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COMPUTER SCIENCE 7

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UNIT 1 ICT FUNDAMENTALS

Exercise

Multiple choice questions:

1. System unit is the casing that contains following electronic components of computer system.

- (a) Motherboard, power supply, RAM, CPU ✓
- (b) Keyboard, Monitor, Touchpad, CD
- (c) Printer, Scanner, Joystick, HDD
- (d) Motherboard, Display Screen, Speaker, Projector

2. Which of the following is volatile memory?

- (a) Optical Memory
- (b) Read Only Memory
- (c) Random Access Memory ✓
- (d) Flash Memory

3. Which of the following is permanent memory?

- (a) Read Only Memory ✓
- (b) Registers
- (c) Random Access Memory
- (d) Cache Memory

4. Identify the correct order of memory units:

- (a) TB>MB>GB>KB
- (b) MB>GB>TB>KB
- (c) TB>GB>MB>KB ✓
- (d) GB>MB>KB>TB

5. Which device is used to input audio into the computer?

- (a) Mouse
- (b) Webcam
- (c) Microphone ✓
- (d) Scanner

6. The device used to obtain text, images and graphics on paper is:

- (a) Monitor
- (b) Printer ✓
- (c) Scanner
- (d) Keyboard

7. The device used to stream live video in real time is:

- (a) Printer
- (b) Microphone
- (c) Scanner
- (d) Webcam ✓

8. Which technology uses fingerprint for identification purpose?

- (a) Robotics
- (b) Vision enhancement
- (c) Biometrics ✓
- (d) Virtual reality

9. Which technology is related with creation of computer systems that behave like humans?

- (a) Virtual reality
- (b) Artificial intelligence ✓
- (b) Biometrics
- (d) Augmented reality

10. A computer that accesses the shared resources of a server is called:

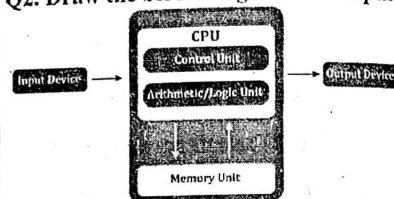
- (a) Personal Computer
- (b) Server
- (c) Client ✓
- (d) Remote Computer

Short response questions:

Q1. What is system unit?

Ans: A system unit is the case that contains all the electronic components of computer system like motherboard, power supply, RAM, ROM, CPU (microprocessor), hard disk drive, Optical drive etc.

Q2. Draw the block diagram of computer.



Block Diagram of Computer

Q3. State the use of any two ports that are used to connect external devices.

Ans: **HDMI (High Definition Multimedia Interface)** is a port that can transmit high quality audio and video data between devices. **Video Graphics Array (VGA)** is a three row 15 pin connector. It is provided on many video cards, computer monitors, laptop computers, projectors and high definition television sets to carry video signals for display.

Q4. What is artificial intelligence?

Ans: AI computer systems are created to behave e.g game playing, robotics, expert systems, languages etc. The impact of AI in our daily life may include safer transport, improved medical care, speech recognition, problem solving etc.

Q5. Differentiate between RAM and ROM.

Ans:

RAM	ROM
Random access memory is used to read and write data but the data is volatile or temporary i.e whenever the power is switched off the contents of RAM are lost. All computer programs must be loaded into the RAM before execution. The size of the memory is	Read only memory (ROM) is non-volatile memory. Instructions in ROM are permanently embedded at the time of manufacturing. ROM contains Basic Input Output System (BIOS) and programs that start the computer.

UNIT 2 DIGITAL SKILLS

Exercise

Multiple choice questions:

1. Which of the following application Program is used for composing, editing and formatting documents.

- (a) Microsoft Outlook
- (b) Microsoft Word ✓
- (c) Microsoft Excel
- (d) Microsoft Access

2. The Ribbon is the work bar located at:

- (a) Right of document
- (b) Left of document
- (c) Bottom of document
- (d) Top of document ✓

3. Status bar displays the information like:

- (a) Size of document in MB, GB
- (b) Location of document in computer
- (c) Name of document file
- (d) Word count, number of pages, current page ✓

4. Home tab contains the following features.

- (a) Header and footer, page layout, print layout
- (b) Insert picture, word art, mail merge
- (c) Tables inserting, table formatting
- (d) Clipboard Menu, Font Menu, Paragraph Menu ✓

5. The Apply Design Template command is used to:

- (a) Change the order of the slides
- (b) Change the shape of the slides
- (c) Change the background and fonts of the entire presentation ✓
- (d) Create a new, empty presentation

6. The process of removing unwanted part of an image is called:

- (a) Hiding
- (b) Bordering
- (c) Cropping ✓
- (d) Cutting

7. During a slide show, pressing the Esc key:

- (a) Displays the last slide
- (b) Displays first slide
- (c) Ends the slide show ✓
- (d) Displays the previous slide

8. Microsoft PowerPoint is best described as:

- (a) Presentation software ✓
- (b) Database software
- (c) Drawing Software
- (d) Desktop publishing software

9. On a single slide, you can have:

- (a) Single video file ✓
- (b) Two video files
- (c) Three video files
- (d) Many video files

measured by the number of bytes available for use.

Q6. What type of tasks can be performed by robots?

Ans: Robots perform tasks that were done traditionally by human beings. These tasks include diffusing landmines and bombs, firefighting, space exploration, lifting heavy object, manufacturing and performing surgery etc. Robots are even serving as waiter in restaurant nowadays.

Q7. Define peripherals with the help of examples.

Ans: All the input and output devices of a computer are known as peripheral devices or peripherals. Input devices are used to enter data in the computer and output devices display it on the monitor or print the paper. Commonly used input devices are keyboard, mouse, scanner and webcam. Commonly used output devices are display screen and printer.

Q8. Write down the use of scanner.

Ans: Scanner is an input device. It allows computer users to scan images, printed text or handwriting and converts it into digital images. Scanned material can be displayed on the screen, edited or used in a document.

Q9. What is the purpose of using multimedia projector?

Ans: Multimedia projector is an output device that takes text, images, audio and video contents generated by computer and projects on a screen or a wall. Multimedia projector has high resolution and is capable of displaying information in full-color.

Q10. Differentiate between server and client.

Ans:

Server	Client
Server is a powerful computer that runs network operating system and stores data and application software that can be shared over the network. It can share printer and Internet connection as well.	Client is a computer that shared resources of a server. A personal computer in a network is a client.

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10. You can re-arrange slides in:

- (a) Slide view (b) Sorter view ✓
(c) Notes Page View (d) Slide Show View

11. Email is a method of exchanging message among people using:

- (a) Post office service (b) Electronic devices ✓
(c) Post man to collect and deliver email.
(d) Telegraph

12. The correct format of an email address is:

- (a) www.Pakistan.com.pk
(b) Pakistan#\$@gmail.com
(c) Pakistan786@gmail.com ✓
(d) Gmail.com@pakistan

13. The username of electronic mail accounts are:

- (a) Not case sensitive
(b) Always unique for each user ✓
(c) Spaces are not allowed in email address (d) Only numeric

14. Examples of Email Service Providers are:

- (a) Gmail.com & outlook.com ✓
(b) Chrome (c) Internet explorer
(d) Mozilla Firefox

15. While composing email option "BCC" stands for:

- (a) Blind carbon copy ✓
(b) Blank carbon copy
(c) Black carbon copy (d) Bank carbon copy

Short response questions:

Q1. Define the term "word processor". Give some examples of word processing programs.

Ans: A word processor is application software used for composing, editing, formatting, and printing documents. It has variety of uses and applications at homes, business, educational institutions etc. Following are some of popular word processors:

- Microsoft word
- Apple iWork
- Google Docs
- Libre Office

Q2. List three ways to view screen in Microsoft Word?

Ans: There are three ways to view the screen.

- Read Mode: Splits the screen in order for the document to be viewed in two pages.

- Print Layout: This is the default screen in which documents are viewed on the screen.

- Web Layout: This shows what the document looks like if published as a web page.

Q3. Write down purpose of three insert options available in "Insert Tab" of Microsoft Word.

Ans: 1. Inserting a page break:

- A page break places text on to a new page.
- To put a page Break into a document click Page break under the pages group.

2. Insert Text Box:

- Select the Insert tab, then click the Text Box command in the Text group.
- A drop down menu will appear.
- Click and drag the mouse anywhere on the document to create the text box.
- The insertion point will appear inside the textbox.

3. Inserting a table:

To insert a table click on Table, under Tables group and hover the mouse over the boxes to get the number of rows and columns you want to insert into the table. From the pop-up menu, 'Table Properties' will provide options to adjust table and cells, accordingly.

Q4. Write down is the purpose of Multimedia Presentation?

Ans: Multimedia Presentation helps audience in better understanding but enhances the standard of the session. In classrooms, for the sake of education and skill development, multimedia presentation is adopted and found quite worthwhile. Multimedia presentation includes information presented with slide, video, or digital presentation and includes sound which might be narrative, music or sound effects. It is mostly used for business or school presentations.

