SAMPLE QUESTION PAPER (THEORY)
CLASS: XII SESSION: 2024-25
COMPUTER SCIENCE (083)

Time allowed: 3 Hours **Maximum Marks: 70**

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1.	State True or False: The Python interpreter handles logical errors during code execution.	(1)

2.	Identify the output of the following code snippet:
	`text = "PYTHONPROGRAM"`
	`text=text.replace('PY','#')`
	`print(text)`
	(A) #THONPROGRAM
	(B) ##THON#ROGRAM
	(C) #THON#ROGRAM
	(D) #YTHON#ROGRAM
		(1)

3.	Which of the following expressions evaluates to False? (A) not(True) and False (B) True or False (C) not(False and True) (D) True and not(False)	(1)

4.	What is the output of the expression?
	`country='International'`
	`print(country.split("n"))`
	(A) ('I', 'ter', 'atio', 'al')
	(B) ['I', 'ter', 'atio', 'al']
	(C) ['I', 'n', 'ter', 'n', 'atio', 'n', 'al']
	(D) Error
		(1)

5.	What will be the output of the following code snippet?
	`message= "World Peace"`
	`print(message[-2::-2])`
		(1)

6.	What will be the output of the following code?
	`tuple1 = (1, 2, 3)`
	`tuple2 = tuple1`
	`tuple1 += (4,)`
	`print(tuple1 == tuple2)`
	(A) True
	(B) False
	(C) tuple1
	(D) Error
		(1)

7.	If my_dict is a dictionary as defined below, then which of the following statements will raise an exception? `my_dict = {'apple': 10, 'banana': 20, 'orange': 30}` (A) my_dict.get('orange') (B) print(my_dict['apple', 'banana']) (C) my_dict['apple']=20 (D) print(str(my_dict))	(1)
8.	What does the list.remove(x) method do in Python? (A) Removes the element at index x from the list (B) Removes the first occurrence of value x from the list (C) Removes all occurrences of value x from the list (D) Removes the last occurrence of value x from the list	(1)
9.	If a table which has one Primary key and two alternate keys. How many Candidate keys will this table have? (A) 1 (B) 2 (C) 3 (D) 4	(1)

10.	Write the missing statement to complete the following code:
	`file = open("example.txt", "r")`
	`data = file.read(100)`
	`_____ #Move the file pointer to the beginning of the file`
	`next_data = file.read(50)`
	`file.close()`
		(1)

11.	State whether the following statement is True or False: The **`finally`** block in Python is executed only if no exception occurs in the **`try`** block.	(1)

12.	What will be the output of the following code?
	`c = 10`
	`def add():`
	`  global c`
	`  c = c + 2`
	`  print(c,end='#')`
	`add()`
	`c=15`
	`print(c,end='%')`
	(A) 12%15#
	(B) 15#12%
	(C) 12#15%
	(D) 12%15#
		(1)

13.	Which SQL command can change the degree of an existing relation?	(1)
14.	What will be the output of the query? `SELECT * FROM products WHERE product_name LIKE 'App%';` (A) Details of all products whose names start with 'App' (B) Details of all products whose names end with 'App' (C) Names of all products whose names start with 'App' (D) Names of all products whose names end with 'App'	(1)
15.	In which datatype the value stored is padded with spaces to fit the specified length. (A) DATE (B) VARCHAR (C) FLOAT (D) CHAR	(1)
16.	Which aggregate function can be used to find the cardinality of a table? (A) sum() (B) count() (C) avg() (D) max()	(1)
17.	Which protocol is used to transfer files over the Internet? (A) HTTP (B) FTP (C) PPP (D) HTTPS	(1)

18.	Which network device is used to connect two networks that use different protocols? (A) Modem (B) Gateway (C) Switch (D) Repeater	(1)
19.	Which switching technique breaks data into smaller packets for transmission, allowing multiple packets to share the same network resources.	(1)
	Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as: **(A) Both A and R are true and R is the correct explanation for A** **(B) Both A and R are true and R is not the correct explanation for A** **(C) A is True but R is False** **(D) A is False but R is True**	
20.	Assertion (A): Positional arguments in Python functions must be passed in the exact order in which they are defined in the function signature. Reasoning (R): This is because Python functions automatically assign default values to positional arguments.	(1)
21.	Assertion (A): A SELECT command in SQL can have both WHERE and HAVING clauses. Reasoning (R): WHERE and HAVING clauses are used to check conditions, therefore, these can be used interchangeably.	(1)

