its value.

Rules to name a variable are:

a. It can be only one word.
b. It can use only letters, numbers, and the underscore (_) character.
c. It cannot begin with a number.
d. It cannot be a keyword.
e. Variables are case sensitive – upper-case and lower-case variable names are different.

3. if-else statement helps in evaluating a condition and depending on the condition returning true or false, the program follows the direction. If the condition given with “if” keyword returns true then the statements in “if” part execute otherwise the statements given in the “else” part are executed. For example:

```
ans = input("Enter yes or no: ")
if ans== "yes":
        print("The answer is affirmative.")
else:
        print("The answer is negative.")
```

Here, depending on the valkue "yes" or "no" coming from the user, the program will display the message "The answer is affirmative." (if condition ans=="yes" returns true) otherwise "The answer is negative." (if condition ans=="yes" returns false).

4. while loop needs condition to evaluate and depending on that, it executes zero or more times. We also need to make arrangement to terminate the loop when needed by manipulating the value of the variables which control the loop execution.

For loop is useful when we need to navigate a series of values or a range of numbers. For loop terminates on its own when the set of values is navigated completely.

X=0 while X<10: print(X) X = X + 1 ''' Here, we are increasing variable X so that loop terminates when the value of X becomes 10. '''	for X in [1,2,3,4,5,6,7,8,9,10]: print(X) ''' Here, for loop is navigating through the list of numbers on its own. There is no need to manipulate variable X. '''

Both the loops can also be terminated by using "break" keyword after checking a condition

For example:

5. Many times we need to terminate the loop even before the condition with the while loop is returning true or the range pf values in for loop are not navigated completely. To terminate the loops during their execution, depending on some condition, we use "break" keyword. For example,

```
for x in "This-is-a-sentence.":
        print(x)
        if(x== '-'):
                break
```

Here, the output will be "T", "h", "i", "s", and "-" only because loop will terminate when value of variable x will be "-" and the condition of "if" will be true.

Chapter 7 – Video Editing with Shotcut

A. Choose the correct answer.

1. d 2. c 3. d 4. a 5. b

B. Fill in the blanks.

1. Append 2. Timeline 3. Ripple 4. Markers 5. MLT, Media

C. Answer the following questions.

1. In our project, all the audio, video and image files that we need can be added to the Playlist for easy access.

Timeline is the area in which we add the media files for editing and applying filters. Using Timeline we work on the media files in our project.

2. Ripple means automatically adjusting the pieces of media clipping on the Timeline when any clip is deleted or any new clip is inserted between the existing clips. Ripple mode is activated/deactivated by clicking on the “Ripple” button on the Timeline.
3. Filters are the special effects which we can apply on the selected clips. For example, we can use Text filter to display some text on the video clip or we can apply Fade in and Fade out effect in the beginning and end of a clip respectively for audio and video.
4. To increase the volume of a video in Shotcut, we can select the video clip on the Timeline > Go to Filters tab > Click on + button, locate and add “Gain/Volume” filter > Set its “Level” property for increasing the volume.
5. To add new video track: open the Timeline Menu > Track Operations > Add Video Track option.
To add new audio track: open the Timeline Menu > Track Operations > Add Audio Track option.

D. Mark the following sentence as True or False.

1. False 2. True 3. False 4. False 5. True

Chapter 8 – Photoshop Basics

A. Choose the correct answer.

1. a 2. b 3. d 4. b 5. d

B. Fill in the blanks.

1. Alt 2. Tolerance 3. Gradient 4. Alt + Click 5. Background

C. Do it yourself.

D. Answer the following questions.

1. By default, when we make a new selection, any previous selection is removed. We can use new selection in the following modes:

Add to selection: The new selection is merged (added) with any existing selection.

Subtract from selection: The new selection is subtracted from the existing selection.

Intersect with the selection: The common overlapping area of the new and existing selection remains as the final selection.

2. Image slicing is useful when it has to be displayed on a web page. A web page may have different partitions. The image can be sliced according to those partitions so that a piece (slice) of the image can be displayed in each part of the web page in such a way that they together look like one single image.
3. Pick the Red Eye tool from the Toolbox then click on the redeye area in the image. The correction will be applied automatically.
4. Blurring means giving a faded, out-of-focus look to the pixels, sharpening makes the pixels more distinct as compared to the other pixels in the image.
5. Dodging means lightening the pixels, burn is the reverse of dodge that is, darkening the pixels.