Q5. Differentiate between the terms 'Slide' and 'Slide Show'.

Slide	Slide Show
A slide is a single page of a presentation. Collectively, a group of slides may be	A slide show is an exhibition of a series of slides in Powerpoint. It is a collection of pages

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known as a slide deck

arranged in a sequence that contains text and images presenting to an audience.

Q6. Write the procedure to add a picture as Background effect to a Presentation. Ans: Select the slide you want to add a background picture to.

1. Select Design > Format Background.

2. In the Format Background pane, select Picture or texture fill.

3. Select File.

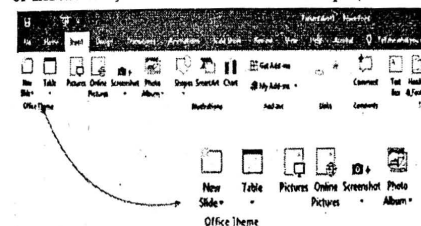
4. In the Insert Picture dialog box, choose the picture you want to use and then select Insert.

Q7. Sketch the steps to add new slide to a presentation.

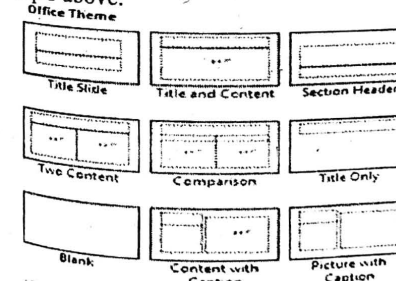
Ans: Insert a new slide:

Insert a new slide into a presentation, follow the steps below:

1. In the MS PowerPoint ribbon on the Home or Insert tab, click the New slide option.



2. In the drop down menu that opens, select the type of slide to insert. The new slide will be edit into the presentation where you clicked in step 1 above.



• Duplicate Selected Slides

• Slides from Outline...

• Reuse Slides...

Q8. Define the term email and write the uses of email address.

Ans: Electronic mail (Email) is a method of exchanging messages between two people using electronic devices. It offers efficient inexpensive and real time mean of communication.

An email address is a unique identifier for an email account. It is used to send and receive email messages over the internet.

Q9. Define any two of the following options used in composing an email. To, CC, BCC, Signature

Ans: To: The to field indicates the recipient address i.e to whom the email is sent.

CC: stands for carbon copy. It includes those recipient addresses whom we want to keep informed but not exactly the intended recipient.

BCC: stands for Blind Carbon Copy. It is used when we do not want one or more of the recipient to know that someone else was copied on the message.

Q10. Write down the purpose of inbox, sent, trash, and spam?

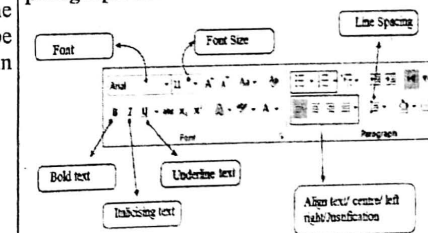
Ans: Inbox: It is the default folder where all the incoming or received emails are stored.

Sent: It keeps the record of all the outgoing or sent messages.

Trash: All the deleted emails are sent to trash folder.

Spam: It is a folder where undesired and suspicious emails are sent.

Q11. Label the appended button in paragraph and font tabs:

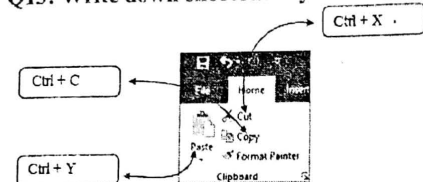


Q12. Write down keys for the descriptions given below:

Shortcut key	Description
Ctrl + F	Open find box
Ctrl + I	Italic highlighted selection.
Ctrl + E	Aligns the selected text or line to justify the page.
Ctrl + N	Opens new, blank document window
Ctrl + P	Open the print window

Ctrl + E	Aligns the line or selected text to the right of the page
Ctrl + S	Save the open document.
Ctrl + A	Underline the selected text
Ctrl + W	Close the currently open document
Ctrl + Z	Undo last action
Ctrl + Y	Redo the last action performed

Q13: Write down shortcut keys.



UNIT 3

ALGORITHMIC THINKING AND PROBLEM SOLVING

Exercise

Multiple choice questions:

1. What if the problem is poorly defined? It means

- (a) It is not properly understood and identified
- (b) An acceptable solution could not be designed
- (c) An acceptable solution could not be developed
- (d) All of above ✓

2. What should be written in the problem definition?

- (a) Solution
- (b) Situation ✓
- (c) Need
- (d) Behavior

3. Once a solution of problem is implemented, how are you going to ensure it is a correct solution? Through:

- (a) Programming language
- (b) Feedback ✓
- (c) Problem decomposition
- (d) Input

4. A key to a good implementation is:

- (a) Good problem analysis
- (b) Good design ✓
- (c) Feedback
- (d) All of them

5. Flowchart is the best way to depict:

- (a) Problem background
- (b) Proposed solution
- (c) Evaluation
- (d) All of the above ✓

6. An algorithm takes _____ and returns _____

- (a) Input, Output

- (b) Problem, Solution, ✓
- (c) Solution, Problem
- (d) Parameters, sequence of action #

7. The first step of problem analysis is _____

- (a) Problem decomposition
- (b) Problem identification ✓
- (c) Problem solution
- (d) Problem design

8. Breaking a complex problem down into smaller problems and solving each one individually.

- (a). Decomposition ✓
- (b) Abstraction
- (c) Programming
- (d) Algorithmic Thinking

SHORT RESPONSE QUESTIONS:

Q1 Why do we need to understand the problem area?

Ans: Understanding and identifying the problem area gives us a chance to solve the problem in better and clear way. Understanding problem area paves way for quick and better solution.

Q2. How to identify the problem?

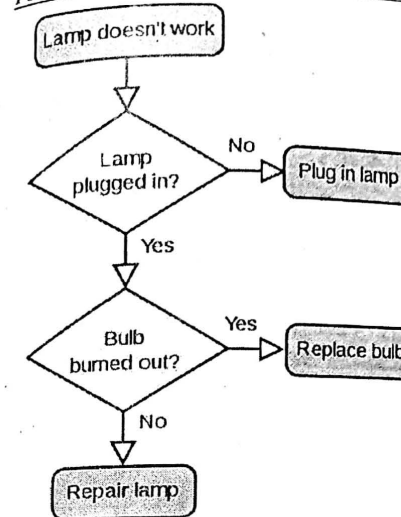
Ans: There are multiple ways to identify the problem such as through brainstorming, discussions and many more. After understanding and identifying a problem, the problem is stated in a clear and precise way and typically it is written in the context of need.

Q3. If the problem identified is too big to be fixed all at once, what mechanism could help you to better solve the problem?

Ans: At times, even when the problem is understood, it may be too big to fix the problem all at once. In this situation, its better to divide the problem into small and manageable components to better understand the problem and afterwards work on components one at a time.

Q4. Can we have more than one decision symbols in flow charts?

Ans: There is a possibility of more than one decision symbol in flowcharts. The flowchart is supposed to have a defined end. The possibility of multiple decision points, it may have multiple ends. Following is an example of a flowchart having multiple decision symbols.



Q5. Differentiate between flowchart and algorithm.

Flowchart	Algorithm
Block by block information diagram representing the data flow.	Step by step instructions representing the process of any solution.
It is a pictorial representation of a process.	It is a stepwise analysis of the work to be done.
The solution is shown in a graphical format.	The solution is shown in a non computer language like English.
Easy to understand as compared to the algorithm.	It is somewhat difficult to understand.
Easy to show branching and looping	Difficult to show branching and looping
Flowchart for a big problem is impractical.	The algorithm can be written for any problem
Easy to make a flowchart	Difficult to write compared to flowchart

6. Write down algorithm for adding two numbers.

Sol:

- Step 1: Start
- Step 2: Declare variables num1, num2, num3
- Step 3: Read values for num1, num2
- Step 4: Add num1 and num2 and assign the result to a variable sum.
- Step 5: Display sum

Step 6: Stop

ACTIVITY:

1. Write the following sentences using IF-THEN or IF-THEN-ELSE condition.

(i) If you do not win scholarship, your father will be very sad.

Ans: IF THEN

IF you do not win scholarship
THEN your father will be very sad

IF-THEN-ELSE

IF you do win scholarship
THEN your father will very happy
ELSE your father will be very sad.

(ii) If you don't brush your teeth regularly, your teeth decays.

IF THEN

IF you don't brush your teeth regularly, THEN your teeth decays.

IF THEN ELSE

IF you brush your teeth regularly
THEN your teeth stay healthy
ELSE your teeth decays.

(iii) If it rains tomorrow, i will stay at home otherwise i will go for a picnic.

