Class 7

Exercises

Chapter 1 – E-Commerce and Social Media

A. Choose the correct answer.

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

B. Fill in the blanks.

1. Auctions, Classified 2. OTP 3. Shopping cart 4. Blog 5. Cyberbullying

C. Answer the following questions.

1. The process of selling and purchasing goods and services online is called E-commerce. Its categories are Business to consumer (B2C), Business to business (B2B), Consumer to business (C2B), and Consumer to consumer (C2C).

2. The 2 advantages of E-Commerce to consumers are – i. It enables us to do shopping anytime from anywhere. ii. Relevant and detailed information can be seen instantly about the products.

The 2 non-technical disadvantages of E-Commerce are –

i. The shipping time can be longer, ii. The product may vary, short delivered or damaged.

3. Social media is that part of cyberworld that helps us in connecting with people for social communication. It simulates a real, physical network however, it is just that the network is online. We can use social media applications on computers, mobiles, and tablets. WhatsApp, Facebook, Instagram, Twitter, and LinkedIn are the major applications of social media.

On blogs, we can share our ideas with others and people can comment on the blog postings. They can also share them with others online. This way, blog becomes the part of social media.

4. i. **Net banking**: Process of doing financial transactions (payment, money transfer, etc.) online though our bank website.

ii. **Blogging**: Sharing ideas and information using a personalised website is called blogging.

iii. **E-Governance**: Government's mode to provide access to public schemes and addresses public issues online.

iv. **Social networking**: Connecting with people online over a social media website, sharing ideas and information with them.

5. Bullying that takes place on social media platforms is known as cyberbullying. Many people use false social media accounts to harass others by sending them derogatory photographs and videos and mocking them with unpleasant remarks (social status shaming, body shaming, racial remarks, etc.) Cyberbullying primarily affects teenagers and children. The ill effects are loss of self-dignity, low-confidence, anxiety and suicide in extreme cases. Children may also get encourage to cyberbully others.

D. Match the terms in Column1 with Column 2.

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

Competency-Based, High Order Thinking Skills Questions.

Consider the following scenarios and suggest the best suited solution to the problem.

1. To handle negative feedback on social media, a business should respond promptly, apologize if necessary, and offer solutions to resolve issues. Monitoring social media channels regularly and preventing similar problems in the future is important.
2. For security in an online store, use SSL encryption, choose a secure payment gateway, and follow data protection regulations. Implement multi-factor authentication, update software regularly, and educate staff and customers about security practices.

Chapter 2 – Mail Merge with MS Word

A. Choose the correct answer.

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

B. Fill in the blanks.

1. Main document, Data source 2. Current cursor position 3. Age greater than 40
4. Fields 5. Mailings

C. Answer the following questions.

1. Mail merge feature allows us to generate copies of a document for multiple recipients. This saves time and effort in creating document for each individual manually. The common document to be sent to the recipient only contains the variable information that comes from a data source.
2. The documents involved in the mail merge process are:

Main document: This is the document or letter that contains the common information for all the recipients. The merged fields are inserted in this.

Data source: This document contains the details to be inserted in the main document for each recipient. The values in it are identified by unique field names called merged fields. E.g. Name, Address, Phone, City, etc.

Merged document: These are the final documents generated for each recipient after merging required data in to the main document from data source.

3. Data source stores the varying data values which need to be inserted into the main document at right insertion points. E.g. Name, Address, City, Pin code etc.
4. During the mail merge process, after selecting the data source, in Mail Merge Recipients dialog box, click on Filter option. In Filter and Sort dialog box,

	Field	**Comparison**	**Compare to**
	City	Equal to	Lucknow
OR	City	Equal to	Agra
AND	State	Equal to	UP

Then, click OK

Competency-Based, High Order Thinking Skills Questions

For False statements, specify the correct fact.

1. False – a mailing list will be used as data source.
2. True
3. True
4. False – Preview results option displays all the records which can be seen by scrolling.
5. False – merged fields are not document. The two documents are main document and data source.