Chapter 9 – Character Animation using Animate

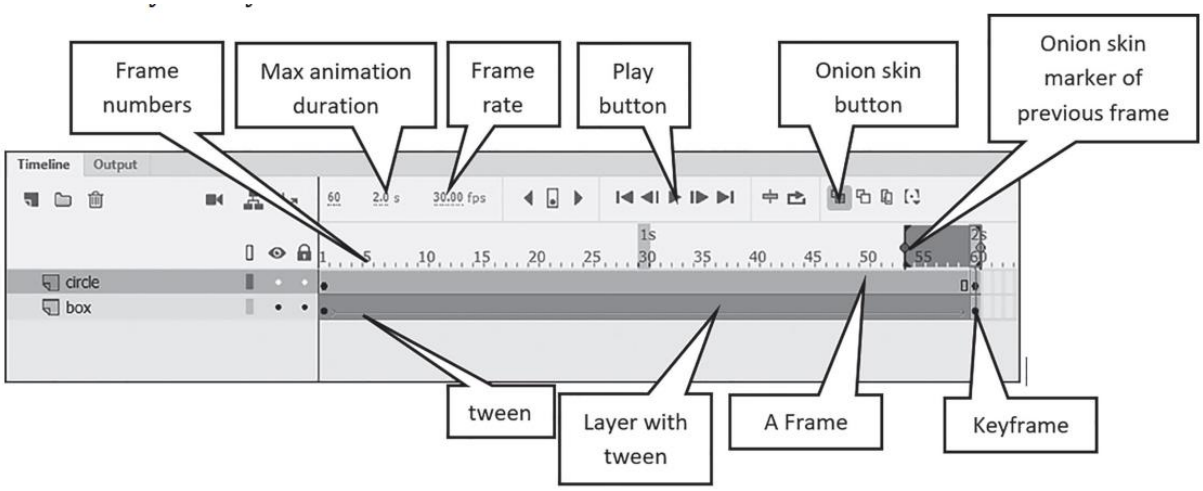
A. Choose the correct answer.

1. b 2. c 3. a 4. d 5 . b

B. Fill in the blanks.

1. Frame 2. Keyframe 3. Morphing 4. Bone 5. Layers

C. Identify the key elements.



D. Answer the following questions.

1. A single drawing in animation is called a frame. In a sequence of frames, whenever there is a significant change in the drawing then that frame is called a keyframe.

2. The Timeline is the sequence of frames and stack of layers. As the drawings are arranged on the Timeline, the animation appears on the stage. The drawings on the Timeline are arranged as a sequence of frames. Multiple drawings can be kept on separate layers stacked one upon another. We can also change the frame rate on Timeline to set the speed of the animation.

3. Tweening makes the object on the stage move from one point to another.

Shape tween is morphing of one shape into another. Shape tween does not apply to symbols. Motion tween allows moving an object on the stage from one point to other. Before applying Motion tween, we need to convert the drawing into a symbol.

4. A drawing can be converted into a symbol and saved as a collection in the project Library by unique name. Symbols are useful when we need to apply Motion tween and also when a symbol needs to be used multiple times in the animation. For example, car wheel, birds, trees, etc.

5. Onion skin feature allows to display the drawings of some previous frames. This is useful when we are drawing an action in sequence. Onion skin helps us to see where is the previous drawing so that we make the next drawing in proper continuation. For example, walking man, jumping cat, a flower waving in breeze, etc.

Chapter 10 – Domains of Artificial Intelligence

A. Choose the correct answer.

1. c 2. d 3. b 4. d 5. b

B. Fill in the blanks.

1. NLP 2. Learning 3. Domain 4. Edges, Corners 5. Syntax, Semantics

C. Answer the following questions.

1. The 3 domains of AI are Data, Computer Vision (CV) and Natural Language Processing (NLP). CV deals with the AI algorithms that process and analyse visual data such as images, videos, etc. NLP domain includes the AI algorithms that process and analyse natural language, speech and written text.

2. Artificial intelligence is the field to develop machines that should learn and act like humans. Artificially intelligent machines work on sophisticated algorithms which are capable of learning from different types of data such as text, numbers, dates, images, audio, video, speech, etc. After learning they can form their own set of rules and understanding. A machine needs data to learn what it is supposed to do.
3. Computer vision is the AI domain that deals with analysing visual data such as images, spatial data (images taken by satellite), video frames, and live feeds of data like faces, video recording, etc.
Applications of Computer Vision are:
i. Identifying the object in an image
ii. Face recognition
iii. Handwriting recognition Classifying images
iv. Identifying cancer cells
v. Processing visual data to locate forest fires, floods, droughts, etc.
vi. Identifying products on an E-Commerce site, etc.
4. Ability of a machine to understand and analyse natural human language is called Natural Language Processing (NLP).
Applications of NLP are:
i. Digital assistants and chatbots
ii. Speech recognition
iii. Language translation
iv. Document classification, validating documents
v. Identifying fake news and hate speech, detecting threat keywords in online communications
vi. Online training.
5. It is challenging for a machine to understand human language due to following reasons:
i. Multiple of languages in the world.
ii. Complex grammar rules of the language.
iii. Multiple meanings, pronunciations and hidden meanings.
iv. Meaning changing due to context and emotions.
v. It is hard for machines to understand jokes, sarcasm, poetry, etc.

D. Categorise the following AI Applications into their correct domains – DATA, CV & NLP.

1. Autonomous vehicle. (CV)
2. Predicting rainfall. (Data)
3. Digital assistant. (NLP)
4. Face recognition. (CV)
5. Forecasting next sales figures. (Data)
6. Identifying handwriting. (CV & NLP)
7. Detecting hate speech. (NLP)
8. Identifying fake news. (NLP)
9. Detecting fraudulent transactions in a bank. (Data)
10. Search product by its image. (CV)