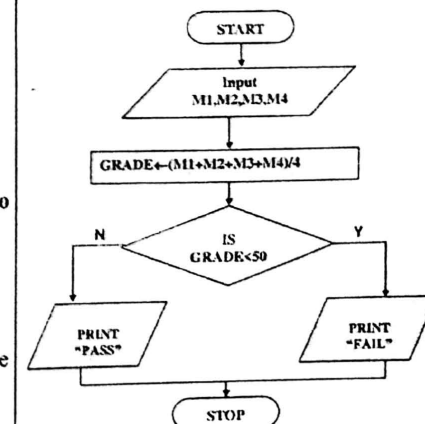
IF THEN ELSE

IF it rains tomorrow
THEN i will stay at home
ELSE i will go of a picnic.

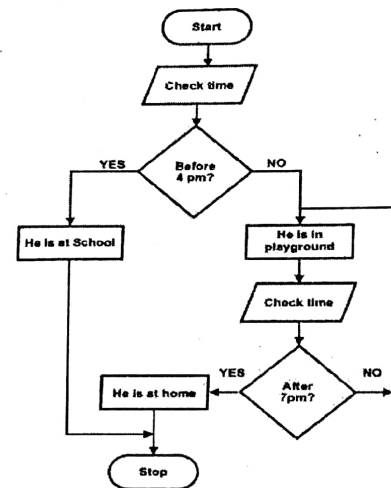
2. Draw a flowchart for the given situation for pass and fail remarks on the bases of obtained marks.

Grading Criteria

Marks obtained	Remarks
50% or more	Pass
Less Than 50%	Fail



3. See the following flowchart and define what the problem for which the solution was designed?



UNIT 4 PROGRAMMING

Exercise

Short Response questions

Q1. How information is stored on computer?

Ans: Digital devices store information in binary arrangement i.e in the form of 0s and 1s. The purpose is to store information at the time of need, is easily recoverable. Information is replicated from the computer's fundamental memory (Random Access Memory or RAM), and afterwards stored in the hard disk for permanent storage.

Q2. Convert the following decimal numbers to binary numbers:

a) 13

Divide by the base 2 to get the digits from the remainders:

Division by 2	Quotient	Remainder (Digit)	Bit #
(13)/2	6	1	0
(6)/2	3	0	1
(3)/2	1	1	2
(1)/2	0	1	3

$= (1101)_2$

b) 17

Divide by the base 2 to get the digits from the remainders:

Division by 2	Quotient	Remainder (Digit)	Bit #
(17)/2	8	1	0
(8)/2	4	0	1
(4)/2	2	0	2
(2)/2	1	0	3
(1)/2	0	1	4

$= (10001)_2$

c) 21

Divide by the base 2 to get the digits from the remainders:

Division by 2	Quotient	Remainder (Digit)	Bit #
(21)/2	10	1	0
(10)/2	5	0	1
(5)/2	2	1	2
(2)/2	1	0	3
(1)/2	0	1	4

$= (10101)_2$

d) 31

Divide by the base 2 to get the digits from the remainders:

Division by 2	Quotient	Remainder (Digit)	Bit #
(31)/2	15	1	0
(15)/2	7	1	1
(7)/2	3	1	2
(3)/2	1	1	3
(1)/2	0	1	4

$= (11111)_2$

Q3. Convert the following binary numbers to decimal numbers:

a) 1001

$$(1001)_2 = (1 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) = (9)_{10}$$

b) 1100

$$(1100)_2 = (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (0 \times 2^0) = (12)_{10}$$

c) 1000

$$(1000)_2 = (1 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) + (0 \times 2^0) = (8)_{10}$$

d) 1010

$$(1010)_2 = (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (0 \times 2^0) = (10)_{10}$$

Q4. What is the difference in visual outcome of Move and Glide commands?

Ans: In reality, objects moving to a different spot need to pass through all spots in between. Sprites don't need to do this, and can instantly teleport to wherever they need to go. This is the main difference between the move block and the glide block: Most Motion blocks work instantly, but the glide block will move a sprite through in-between points.

Q5. Differentiate Repeat and forever control commands. Give one example of problem for each where they can be used.

Ans:

Repeat Command	Forever Control Commands
Repeat command is used when a block of code is required to run for a given number of times.	Forever is a command that allows the code inside it to run forever. A user can use Stop button on top to end the loop. Forever block is used to run a block of code forever (until externally stopped).

Example: If 5 is used as an argument in repeat commands, it will repeat the code blocks inside the 'repeat' loop 5 times. For instance in the code below, figure will make the sprite to move 10 steps forward and play sound.



Then, sprite will take another 10 steps and

play the sound again. All together steps taken and playing of sound will iterate for 5 times

6. Write down the functions of the following commands if used with any sprite:

Moves the sprite smoothly towards the mouse pointer.

Changes sprite's y-position by specified amount. In the given situation, change y by -20 moves he sprite down 20 points.

7. What will the following two sets of codes do when Flag is pressed? If possible, try running these sets of codes on a computer after your answer and compare.



Ans: In both cases, when flag is pressed the sprite will move towards the mouse-pointer.

8. Which of the following can be used to start a set of codes? Tick which are appropriate.

☐ when green flag clicked
☐ when green flag clicked
☐ when green flag clicked
☐ when green flag clicked
☐ when green flag clicked
☐ when green flag clicked

Ans: (a), (d), (e)

9. What is the difference between the following two commands from Motion Category



Ans: Change 'y by 10'
The change command will move the sprite 10 number of steps upward.
Set 'y to 10'.

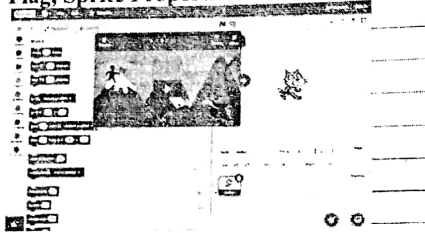
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The set command indicates specific coordinate to move to. Whenever space key is pressed and whatever the position of the sprite is, it will return to the position it was set to which in this case is 10.

10. Label the appropriate areas of the picture below using the given words: Stage, Sprite, Programming area, Blocks Palette, Flag, Sprite Properties



UNIT 5 DIGITAL CITIZENSHIP

Exercise.

Multiple choice questions:

1. The set of moral principles for responsible use of Internet, computer and ICT devices is known as:

- (a) Computer Education
- (b) Computer Ethics ✓
- (c) Online Safety
- (d) Internet Surfing

2. If you regularly back up your data, this is a _____ against the threat of data loss.

- (a) Firewall
- (b) Class
- (c) Security
- (d) Countermeasure ✓

3. A _____ is someone who uses a computer and a network or Internet connection to intrude into another computer system to perform an illegal act.

- (a) Hacker ✓
- (b) Programmer
- (c) Terrorist
- (d) Spammer

4. _____ is a form of warfare which is used by the cyber terrorists to harm or gain control of important computer systems.

- (a) Cyber hacking
- (b) Cyber tapping
- (c) Cybercrime ✓
- (d) Cyber terrorism

5. Which of the following crime is related to stealing personal information?

- (a) Cyber bullying
- (b) Digital Piracy
- (c) Identity Theft ✓
- (d) Plagiarism

Short response questions

Q1. What is intellectual property right?

Ans: Intellectual Property Right means a copyright, a legal right of a producer of a

product such as software or poetry etc. A producer has right to sue if someone violates the copyrights.

Q2. What is privacy? How can you protect yourself from online theft of your personal information?

Ans: Privacy is the right to be let alone, or freedom from interference or intrusion. Information privacy is the right to have some control over how your personal information is collected and used.

Protecting yourself from online theft:

1. Create Strong passwords:

When creating a password, think beyond words or numbers that a cybercriminal could easily figure out, like your birthday. Choose combinations of lower and upper-case letters, numbers, and symbols and change them periodically. It's also better to create a unique password instead of using the same password across multiple sites—a password manager tool can help you keep track.

2. Watch out for links and attachments:

Cybercriminals often compose their phishing scams to look like legitimate communications from a bank, utility company, or other corporate entity. Certain things like spelling errors or a different email address than the typical sender can be a clue that the email is spam.

3. Check to see if site is secure:

Before entering personal information into a website, take a look at the top of your browser. If there is a lock symbol and the URL begins with "https," that means the site is secure. There are a few other ways to determine if the site is trustworthy, such as a website privacy policy, contact information, or a "verified secure" seal.

4. Additional Protection:

Install anti-virus software, anti-spyware software, and a firewall. For additional protection, you may want to consider cyber insurance, which can keep you and your family safe if you fall victim to a cyberattack.

Q3. Define cybercrime and name different online cybercrimes.

Ans: Any illegal activity committed via computer and internet technology is known as cybercrime. Cybercrime may be committed by an individual or a group by having illegal access to computer systems.

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Cybercrime includes:

- Theft of information belonging to an individual, a business or an organization.
- Intentionally causing physical or mental harm or damaging the reputation of the victim.
- Stealing money via online banking.
- Harassing and stalking internet users.
- Spreading viruses or rumors.
- Posting negative comments about people.
- Sending threatening email
- Violation of copyright.
- Downloading illegal software.
- Using someone else's computer resources without permission.