Chapter 3 – Data Visualization in Excel

A. Choose the correct answer.

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

B. Fill in the blanks.

1. Analysing 2. 3. Measure, Categorise 4. Y axis 5.

C. Answer the following questions.

1. Graphical representation of data is called charts. The help us in visualising the data. 5 types of charts are – Pie, Column, Area, Bar, and Line.

2. Column Chart: A column chart displays categories along the horizontal (category) axis and values along the vertical axis. It is used to compare the values with each other.

Line Chart: In a line chart, category data is distributed evenly along the horizontal axis, and all value data is distributed evenly along the vertical axis. Line charts show trends in data at equal intervals, like months or years.

Pie Chart: Pie charts show distribution in terms of value or percentage. The size of slice in the pie chart is proportional to the sum of all the items. They show only one data series with positive values.

3. Following are the advantages of charts:

a. **Data Visualization**: A chart can create a clear picture of a set of data values. It allows us to easily and quickly understand the charts and apply analysis for future planning.

b. **Automation and integration**: The Excel application links the data with the chart. Any changes in the data set are automatically reflected in the related chart.

c. **Customisation**: Charts in Excel can also be modified easily using various options of formatting.

d. **Productive**: Charts help in quick analysis and decision making. This saves a lot of time for decision makers and leads to intelligent decisions faster.

4. Comparative performance of students: For this, a column or bar chart can be made with student names in one axis and marks on the other.

Percentage contribution of 5 class toppers in performance: For this Pie chart can be made to see the percentage of the values in the sum total of all the values.

Observe the exam results over past 5 years: Line chart will help in showing the trend in performance change across 5 years.

Chapter 4 – Data Representation in Digital Devices

A. Choose the correct answer.

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

B. Fill in the blanks.

1. 15 2. 9 3. Carried forward 4. Borrowed 5. 2

C. Answer the following questions.

1. Computers are versatile machines and different types of computers are used for different purposes. That is why, computers use different coding systems. For example, modern PCs use ASCII-8 bit coding system while UNICODE system can identify a wider range of letters, symbols and alphabet.

2. Universal Character Set Code (UNICODE) is used today as standard in modern computers to help computers identify all the characters covered by ASCII as well as a wide range of characters in different languages, different symbols, mathematical symbols, emojis and historical scripts.

3. Binary number system is most suitable for computers today because it allows computers to perform a variety of tasks. Various operating systems and devices work with binary system. Programs made to run

on these computers can be executed on different devices with no modifications. It is used in toys, digital devices, desktop PCs, smart phones and up to the range pf supercomputers.

4. Binary arithmetic:

a.

1				
	1	0	0	1
+	1	0	1	0
1	0	0	1	1

b.

	1		
		1	0
	+	1	1
	1	0	1
+	1	0	1
1	0	1	0

c.

1	0	1	0	1
	-	1	0	1
1	0	0	0	0

d.

			1	1	0
		x	1	0	0
			0	0	0
		0	0	0	
	1	1	0		
	1	1	0	0	0

e.

	1	0	1	0
		x	1	1
	1	0	1	0
1	0	1	0	
1	1	1	1	0

f. Out of 1101, divide 11 by

11 = 1, rem 0 Then, remaining is 01 So, answer is 100 and remainder 1

5. Decimal to binary:

a. 255/2 = 127, remainder is 1

127/2 = 63, remainder is 1

63/2 = 31, remainder is 1

31/2 = 15, remainder is 1

15/2 = 7, remainder is 1

7/2 = 3, remainder is 1

3/2 = 1, remainder is 1

1/2 = 0, remainder is 1

Read from the bottom (MSB) to top (LSB) as 11111111.

b. 13/2 = 6, remainder is 1

6/2 = 3, remainder is 0

3/2 = 1, remainder is 1

1/2 = 0, remainder is 1

Read from the bottom (MSB) to top (LSB) as 1101.