Q4. What constitutes ethical issues in digital environment?

Ans: Most important Ethical issues in technology are

- Misuse of personal information
- Misinformation and deep fakes.
- Lack of oversight and acceptance of responsibility.
- Use of AI
- Autonomous technology
- Lack of corporate social responsibility.

Q5. Discuss the advantages of Medical Assistance.

Ans: Good medical assistance and facilities around the world have reduced patients around the world and people are getting cured effectively in a short span of time. Medical assistance via digital technology has enabled patients to consult and get advice from the specialists around the world in a real time situation. Medical assistants often take medical histories and record vital signs of patients and complete administrative and clinical tasks in the offices of physicians, hospitals, clinics etc. These records if required are shared with specialist doctors for advice.

UNIT 6 ENTREPRENEURSHIP IN THE DIGITAL AGE

Exercise

Multiple choice questions:

- 1. Design Thinking is a _____.
- (a) Way of thinking about design

(b) Method and mindset to define frame and solve problems

(c) Way to separate "thinking" from "making"

(d) Curriculum for teaching non-designers design

2. Design Thinking starts with _____.

(a) Sketching or prototyping with craft materials

(b) Sticky notes or note cards

(c) Empathy and an understanding of human needs

(d) Identifying solutions for your problem

3. Where does the information for defining the problem in the Define phase come from?

(a) The Testing Stage (b) The Prototype Stage

(c) The Ideate Stage (d) The Empathize Stage

4. What is the role of the Define stage of design thinking?

(a) To define the parameters for a prototype (b)

To define the audience, you're trying to reach

(c) To define the problem that needs to be solved

(d) To define all of the ideas for solving a problem

5. Design thinking typically helps in _____

(a) Innovation (b) Data analytics

(c) Financial planning

(d) Operational efficiency

Short response questions

Q1. What is the Design Thinking process?

Ans: Design thinking process is a creative problem solving mechanism which leads to better products and internal processes. Design thinking mechanism is used by teams within organizations to better understand user requirement, redefine problems and create innovative solutions to prototype and test.

Q2. Explain the stages of Design Thinking process.

Ans: The following are the stages of Design thinking process.

Empathize → Define → Ideate → Prototype → Test

These stages are not always sequential and teams often them in parallel, out of order and repeat them in an iterative fashion.

Q3. How do you empathize design thinking?

Ans: Empathize is the first stage of the design thinking process. One of the main objective of Empathize stage is to identify user needs and behaviors. Design teams conduct research to know the exact requirement of the user.

GEOGRAPHY 7

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UNIT 1
PLAINS AND RIVERS

Exercise

1. Choose the Correct Options:

1. The course of a river has _____ distinct stages.

- a. 3 ✓ b. 4
c. 5 d. 6

2. The movement of a large mass of sediment down the slope due to gravity is called _____

- a. Erosion b. Mass Wasting ✓
c. Weathering d. Denudation

3. Which of the following plays key role in shaping the landscape of the earth?

- a. Plateaus b. Mountains
c. Rivers ✓ d. Valleys

4. The speed of the river's water is fast in _____ stage.

- a. Youth ✓ b. Middle
c. Old d. Plain

5. Delta is a _____ landform formed by the materials, deposited by a river in its mouth.

- a. Square b. Triangular ✓
c. Rectangular d. Circular

6. V-shaped valleys are formed in _____ course of a river.

- a. Upper ✓ b. Middle
c. Lower d. middle and lower

7. Plunge pools are formed by _____

- a. Waterfalls ✓ b. Winds
c. Glaciers d. Cyclones

8. The River plunges down as a _____ from overhanging hard rock

- a. Waterfall ✓ b. Tributary
c. Distributary d. Delta

9. Loop like bends formed by the river in mature stages is called _____

- a. Meanders ✓ b. Braids
c. Slip off slopes d. Cliffs

10. A network of shallow river channels separated by small bars of sediment is _____

- a. meandering b. River braiding ✓
c. Delta d. Oxbow

2. Give Brief Answers to the Following Questions

1. What is a river system?

Ans: A river system consists of a catchment area, watershed divide, tributaries, and distributaries.

- Catchment area is the area of land which rain falls and is caught to serve a watershed.
- A watershed is an area drained by a main river and its tributaries. Boundary of a watershed is marked by a ridge of higher land which is called a divide. A divide separates one watershed from the neighbouring watershed.
- A river or water stream flowing into a larger river is called a tributary of the larger river.
- As river passes through a delta, it splits into channels called distributaries. Distributaries are common in river deltas.

2. How are depositional plains formed?

Ans: These are formed by the deposition of sediments on lowlands, brought by rivers, glaciers or the wind. The largest depositional plains are formed by the deposition of sediments by rivers. They are also termed as alluvial, flood or deltaic plains.

3. Differentiate between erosional and coastal plains?

Ans: **Erosional Plains:**

When a mountain or plateau area is reduced to a low lying plain by weathering and erosion over a very long period of time, an erosional plain is formed which is termed as peneplain. The plains of Northern Europe and Northern Canada are erosional plains.

Coastal Plains:

Coastal plains were formed when a part of the sea floor bordering a continent was uplifted. They occur in Scotland and along the South-East coast of the USA. In Pakistan coastal plains are located along Sindh and Makran coast.

4. Differentiate between plains and mountains?

Ans: A mountain is natural elevation of the earth's surface that rises at least 100 meters above sea level and at least 50% of its surface consists of steep slopes. Whereas, a plain is a flat or gently rolling land surface.

5. Compare hot and cold deserts?

Ans:

HOT DESERT	COLD DESERT
Deserts located in sub-tropical areas are hot. They include the Sahara	The tundra is a treeless plain located in the northernmost lands of

desert (North Africa), Great Australian Desert (Australia), Arabian Desert (Saudi Arabia), Dasht-e Lut (Iran), Thar Desert (Pakistan), Kalahari (Africa) and Mojave (North America). In summers average temperatures range between 26.7°C to 32.2°C and in winters average temperature is 15.5°C.

the Earth. It is a cold desert and is a desolate land covered with lakes, ponds, and marshes. Permafrost is an important feature of this climate. This climate is mainly located in Northern Hemisphere. It occupies the northern fringe of Asia, Europe, North American Islands, and coastland of Greenland.

3. Give detailed answers to the following questions?

1. What is a landform? Explain processes responsible for the change in landscape of the earth?

Ans: **Landforms:**

Landforms are natural features that make up the Earth's surface. These natural features have different profile and relief, therefore there exist a vast variety of landforms. The major landforms on the surface of the Earth are plains, plateaus, and mountains.

Process responsible for change in landscape of the earth:

There are two types of processes of the Earth, one develops many patterns and landscapes and changes these landscapes. Diastrophism, volcanoes, folding and faulting, originate in the interior of the earth and create mountain ranges, oceanic ridges, trenches and rift valleys. Other set of earth processes continuously evolve surface of the earth. These are weathering, erosion and mass movement.

i) **Weathering:** is breaking down of rocks of the surface of the earth by Mechanical or Chemical means.

a) **Mechanical weathering:** breaks the rock without changing their composition. It involves processes like freezing and thawing of water, expansion and contraction of rocks and wedging by plant roots.

b) **Chemical weathering:** It occurs when minerals of rocks react with water and gases of the earth's atmosphere. It produces new weaker substances by changing the composition of the minerals of rocks. The chemical weathering occurs through carbonation, oxidation and hydrolysis.

ii) **Mass wasting:** is the movement of large mass of sediments or a section of land, down a slope due to gravity.

iii) **Erosion:** is the wearing and removal of land surface by rivers, winds and glaciers. Erosion processes evolve the landforms in terms of elevation, shape and size. These agents pile up the materials in a process called deposition that results in the formation of new land forms. Rivers, winds and glaciers not only erode the respective land surfaces but they also carry eroded material down through transportation process.

2. What are physical feature of plains? Describe briefly how they are formed?

Ans: Plains are flat or gently rolling land surfaces. Rivers are among the major agents of change and play a key role in shaping the landscape of the earth. In plains they develop a variety of features out of which, following features are very common:

River Braiding: Bars of sediments build up in the course of the river and these bars divide the river into several channels. These channels converge and get separated by bars. The split of a river into several channels, that alternatively converge and get separated is termed as river braiding.

Meanders: They are rope like bends present in the plains. Due to sluggish flow of water Meanders become bigger, and sometimes two bends of a meander may come close to each other and form the neck of the meander. In case then river cuts through the neck of the meander to flow straight, the cut-off loop becomes separated and forms an ox-bow lake.

Flood Plains: In times of heavy rain, the river overflows its banks, this phenomenon is called flooding. The overflowing of water spreads over the land adjacent to both banks of the river and there it deposits sand, silt, and clay. The deposition results in the formation of the flood plains over time.

Levees: A river flow is fastest in the middle of the river and its speed is slowest at the sides along the river banks. This slow flowage of river water along its banks causes the dropping of much of the sand, silt and clay by its sides. This dropped material forms natural embankments called levees.

FORMATION OF PLAINS:

Rivers, glaciers and winds are major agents of change working on the surface of the Earth. These agents develop different types of plains through erosional and depositional processes. Erosion can be defined as the wearing away and removal of exposed land by river, wind and glacier. Depositional process is the accumulation of load carried by these agents.

i. **Erosional plains:** When a mountain or plateau area is reduced to a low lying plain by weathering and erosion over a very long period of time, an erosional plain is formed which is termed as peneplain. The plains of Northern Europe and Northern Canada are erosional plains.

ii. **Depositional Plains:** These are formed by the deposition of sediments on lowlands, brought by rivers, glaciers or the wind.

a. **River plains:** The largest depositional plains are formed by the deposition of sediments by rivers. They are also termed as alluvial, flood or deltaic plains. Such plains are ideal for farming as they are flat and fertile. The Indus plains in Pakistan are depositional Plains formed by the River Indus and its tributaries.

b. **Outwash / Till Plains:** Glaciers also spread sediments of various sizes to form outwash or till plains. They are located in Northern German and Midwest of USA.

c. **Loess Plains:** Loess plains are formed by deposition of very fine particles by wind known as Loess. Winds blew these particles from deserts. The Pampas of Argentina are loess covered plains.

iii. **Coastal Plains:** These plains were formed when a part of the sea floor bordering a continent was uplifted. They occur in Scotland and along the South-East coast of the USA. In Pakistan, coastal plains are located along Sindh and Makran coast.

iv. **Structural Plains:** They are formed by horizontally bedded rocks, relatively undistributed by the tectonic activities of the earth. They include the Russian platform, the great plains of the USA and the central lowlands of Australia.

3. Explain the importance of rivers in respect to biodiversity and economy?
Ans: Biodiversity is the term used to describe the range of different organisms that live in the

area, or it refers to variety of plants and animals species of an area. Rivers provide habitat to large number of plants and animals species.

Rivers conserve and sustain wetlands which are breeding grounds of many species. Wetlands are area where soil remain saturated or flooded.

Rivers are also important in terms of economy as large numbers of people are engaged in economic activities like agriculture and fishing. These are primary activities of the people, and are directly linked to rivers for irrigation. Rivers also provide fertility to soil. Sediment settles from the slow-moving floodwaters to form broad floodplains and fertile soils that make excellent farmland. Rivers are also mode of producing Hydroelectric power. Hydroelectric power is the cheapest mean of energy. Economic development of countries now is dependent on supply of power resources. Rivers also provide cheapest mean of transportation as compared to air and land transportation.

Unit 2 Water Sources and Management Exercise

1. Choose the correct options

1. The Biggest sources of water on the earth are _____

- a. Springs b. Waterfalls
c. Seas d. Oceans✓

2. Which one of the following are subsurface sources of water?

- a. Rivers b. Lakes
c. Aquifers✓ d. Glaciers

3. The most important sources of water for Agriculture in arid regions is _____

- a. Springs b. Sea water
c. Glaciers d. Rainfall✓

4. Sewage waste can be used for _____ due to high organic content and plant nutrients.

- a. Drinking b. Bathing
c. Washing d. Irrigation✓

5. The River _____ is the main resource of water in Pakistan.

- a. Hub b. Indus✓
c. Chenab d. Kabul

6. Rivers contain _____ of all the water on the planet.

- a. 2%
b. 0.0002% ✓
c. 0.02%
d. 12%

7. Approximately Droplet size of the drizzle is _____

- a. 0.5 to 5 mm
b. 5 mm
c. 6 mm
d. less than 0.5 mm ✓

8. Which one of the following is largest dam?

- a. Hub Dam
b. Mangla Dam ✓
c. Rawal Dam
d. Khan Pur Dam

9. Manchar lake is a famous large freshwater lake in _____ province

- a. Punjab
b. Sindh ✓
c. Balochistan
d. Khyber Pakhtunkhwa

10. All forms of water that fall from the clouds is called _____

- a. Water vapours
b. Winds
c. Precipitation ✓
d. Humidity

2. Give Brief answer of the following questions.

1. Describe four ways to solve the shortage of water in Pakistan.

Ans:

- Implementation of city planning to make sure the proper access to water for domestic use.
- Reduction of deforestation in order to increase the groundwater recharge.
- Use of better irrigation water management strategies to make good and efficient use of water for agricultural purposes.
- Ensure equitable water distribution between the agricultural and domestic sectors.

2. Name two solid and two liquid form of precipitation?

Ans: i. **Drizzle:** It is a liquid form of precipitation consisting of very small drops of water. Approximate droplet size of the drizzle is less than 0.5mm.

ii. **Rain:** Rainfall is the most common form of precipitation. It consists of drops of liquid water. Approximate droplet size of the rain is 0.5 to 5 mm.

iii. **Snow:** Snow is the solid form of the precipitation such as ice crystals, small pellets, or flakes.

iv. **Sleet:** When the precipitation is in the form of a mixture of rain and snow, it is referred to as sleet.

3. How is Biogas prepared and what is its main disadvantage?

Ans: Biological treatment of sewage can produce useful gases such as biogas that can be used as energy sources. The method used for this purpose is called anaerobic digestion and the equipment used for this purpose is called an anaerobic digester. Sewage is pumped into anaerobic digestion tanks where anaerobic bacteria breaks it down in the absence of oxygen. One of the main by-products of this process is biogas, which is then collected from the anaerobic digestion tanks with the help of equipment called biogas recovery units.

The main disadvantage of biogas is that when it is used as a fuel, methane gas is released into the atmosphere and since it is one of the most potent greenhouse gas, it can greatly contribute to global warming.

4. What is water cycle? How does it work?

Ans: **Water cycle:**

Water cycle, powered by solar heat is constantly transforming and transporting water around the Earth, to maintain the water supply of the Earth.

Working:

High earth surface temperatures cause evaporation from surface water sources like oceans, seas, rivers and lakes. The resulting water vapour rises in the atmosphere along with the air, until it encounters cooler temperatures. These cooler temperatures cause the transformation of water vapour into clouds due to the process of condensation. Clouds result in precipitation in the form of rain, snow and hail. This precipitation adds water back into the oceans, lakes, rivers, and groundwater reserves.

5. Name four main water sources of Pakistan?

Ans: Four main sources of water are Oceans, lakes, rivers, and Aquifers.

3. Give Detail answers to the following questions

1. Explain the reasons of scarcity of drinking water in cities?

Ans: The rapid increase in population and especially urbanization in developing countries have raised serious concerns for people living in cities. The major problem they face is that of scarcity of water. Larger cities in most developing countries are presently facing this issue. Some reasons behind this problem are:

i) Climate change is causing decreased rainfall across many regions of the world and a reduction in rainfall means a reduction in the fresh water resources available for drinking.

ii) The ground surface of urban areas are invariably covered with concrete buildings and asphalt roads. This leaves very little bare ground to absorb rainwater, and without much rainwater absorption/ seepage it becomes very difficult to recharge groundwater. When ground water is not recharged, the water table begins to fall and people have a hard time accessing it for domestic use.

iii) Lack of proper city planning is also cause of water scarcity in cities. In Pakistan, most of the existing cities are unplanned and their rapidly expanding population does not have access to water for domestic use.

2. Briefly explain the water sources of world?

Ans: There are numerous sources of water on the earth, ranging from surface sources to underground sources.

Water sources of the world:

i. **Oceans:**

Oceans are the biggest source of water on the Earth. The five oceans of the world i.e Pacific Ocean, Atlantic Ocean, Indian Ocean, Arctic Ocean and the Southern/Antarctic Ocean, contain approximately 97% of all waters on the planet.

ii. **Lakes:**

Lakes are sources of surface-water. Water from precipitation or rivers accumulate in depressions on the Earth's surface to form lakes. Sometimes lake form in area where groundwater seeps up to the surface to form a lake. This activity takes place in areas where water lies at less depth. Lakes contain 0.008% of all the water on the planet.

iii. **Rivers:**

Rivers or streams are the natural pathways of rainwater and melted water flowing across the surface of the Earth from higher to lower elevations. They discharge their water in oceans, seas and lakes. Rivers contain 0.0002% of all the water on the planet.

iv. **Aquifers:**

Aquifers are subsurface sources of the water. Aquifers contain 0.9% of all the water on the planet.

v. **Glaciers and Ice Caps:**

Glaciers and ice caps are fresh water sources in frozen form. They are formed when snow accumulates over land areas for long period of time. They are found in regions of high elevation and areas close to the North and South poles, and they stored more than a third of the earth's fresh water. Glaciers and ice caps contain about 2% of all the water on the planet.

vi. **Rainfall:**

Rainfall is one of the most important sources of water for agriculture in arid regions. It is seasonal in nature. Two thirds of

vii. **Springs:**

Springs are naturally occurring freshwater sources found in those places where the water table is located close to the earth's surface. They obtain there water either from aquifers or from underground streams. Springs located in regions of volcanoes have hot water, while springs found in area where no volcanic activity takes place produce cold water.

viii. **Ponds:**

Ponds are surface of water source that are mostly smaller than lakes. Some ponds occur naturally while others are man-made. The main source of water for naturally occurring ponds is rainfall. Pond water is often used for irrigation, fishing and landscaping.