c. 31/2 = 15, remainder is 1

15/2 = 7, remainder is 1

7/2 = 3, remainder is 1

3/2 = 1, remainder is 1

1/2 = 0, remainder is 1
Read from the bottom (MSB) to top (LSB) as 11111.
d. 300/2 = 150, remainder is 0
150/2 = 75, remainder is 0
75/2 = 37, remainder is 1
37/2 = 18, remainder is 1
18/2 = 9, remainder is 0
9/2 = 4, remainder is 1
4/2 = 2, remainder is 0
2/2 = 1, remainder is 0
1/2 = 0, remainder is 1
Read from the bottom (MSB) to top (LSB) as 100101100.
6. Binary to decimal:
a. Step 1: Multiply each digit of the binary number by the corresponding power of two:
1x22 + 0x21 + 1x20
Step 2: Solve the powers:
1x4 + 0x2 + 1x1 = 4 + 0 + 1
Step 3: Add up the numbers written above:
4 + 0 + 1 = 5.
b. **Step 1**: Multiply each digit of the binary number by the corresponding power of two:
1x24 + 1x23 + 0x22 + 1x21 + 1x20
Step 2: Solve the powers:
1x16 + 1x8 + 0x4 + 1x2 + 1x1 = 16 + 8 + 0 + 2 + 1
Step 3: Add up the numbers written above:
16 + 8 + 0 + 2 + 1 = 27.
c. **Step 1**: Multiply each digit of the binary number by the corresponding power of two:
0x23 + 0x22 + 1x21 + 1x20
Step 2: Solve the powers:
0x8 + 0x4 + 1x2 + 1x1 = 0 + 0 + 2 + 1
Step 3: Add up the numbers written above:
0 + 0 + 2 + 1 = 3.
d. **Step 1**: Multiply each digit of the binary number by the corresponding power of two:
0x25 + 1x24 + 0x23 + 1x22 + 0x21 + 1x20
Step 2: Solve the powers:
0x32 + 1x16 + 0x8 + 1x4 + 0x2 + 1x1 = 0 + 16 + 0 + 4 + 0 + 1
Step 3: Add up the numbers written above:
0 + 16 + 0 + 4 + 0 + 1 = 21.

Competency-Based, High Order Thinking Skills Questions

Investigate the following statements and write down the facts you find.

1. True
Step 1: Divide (56)10 successively by 8 until the quotient is 0:
56/8 = 7, remainder is 0
7/8 = 0, remainder is 7
Step 2: Read from the bottom (MSB) to top (LSB) as 70.
2. False
Decimal has its root from the word “deca” that means 10. The base of decimal number system is 10. The digit 6 has its root from the word “hexa” hence 10 + 6 = 16 means “hexadecimal”. Base of hexadecimal number system is 16.

3. True. Base of a number system is the maximum number of digits in it like in binary it is 2, decimal is 10 and octal is 8 and so on.
4. False. Base of a number system is the maximum number of digits in it and not maximum value it represents like in binary it is 2, decimal is 10 and octal is 8 and so on.
5. A nibble is 4 bits. If all of them are set to 1 then the decimal equivalent of 1111 will be 15. Hence, nibble is not enough to represent 25 in binary. (Binary of 25 = 11001 i.e. 5 bits.)

Chapter 5 – HTML Images, Hyperlinks and Tables

A. Choose the correct answer.

1. d 2. B 3. C 4. B 5. a

B. Fill in the blanks.

1. Align, image 2. Alt 3. TH 4. Rowspan, colspan 5. name

C. Answer the following questions.

1. Align attribute of IMG element determines how the text should be spread around the image. Image can be set in the middle of the text or top or bottom of the text. We can also set the image in center, right or left. By default, image alignment is in line with text.
E.g., 1: In this example we are showing how <IMG SRC= “FLOWER.JPG” ALIGN= “MIDDLE”>images are aligned with the text in a web page. Images can be aligned in different ways with the text. E.g., 2: In this example we are showing how <IMG SRC= “FLOWER.JPG” ALIGN= “TOP”>images are aligned with the text in a web page. Images can be aligned in different ways with the text.
2. Internal hyperlink points to the hyperlinked content in the same web page. This hyprlinked content is identified by unique name. For example, to hyperlink a paragraph we give the following
code:
<A name= “para1”>This part may contain a paragraph of content</A>
Then, to refer to para1, we use this code:
<A href= “#para1”>Click here to go to para1</A>

External hyperlink points to any resource outside the web page. For example, following code is hyperlink to the home page of the web site:

<A href= “home.html”>Go Home</A>

3. Cellpadding attribute sets the distance between the content a table cell and the border of the cell while Cellspacing attribute sets the distance between the adjacent cells of a table. For example, following code is setting the cellpadding 5 points and cellspacing 10 points.
<Table cellpadding= “5” cellspacing= “10”>
Here goes the table structure and content.
</Table>

4. In a table, the adjacent cells across the rows are merged using rowspan attribute of tage and adjacent cells across columns are merged using colspan attribute of tag. For example,
<table border>

<tr> <td>QUARTER</td> <td COLSPAN=2>SALE DETAILS</td> </tr>

<tr> <td ROWSPAN=2>QRT1</td>

<td>Total items: 200</td>

<td>Sale Rs. 5400000</td>

</tr>

<tr> <td>Total items: 350</td><td> Sale Rs. 8000000</td></tr>

</table>

This will create:

QUARTER	SALE DETAILS	
QRT1	Total items: 200	Sale Rs. 5400000
	Total items: 350	Sale Rs. 8000000

5. For a website, we organise the content in multiple web pages. Then these web pages are hyperlinked together to allow the user to navigate the pages by following those hyperlinks. For example, from the home page, if user wants to go to “About” page then user will click the hyperlink for “About” page given on the home page. This way, web pages are organised by the help of hyperlinks to help the user move back and forth across the pages.

6. Images are important in a webpage because they make it look nicer and more interesting. They help to show information better, like pictures of products on a shopping website. Images also make a webpage more memorable and can create a certain feeling or mood. Overall, they make the webpage more enjoyable and easier to understand.

7. To make an image hyperlink in HTML, you can use the <a> (anchor) element and within it put an <img> (image) element.

For example:

  <img src="image.jpg" alt="Description of the image">

8. To hyperlink the word "NEXT" to go to a paragraph in the same file

NEXT

<!-- Target paragraph -->

This is the paragraph you will jump to.

D. Complete the following HTML code snippets.

1. Background 2. Src, Align 3. TR, TD, TD, TR 4. Href, Myfile2.html 5. name

E. Mark the following statements as True or False.

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

Competency-Based, High Order Thinking Skills Questions
Read the statement and select the correct reason of the two given below each statement.

1. Reason 1 2. Reason 2 3. Reason 1 4. Reason 2 5. Reason 1

Chapter 6 – Mobile Apps Basics with MIT App Inventor

A. Choose the correct answer.

1. d 2. D 3. C 4. C 5. b

B. Fill in the blanks.

1. Canvas.TouchDown 2. Components 3. Event, Button 4. .aia 5. Properties

C. Answer the following questions.

1. A mobile app is the software that runs on the handheld devices such as smartphones and tablets to provide desired services.

Three main features of mobile apps are:

a. Apps are easy to download and install on the device.
b. Apps are mostly free and very lightweight (on memory and processor).
c. Apps generally do not have licence restrictions as software have.

2. A web app is the responsive version of the website. The in-built micro browser of the device displays the website interface on the small screen of mobile device. Web apps do not install on the user's device. On the other hand, a hybrid app has the features of both native and web apps. It combines the elements of native as well as web apps. It provides certain important features even if device is not connected with the Internet.

3. The Designer part of App Inventor allows the user to use the graphical elements to create the user interface of the app. Blocks part allows the user to use various programming blocks to add the functioning of the app.

4. Properties panel display the properties of the selected user interface component in the Designer part. User can change the properties according to the requirement. For example, the background color property of a textbox can be set to any desired colour.

5. Control blocks: when _____.click, when _____.TouchDown

Math blocks: +, -, empty number

Text blocks: join, empty text, length

Variable blocks: initialize global, get, set ____ to

6. Button, Text Box, Canvas.

7. Variables identify the data in our program. Each variable has a unique name. Where ever variables are used, the value of the variable is substituted.

A variable stores one value at a time and any new value overwrites its older value.

Chapter 7 – Program Design with Algorithm and Flowchart

A. Choose the correct answer.

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

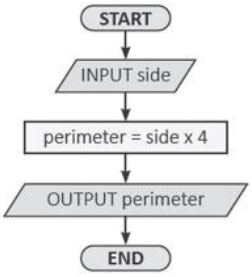
B. Fill in the blanks.