3. What are different water purification methods? Describe two of them?

Ans: Sewage, chemicals, hydrocarbons, bacteria, viruses and fertilizers, can contaminate water. To make contaminated water fit for human consumption, these harmful ingredients must be removed from water with the help of purifying processes.

Following are two methods of many used for water purification.

i. **Distillation:**

Distillation is a filtration method that has been used for a long time. This process starts by heating water in a container until it reaches boiling point. The water vapors that rise upward during this process are cooled and condensed from the original container. Through condensation, the water vapour becomes liquid water and are collected as purified water and the heavier contaminants stay behind in the original container.

ii. **Reverse Osmosis:**

Reverse osmosis is a purification process that utilizes a semi-permeable membrane. Pumps

are used to push the impure water into the membrane that blocks most of the impurities while letting purified water go through to the other side.

UNIT 3

SETTLEMENT AND LAND USE

Exercise

1. Choose the correct options:

1. The smallest form of human settlement is

- a. Hamlet b. Village
c. Town d. Farmstead ✓

2. Islamabad is an example of a _____ city.

- a. Religious b. Ancient
c. Administrative ✓ d. Industrial

3. Karachi can be classified as a _____

- a. City b. Megalopolis ✓
c. Town d. Hamlet

4. Which of the following activity dominant in rural settlement?

- a. Agriculture ✓ b. Industrial
c. Educational d. Recreational

5. The city of Makkah is an example of:

- a. Industrial c. Administrative
c. Religious city ✓ d. Educational city

6. Which is the correct order of settlement pyramid?

- a. Hamlet, village, town, city, metropolis ✓
b. village, hamlet, town, city, metropolis
c. Town, hamlet, village, city, metropolis
d. City, village, town, hamlet, metropolis

7. Most of the population in urban areas in engaged in following activities.

- a. Farming b. Hunting
c. Mining d. Industry ✓

8. Which of the following geographic feature helped in the rapid growth of Karachi?

- a. Sea port ✓ b. Indus River
c. Fertile land d. Industry

2. Give brief answer to the following questions.

1. Define human settlement?

Ans: A settlement is a place where people dwell, live together and carry out their social and economic activities. Human settlements can be a temporary dwelling or permanent place to live in. They include Huts, Hamlets, villages, towns, and mega cities.

2. Describe different types of activities people living in urban area?

Ans: Various activities are performed by people living in urban areas. Some of them are as follows:

- People are engaged in secondary and tertiary economic activities such as manufacturing, trading, and business on large scale.
- Services like banking, medicine, higher education and entertainment are also offered here.
- Urban settlements are usually well laid out on geometrical pattern.
- Lifestyle of people living here is more advanced and faster than people living in rural settings.
- In some cities, one particular activity is predominant and the city is known for that function. For example,
 - Educational towns like Oxford and Lahore.
 - Administrative cities like Islamabad and Washington D.C
 - Religious centres like Makkah and Medina.
 - Defence towns like Cantt. Garrison and naval bases.

3. What are major types of settlement in Pakistan?

Ans: There are two main types of settlements in Pakistan; Rural settlement and urban settlements.

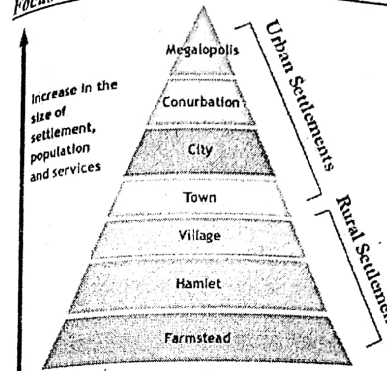
4. How many types of linear settlement are found in Pakistan? Give some example?

Ans: A linear settlement can be seen along rivers, channels, roads and coastlines. Swat valley of Pakistan provides an impressive scene of linear settlement for a long distance along the river.

3. Give detailed answer to the following Questions:

1. Draw a pyramid of settlement hierarchy and explain the main types of settlement?

Ans:



Ans: Human settlements can be divided into two main types i.e urban and rural. Generally we classify the settlements on the basis of population size, occupation, facilities and services being provided there.

i. Rural settlement:

A kind of settlement, which is small in area, and population size with homogenous people that know one another. Rural settlements are mostly close to nature. About two third of the total population live in rural areas called villages. As people are close to each other in rural settlements, they develop a good bond and a strong relationship, common interests and share basic facilities. There are three main types of rural settlements. Farmstead, Hamlet and villages.

Farmstead: A type of settlement consisting of one house is called Farmstead.

Hamlet: Small rural settlements consisting of few houses.

Village: Large rural settlements having a small market and mud or semi cemented houses. Its population can be of 5000 people.

Rural settlements in Pakistan can be categorized into major three types on the basis of pattern – clustered, Nucleated, and Dispersed. Clustered and Nucleated settlements are found in fertile plains of Punjab and Sindh. Linear pattern can also be seen mostly along rivers and roads in mountain valley.

Functions of Rural settlements:

Primary activities of rural settlers include agriculture, mining, forestry, fishing and craft work. Minor commercial activities involve trading, using small shops and local markets for daily use. Schools and post office is generally found in rural areas.

ii. Urban settlement:

Urban settlements are relatively large densely populated settlement with social heterogeneous people who do not know each other. Urban settlements are usually compact in nature and have nucleated settlements. They have developed infrastructure.

There are four main types of urban settlements and these are:

Town: A town is larger than a village but smaller than a city. It provides higher level of services such as bank, post office, hospital and school. A town has a population of 1 to 20,000 people.

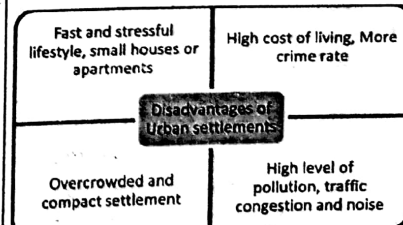
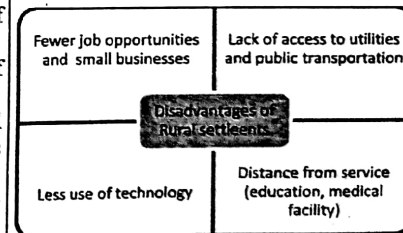
City: A city is greater in size than a town and has more specialized functions like commercial centres, housing societies, colleges, universities, recreational centres, and transportation population of cities ranges from 1 lac to 10 lac.

Conurbation: This is made of several towns joined together but each town still maintains its identity. Such as Rawalpindi-Islamabad.

Metropolis: This is the largest type of Urban settlement. Usually its population is about 10 million. Karachi, Calcutta, Mumbai and New York are its examples.

2. Discuss the disadvantages of rural and urban settlement by using an organogram?

Ans:



3. Compare urban rural settlements on the basis of functions performed there?

Ans:

Functions of Rural settlements	Functions of Urban settlements
1. Primary activities include agriculture, mining, forestry, fishing and craft work	1. Economic activities include manufacturing, trading, and business on large scale.
2. Commercial activities are minor trades and using of small shops and local markets.	2. Service like banking, medicine, higher education and entertainment are also offered there.
3. School and post office exist.	3. Lifestyle is more advanced and faster than people living in rural settings.
4. Masjid for religious activities.	4. In some cities, one particular is predominant and the city is known for that function.
	i. Educational town like Oxford and Lahore.
	ii. Administrative cities like Islamabad and D.C
	iii. Religious centres like Makkah and Medina.
	iv. Defense towns like Cantt. Garrison and naval bases.

UNIT 4 AGRICULTURE

Exercise

1. Choose the correct options

1. Agriculture is the practice of cultivating _____ and livestock.

- a. Trees b. Crops✓
c. Herbs d. Worms

2. A system to grow many plants of different species in the same area is called _____

- a. Agro-forestry b. Crop rotation
c. Mixed crop d. Poly culture✓

3. Which one of this is considered as the backbone of Pakistan's economy?

- a. Tress b. Fishing
c. Agriculture✓ d. Imports

4. In Rural areas of Pakistan families raise animal's for _____ purposes.

- a. Social b. Cultural
c. Commercial✓ d. Recreational

5. Pakistan has _____ cropping seasons.

- a. 2✓ b. 3 c. 4 d. 5

6. Pakistan's agriculture sector plays a central role in the economy as it contributes _____ to GDP.

- a. 18.9%✓ b. 19% c. 20% d. 60%

7. Agriculture is the _____ example of _____ activity

- a. Primary✓ b. Secondary
c. Tertiary d. Quaternary

8. Excesses agriculture land use can also result in increased _____ erosion.

- a. Water b. Glacial
c. Soil✓ d. coastal

9. It is estimated that _____ of global greenhouse gas emissions are caused by the livestock's.

- a. 14.5%✓ b. 25%
c. 30% d. 50%

10. More than _____ percent of the population depends on agriculture for its food.

- a. 65-70✓ b. 70-80
c. 80-90 d. 40-50

2. Give brief answer of the following questions

1. What are different types of Agriculture?

Ans: There are two main types of Agriculture.