1. Programs 2. Flowchart, Algorithm 3. Language 4. Decision 5. Condition

C. Answer the following questions.

1. Algorithm is a set of steps arranged in a sequence to get the desired output. The instructions in an algorithm are clear and simple to understand. Instructions are written in common native language such as English. For example, below is the algorithm to calculate the perimeter of a rectangle.

Step 1. INPUT side
Step 2. perimeter = side multiplied by 4
Step 3. OUTPUT perimeter



2. Algorithms can be expressed in a graphical form called flowchart. A flowchart is a pictorial representation of an algorithm. Its graphical form makes it easier to understand the algorithm. For example, see the flowchart given here to express the above algorithm.

3. Two advantages of algorithms:

Algorithms are easier to understand due to 2 reasons:

i. All the steps are mentioned clearly in them.
ii. They are independent of any programming language.

4. Any initial errors can be easily spotted and corrected.

Two advantages of flow charts:

a. Looking at flowchart, we can easily understand the flow of the program.
b. It is easy to analyse the solution of the problem.

5. A loop executes the statements repeatedly depending on given conditions. Usually, loops are represented by the block WHILE-END WHILE. For example, following loop displays a variable X 100 times.

Step 1. X = 0
Step 2. WHILE X < 100
Step 3. Display X
Step 4. Increase X by 1
Step 5. END WHILE

Competency-Based, High Order Thinking Skills Questions

Investigate the following statements and write down the facts you find.

1. False. Logical sequence of steps is important since a task can be done properly when the steps are executed in a desired way.
2. False. Arithmetic expressions help in performing calculations and processing the data.
3. True.
4. True. With the help of variables, we can deal with changing values easily just by referring to the variable name.
5. False. The loop constructs or blocks help computer execute statements repeatedly.

Chapter 8 – Programming with Python

A. Choose the correct answer.

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

B. Fill in the blanks.

1. + 2. Variable 3. Keywords, Identifiers 4. AND 5. True (Replace False by True)

C. Answer the following questions.

1. Python is easy to use, open-source language, portable, rich in pre-designed libraries.

2. i. Python is both compiler-based and interpreter-based language. Compiler converts the Python program (source code) in to lower-level byte code. Byte code is executed by the interpreter line-by-line.

ii. Python variables do not have any defined type. They acquire the type according to the type of data they store. E.g. a variable storing a number becomes numeric and if the same variable stores text then it becomes string type.

3. Operators are used to handle data in different ways such as processing and comparing. Operands are the values on which operators perform their action. For example, + operator adds two operands 5 and 10 as 5 + 10 giving the result 15.

4. Comparison operators return either true or false after comparing the values. For example: if a=10 and b=13 then the condition a>b will return false while b>=a will return true.

5. Logical operator NOT reverse the given condition. For example, NOT(x=y) means x is not equal to y.

6. The 2 major difference in Python command mode and script mode are:

i. In Python command mode we cannot save the command in a file but scripts are saved as .py files.

ii. Python commands execute one by one, giving the result while script runs a set of instructions in it at once.

7. The expression ("A"*3) == "AAAA" will return False because "A"*3 evaluates to "AAA", and "AAA" is not equal to "AAAA". To get the reverse output (i.e., True), we can use either != operator like this: *("A"*3) != "AAAA"* or we can use logical operator “not” like this: *not (("A"*3) == "AAAA")*

8.
```
# Input average fuel efficiency of the cargo plane
average = float(input("Enter the average fuel efficiency of the cargo plane (km per litre): "))
# Check if the average is invalid (0, negative, or more than 12)
if average <= 0 or average > 12:
    average = 8  # Assume average as 8
# Distance from city X to city Y
distance = 1300  # in kilometers
```

```
# Calculate the amount of fuel needed
fuel_needed = distance / average
# Display the amount of fuel needed
print("The cargo plane needs", fuel_needed, "to reach its destination.")
```

9. In Python, variables are dynamically typed. This means their type is determined at runtime based on the value assigned to them. Unlike certain other programming languages that require explicit declaration of variable types, Python does not mandate such declarations.

10. a. 2 b. False c. -1 d. 0

Competency-Based, High Order Thinking Skills Questions

Complete the following truth table by filling the correct output:

1. True 2. True 3. False 4. True 5. False 6. False 7. False 8. True

Match the symbols/boxes with use in the flowchart.

1. g 2. d 3. f 4. e 5. a 6. b 7. c

Chapter 9 – Image Processing with GIMP

A. Choose the correct answer.

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

B. Fill in the blanks.

1. Locked 2. Threshold 3. Flattened 4. Text 5. Color picker

C. Answer the following questions.

1. Various operations on layers are:

i. Flatten Image: GIMP layers can be merged together to create the final single image. This process is called flattening. Flattened image, once saved, cannot be broken back into layers.

ii. Merge Down: This merges the current layer to the layer right below it.

iii. Duplicate Layer: Makes a copy of the layer.

iv. Delete Layer: Deletes a layer.

v. Hiding/Unhiding and Locking/Unlocking Layer: To work with a particular layer, you can hide other layers. To hide/unhide a layer, click on the Eye icon beside its name in the Layers panel. If you lock a layer, it cannot be modified until unlocked.

2. Layers help in managing various parts of an artwork separately. This way it is easier to work with one part of art work without affecting other parts. For example, if you create a scene of a bird flying then the sky could be in the bottom most layer and the bird can be in the layer above it.

3. Filters apply special effects on the art work. Filters are arranged in various categories under Filters menu. You can apply the filters on a section or the whole layer. Filters are useful in enhancing the look of the images significantly.

4. While working with images, we need to make selections in different ways such as on the basis of colours or shape. Hence, to suit various ways of selections, we have multiple selection tools in GIMP.

5. The 3 transform tools in GIMP are:

Flip: Flip selection vertically or horizontally. Specify Direction of flip in the Tool Options.

Handle Transform: Transform image or selection by dragging 4 handles around it.

Cage Transform: Transform selection by multiple handles around it.

Chapter 10 – Artificial Intelligence Techniques

A. Choose the correct answer.

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

B. Fill in the blanks.

1. Generalised 2. Reactive 3. Narrow 4. Theory of mind 5. Self-awareness

C. Answer the following questions.

1. AI is the field of conceiving, designing and developing machines which should perform tasks that usually require human intelligence.

2. **Two examples of narrow intelligence:**

i. Performing web-wide search of content (e.g. Google search).

ii. Recognising face among several single image shots or group images.

Two examples of strong intelligence:

i. An airplane training system that functions without the help of a trainer.

ii. An intelligent chat-bot that understands customer's needs and suggests solutions by its learned intelligence.

3. On the basis of functionality, the 4 types of AI are: Reactive machines, Limited Memory, Theory of mind and Self-awareness.

i. Reactive machines: As the name suggests, a reactive machine knows how to respond to a particular stimulus (input) on the basis of a set of rules and the logic to apply those rules in all possible scenarios. They show the most basic type of AI. They do not store learning by previous problem solving. Computers that play strategy games against humans are examples of reactive machines.

ii. Self-awareness: Such machines are truly intelligent machines. Such machines, of course, do not exist as this chapter is being written but endeavours to develop machines that exhibit intelligence exactly like us humans are ongoing.

4. In the context of machine learning, the collected data is divided into 2 parts – training data and testing data. Training data is used to train the AI algorithm to perform the desired task or action. Once the algorithm is trained, its performance is tested by the help testing data. If the test is passed, the algorithm is considered to be trained.

5. Various types of machine learning are Supervised learning, Unsupervised learning, and Reinforcement learning.

Supervised learning is used to train the machine with a set of rules. Machine is fed with the following:

a. Data to learn from.

b. Description of the data to identify it (also called labels)

c. Rules and guidelines to follow to learn.

d. Output expected of the machine.

Such machines perform certain tasks quicker, faster and better without human intervention.

For example, clustering people on the basis of similar properties, analysing reviews and ratings, predicting weather, forecasting events, identifying face and images etc.