Commercial agriculture:

It is the type of agriculture where large quantities of crops and livestock are produced through industrialized techniques for the purposes of sale. The goal of industrialized agriculture is to increase crop yield.

Subsistence agriculture:

It is the form of agriculture in which a farmer lives on a small amount of land and produces enough food to feed his or her household and have a small cash crop. The goal of subsistence agriculture is to produce food for a family. In case of excess production of food it is sold locally.

2. What is value of agriculture in Pakistan economy?

Ans: Agriculture is important to Pakistan's economic growth due to its role in food security, employment generation and poverty alleviation. It contributes 18.9 percent to the GDP and provides employment to around 42.3 % of the labor force. More than 65-70% of the population depends on agriculture for its livelihood. It is also an important source of foreign exchange earnings and stimulates growth in other sectors. The government is focusing on supporting small farmers to promote growth in this sector.

3. Name four Rabi crops of Pakistan?

Ans: Rabi season begins in October - November and lasts till April-May. Wheat,

gram, lentil (masoor), rapeseed, barley and mustard are Rabi crops.

4. Name four Kharif crops of Pakistan?

Ans: Kharif season starts from April and lasts till September. Rice, Sugarcane, cotton, maize, moong, mash, bajra, and jowar are Kharif crops.

5. Identify four methods of Agriculture?

Ans: There are four farming methods in agriculture.

i. Agro forestry: One of the oldest farming methods. It is planting of trees to protect the crops. It is a system of land use in which trees are grown around the crops.

ii. Crop rotation: the practice of different crops on the same land according to seasons is crop rotation.

iii. Intercropping/ Mixed crops: Sowing more than one crop at the same time is intercropping /mixed cropping.

iv. Poly culture: It is a system to grow many plants of different species in the same area.

3. Give detailed answers to the following questions.

1. Describe impacts of livestock's farming on the environment?

Ans: In rural areas of Pakistan families raise animals for domestic and commercial purposes. The livestock industry has many impacts on the environment.

Livestock farming plays key role in climate change. It is estimated that 14.5% of global greenhouse gas emissions are caused by the livestock. Role of livestock farming in polluting the atmosphere is more significant than transportation.

The increasing demand for livestock products has caused cutting of forests and turning land into pastures for livestock farming.

Production of animal food products is the greatest agricultural causes of water pollution.

The water pollution is caused by animal excreta, antibiotics, fertilizers and pesticides used in agricultural production.

2. Describe raw materials from fishing and farming that help to generate revenue?

Ans: A. Raw materials from Fishery:

i. Animal feed:

Offal from the fishing industry can be used a food ingredient, as it is source of protein.

ii. Oil:

Fishes contains large amount of oil. In some developed countries this product generates large amount of revenues.

iii. Food industry/ cosmetics:

Seafood waste can be used in food industry. This waste include enzymes, gelatine, and proteins that have antimicrobial and antitumor capabilities. Chitosan, produced from shrimp and crab shell, has applications in cosmetic and pharmaceutical industries.

B. Raw materials from Farming:

Materials left on land after the crop has been harvested are termed as crop residues. Crop residues is considered to be an effective anti-erosion measure. Crop residues can improve soil structure, increase organic matter content in the soil, reduce evaporation, and help fix carbon dioxide in the soil.

Good residue management have many positive impacts on soil quality. It is also used for generating biogas and some remains are used as animal fodder, sugarcane residues are used for making chip-board. Crops residues help to generate revenues.

3. Differentiate between staple and cash crops?

Ans: An agricultural crop that is grown for sale to return a profit is called a cash crop and an agricultural crop that is grown for human consumption is called a staple crop.

Staple crops	Cash crops
The major purpose of staple crops is mainly to feed the farmers.	The major purpose of cash crops is to make a profit.
Grown for local markets	Grown for local and international markets.
Simple farming methods are used just to sustain the domestic needs.	Complex farming methods are used to increase the output.
Does not involve many risks because the quantity of production is low.	It involves many risks such as land degradation, quality and quantity of production and price availability.
Not much emphasis has been put on crop productivity	A lot of emphasis have been put on crop productivity.
It doesn't need a lot of capital to start.	Need a lot of capital to start.

UNIT 5 CLIMATE CHANGE

Exercise

1. Choose the correct options

1. Primarily the greatest global threat of the present century is _____

- a. Air pollution b. Water Pollution
c. Flood d. Climate change ✓

2. Both the _____ and manmade factors have contributed to climate change,

- a. Natural ✓ b. Artificial
c. Cultural d. anthropogenic

3. without greenhouse effect, the earth would be too _____ to live.

- a. Hot b. Cold ✓
c. dark d. Humid

4. An increase in average temperature of the earth is called _____

- a. Weather b. Climate
c. Climate change
d. Global warming ✓

5. The _____ gases are good absorber of the earth radiations.

- a. Greenhouse b. Ozone ✓
c. Noble
d. chlorofluorocarbons

6. Ozone layer is found in the _____ layer of atmosphere

- a. Troposphere b. Stratosphere ✓
c. Thermosphere d. Mesosphere

7. An increase in the amount of _____ in the atmosphere is the cause of global warming.

- a. Oxygen b. Nitrogen
c. Carbon dioxide ✓ d. Hydrogen

8. The Winters are getting _____ due to the effects of climate change.

- a. Longer b. Shorter ✓
c. Brighter d. Darker

9. The _____ countries are more prone to the harmful effects of climate change.

- a. Developing ✓ b. Developed
c. modern d. Rich

10. The Ozone hole has developed over _____

- a. Europe b. Asia
c. Antarctica ✓ d. Africa

2. Give brief answer to the following questions

1. What is the difference between Weather and Climate?

Ans: **Weather** is the atmospheric condition at a particular place over a short period of time. The important elements of weather are temperature, atmospheric pressure, wind, humidity and precipitation. Weather is a short term aspect of climate. **Climate** is the average weather conditions or the weather patterns that an area usually experiences over a longer period of time.

2. What is meant by climate change?

Ans: Climate change is a long-term change in the average weather of a particular region or the whole world. This is an unexpected change in the global climate and usually occurs in decades or million of years.

3. What does the greenhouse effect mean?

Ans: The natural warming of the surface of the earth and lower atmosphere due to the presence of greenhouse gases in the atmosphere is called the Greenhouse effect.

4. How does climate change affect the people of Pakistan?

Ans: The effects of climate change can be severe and devastating on a country like Pakistan which largely relies on agriculture and related industries for their economic growth. Climate change will badly affect our irrigation system. Scarcity of water may lead to poor agriculture. The fluctuating nature of monsoon will also affect agriculture. Flood due to melting of ice and glaciers are another negative impact of climate change. Population residing in lowland flood plains of Punjab and Sindh will be most affected by floods. Climate change may disturb our ecosystem and biodiversity related fields such as forestry and fisheries.

5. How does the ozone layer protect life on earth?

Ans: The presence of ozone layer is essential because it protects the earth from harmful ultraviolet radiations from the sun. Ultraviolet radiations can cause the risk of skin cancer, headaches, eye diseases, and other health problems in humans. It can also damage the plant life and aquatic ecosystems.

3. Give detailed answers to the following Questions

1. Describe the main causes of climate change in the world?

Ans: Both natural and man-made factors are responsible for causing climate change. However, man-made factors outweigh the

natural factors. The main human activities responsible for this increase are the combustion of fossil fuels, excessive agriculture, deforestation, urbanization and air pollution. Agriculture, deforestation and other land use contribute to climate change. It generates approximately 25% of total greenhouse emissions. Due to man-made activities not only are we facing issues due to climate change but it has also led to increase in global warming. The causes of global warming are same as combustion of fuels either from industry or transportation. Deforestation is also responsible for this disaster as it lessen the earth's ability to cool its climate.

2. How is climate change affecting the world?

Ans: The effects of climate change are as follows:

- Desertification, rising sea levels, melting of ice and glaciers, recurrent occurring of floods and droughts.
- Rising sea levels poses a great threat to the coastal life all around the world including farmland, housing and recreational areas such as beaches etc. Changing of weather patterns: Winters are getting shorter and the summers longer.
- Due to climate change plant and animal species have got extinct. Fruits and vegetables are blooming earlier. Many animals and birds are moving to cold climates for survival. Coral reefs and sea life is also facing the threat of climate change.
- The extreme weather conditions such as heat waves and storms have now become more common.
- The oceans current pattern is also changing due to climate change.
- Climate change is threatening the landforms as well. It is threatening our unique permafrost landforms as they are extremely sensitive to global warming. As the ice melts, the landforms of the Arctic region will change dramatically. Landforms especially in cold regions collapse and gradually disappear from the earth due to extreme weather.

- Climate change affects the frequency and intensity of landslides. Landslides can destroy forest areas, damage landforms and natural resources. It may increase the risk of floods as broken rock materials block rivers.
- Climate change has also contributed toward poverty. The funds allocated for tackling poverty are spent on minimizing climate change.

3. What can we do to minimize the impacts of climate change?

Ans: Individuals and governments both need to step up and play a collective role to fight against the impact of climate change. Some of suggestions and recommendations are given below:

i. Reduce the use of Plastic:

About 8 million tons of plastic makes it way to oceans and seas which kills more than 1.1 million sea birds and animals. We should focus on using alternatives of plastic.

ii. Plant trees:

The second most significant way to preserve our planet is to start reforestation of trees which provide food and oxygen. They help to save energy, clean the air and in combating climate change.

iii. Drive less walk more:

Driving vehicles and other automobiles contribute towards pollution. Limiting its use will reduce the emission of greenhouse gases.

iv. Save water:

Water is wasted more frequently than we can see turn off the faucet as you are brushing your teeth; don't turn your shower on until you are ready to get in and wash your hair and limit your water usage as you wash dishes.

v. Save Electricity:

Saving electricity can reduce pollution, carbon dioxide emissions, oil consumptions and even the creation of more power plants so efficient use of electricity should be encouraged.

vi. Reduce food wastage:

Statistics show that the United States 40% of food is wasted annually, minimizing food wastage reduces Methane emissions from landfills, lower your carbon footprint, and conserves energy and resources.

vii. Go Green:

We should always shop wisely by only buying sustainable products like always look for non-

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plastic products for example bamboo, toothbrushes, bamboo cutlery sets, cotton produce bags, non-woven grocery bags and eco-friendly stores.

We need to minimize the use of plastic, buy energy-efficient home appliances, need to walk or use bicycle for small distances and most importantly plant trees.

UNIT 6 MINERAL AND POWER RESOURCES

Exercise

1. Choose the correct option:

1. Most of metallic minerals are:
a. Ferrous ✓ b. Renewable
c. Non-ferrous d. Precious

2. Province Balochistan is rich in _____

- a. Fishery b. Forest
c. Minerals ✓ d. Industries

3. Huge salt mines are found in Pakistan at:

- a. Sibi b. Rohri
c. Khewra ✓ d. Kohat

4. Aluminium is used in making

- a. Jewellery b. Cement
c. Fertilizer d. Air crafts ✓

5. Limestone, gypsum, clay and chalk are used in _____ industry.

- a. Paper b. Textile
c. Cement ✓ d. Plastic

6. Which of the following is a renewable resource?

- a. Coal b. Oil
c. Gas d. Water ✓

7. Wind mills are used to generate _____

- a. Electricity ✓ b. Heat
c. Air d. Tides

8. The world's second most popular source of electricity after coal is

- a. Hydroelectricity ✓ b. Gas
c. Wind d. Soil

9. In Pakistan oil was first discovered at Sui in Balochistan

- a. 1940 b. 1952 ✓
c. 1960 d. 1947

2. Give Brief answers to the following questions

1. Define the following

- (a) Fossils Fuels
(b) Mineral; and their types

Ans: Fossil fuels:

Geography -7

Fossil fuels are made from decomposing plants and animals. These fuels are found in the Earth's crust and contain carbon and hydrogen which can be burned for energy. Coal, oil and natural gas are examples of fossil fuels.

Minerals and their types:

Minerals are substances that are formed naturally in the earth by geological processes such as volcanic action, heat or pressure. They are inorganic.

2. Why is coal mining a risky Profession?

Ans: Employee safety is a major risk included in coal mining. Toxic fumes and coal dust can enter worker's lungs, causing major health issues such as asthma, black lungs cancer and chronic bronchitis. Lifting heavy load can cause back injuries and pulled muscles. Some coal mines collapse due to explosion, and miners die every day in such accidents. There is also a lack of medical facilities for miners. In case of accident help is slow to arrive. A recent explosion in a coal mine in Pakistan due to methane gas killed four mine workers.

3. What makes gemstone mining difficult in Pakistan?

Ans: There are several factors that make gemstone mining difficult in Pakistan.

- Most gem mines are located in high altitude in Pakistan. These areas remain usually frozen, so mining season is very short.
- Mining companies in Pakistan do not have modern mining equipments, safety standards and expertise of mining engineers.
- Difficult supplies to gemstone mines in Pakistan.

4. Solar energy is cheap and environment friendly source of energy. Describe briefly.

Ans: Solar energy means the energy obtained from sun. It is free and does not cause pollution. Solar panels convert the sun's energy into electricity that can either be used immediately or stored in batteries for later use. However, it generates limited amount of energy.

3. Give detailed answer to the following questions.**1. Write in detail about the non-metallic minerals found in Pakistan?**

Ans: Non-metallic minerals:

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Geography -7

- Non-metallic minerals do not contain metals elements.

- They do not have shiny surfaces.

- They cannot be transformed into new product when they are melted.

- They are found all over the world and are mined or quarried and then treated in different ways, such as cutting, grinding, heating, mixing, shaping and purifying.

- Pakistan also has deposits of non-metallic minerals such as Petroleum, natural gas, common salt, limestone, marble and gypsum.

- **Sulphur:** It is used in ordinance factory, Sulphuric acid, chemical industry, medicine manufacturing industry, safety match industry, preparation of ammonium sulphate fertilizer, preparation of paints and colours. It is found in Sultan mountains - Chaghi district, Kalat (Balochistan). Sulphur's reserves are also found in Karachi, Hyderabad (Sindh), Peshawar and Chitral (KP).

- **Salt:** Huge reserves of rock salt are found in salt mountain in Khewra. Other salt deposits are also found in Kalabagh, Warcha and Bahadur Khel.

- **Gypsum:** In Pakistan gypsum is found in Khewra, Daud Khel, Quaidabad, Rohri, Kohat, DG Khan, Loralai, and Sibbi. It is used as a raw material in fertilizer, Cement, paper, plaster of paris, paint and polish industry.

- **Limestone:** It is mostly found in northern and western mountainous areas of Pakistan. Reserves of limestones are found in Rohri, Hyderabad, Daud khel, Wah, DG Khan, Kohat, Nowshera, Sibbi and Khuzdar.

- **Marble:** Marble is used for floors and walls in construction of buildings. These are different types and colours of marble in Pakistan. There are reserves of marble in Mardan, Swat, Nowshera, Hazara, Gilgit, Chagi, Gilgit and Attock.

2. Explain the use of gas and petroleum?

Ans: Gas and Petroleum are both very critical to the needs of Pakistan. Our economy and industry heavily relies on these energy resources for growth and survival.

Pakistan's oil reserves are insufficient to meet the requirements of the country. To address the shortfall we import oil from Middle East and other European countries. Oil is mostly consumed for thermal power projects, generation of electricity and transport.

Natural gas is used domestically, commercially and industrially in Pakistan. It is also used in electric power stations to generate heat to turn water into steam so as to run the steam turbines that generate electricity. Out of the total requirement of energy resource in Pakistan 35% is fulfilled by natural gas.

3. Identify some industries related to minerals and power in Pakistan?**Ans: (i) Iron and steel industry:**

The iron and steel industry is the basic industry on which all other industries depend. The main raw materials used in the iron and steel industry are iron ore, coal and limestone. The raw material is used for the manufacturing of a number of other products such as heavy machinery, and railway coaches. Steel is used for manufacturing of various products such as consumer and engineering goods, Medical and scientific equipment, energy and electric equipment. The first iron steel mill started in Karachi in 1973 with the cooperation of Soviet Union.

(ii) Fertilizer industry:

In 1947, when Pakistan got independence, the country had no fertilizer factory whereas now a number of factories are working at Daud Khel, Multan and Faisalabad. Phosphate and Potassium are major ingredients of fertilizer, taken from phosphate rock and potash.

(iii) Chemical Industry:

Pakistan is blessed with a thriving chemical industry having the potential to become a strong regional producer. There are more than 24 major chemical factories in the country. These produce Soda Ash, Sulphuric acid, caustic soda, chlorine gas, synthetic fiber, plastics, acid fertilizers, and other chemicals by converting raw material (oil, natural gas, air, water, metals, and minerals) into more than 70,000 different products.

(iv) Cement Industry:

Cement is an essential building block of development in the country. It is used in construction of roads, dams, airports, bridges, factories, housing colonies and shopping malls. Pakistan is top 5th and exporter and 14th largest cement producer in the world. There are currently 24 cement plants in Pakistan.

(v) Aluminium Industry:

Aluminium smelting is an important metallurgical industry in Pakistan. It is used to manufacture aircrafts, utensils, and wires. Alumina and Bauxite are the two main raw materials in Aluminium making process.

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