Q No	Section-B (7 x 2=14 Marks)	Marks
22.	How is a mutable object different from an immutable object in Python? Identify one mutable object and one immutable object from the following: (1,2), [1,2], {1:1,2:2}, '123'	(2)
23.	Give two examples of each of the following: (I) Arithmetic operators (II) Relational operators	(2)
24.	If L1=[1,2,3,2,1,2,4,2, . . .], and L2=[10,20,30, . . .], then *(Answer using builtin functions only)* (I) A) Write a statement to count the occurrences of 4 in L1. OR B) Write a statement to sort the elements of list L1 in ascending order.	(2)

	(II) A) Write a statement to insert all the elements of L2 at the end of L1. OR B) Write a statement to reverse the elements of list L2.	

25.	Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable b.
	`import random`
	`a="Wisdom"`
	`b=random.randint(1,6)`
	`for i in range(0,b,2):`
	`  print(a[i],end='#')`
	(A) W# (B) W#i#
	(C) W#s# (D) W#i#s#
		(2)

26.	The code provided below is intended to swap the first and last elements of a given tuple. However, there are syntax and logical errors in the code. Rewrite it after removing all errors. Underline all the corrections made.
	`def swap_first_last(tup)`
	`  if len(tup) < 2:`
	`  return tup`
	`  new_tup = (tup[-1],) + tup[1:-1] + (tup[0])`
	`  return new_tup`
	`result = swap_first_last((1, 2, 3, 4))`
	`print("Swapped tuple: "  result)`
		(2)

27.	(I) A) What constraint should be applied on a table column so that duplicate values are not allowed in that column, but NULL is allowed. **OR** B) What constraint should be applied on a table column so that NULL is not allowed in that column, but duplicate values are allowed.	(2)

	(II) A) Write an SQL command to remove the Primary Key constraint from a table, named MOBILE. M_ID is the primary key of the table. OR B) Write an SQL command to make the column M_ID the Primary Key of an already existing table, named MOBILE.	
28.	A) List one advantage and one disadvantage of star topology. **OR** B) Expand the term SMTP. What is the use of SMTP?	(2)

Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29.	A) Write a Python function that displays all the words containing **@cmail** from a text file "Emails.txt". **OR** B) Write a Python function that finds and displays all the words longer than 5 characters from a text file "Words.txt".	(3)
30.	A) You have a stack named **BooksStack** that contains records of books. Each book record is represented as a list containing **book_title**, **author_name**, and **publication_year**. Write the following user-defined functions in Python to perform the specified operations on the stack **BooksStack**: (I) push_book(BooksStack, new_book): This function takes the stack BooksStack and a new book record new_book as arguments and pushes the new book record onto the stack. (II) pop_book(BooksStack): This function pops the topmost book record from the stack and returns it. If the stack is already empty, the function should display "Underflow". (III) peep(BookStack): This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'. **OR** (B) Write the definition of a user-defined function `push_even(N)` which accepts a list of integers in a parameter `N` and pushes all those integers which are even from the list `N` into a Stack named `EvenNumbers`. Write function pop_even() to pop the topmost number from the stack and returns it. If the stack is already empty, the function should display "Empty". Write function Disp_even() to display all element of the stack without deleting them. If the stack is empty, the function should display 'None'.	(3)

For example:
If the integers input into the list `VALUES` are:
[10, 5, 8, 3, 12]

Then the stack `EvenNumbers` should store:
[10, 8, 12]

31. Predict the output of the following code: (3)

```
d = {"apple": 15, "banana": 7, "cherry": 9}
str1 = ""
for key in d:
    str1 = str1 + str(d[key]) + "@" + "\n"
str2 = str1[:-1]
print(str2)
```

OR

Predict the output of the following code:

```
line=[4,9,12,6,20]
for I in line:
   for j in range(1,I%5):
       print(j,'#',end="")
   print()
```

Q No.	Section-D (4 x 4 = 16 Marks)	Marks

32. Consider the table ORDERS as given below (4)

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500

Note: The table contains many more records than shown here.

A) Write the following queries:

(I) To display the total Quantity for each Product, excluding Products with total Quantity less than 5.

(II) To display the orders table sorted by total price in descending order.

(III) To display the distinct customer names from the Orders table.

(IV) Display the sum of Price of all the orders for which the quantity is null.

OR

B) Write the output

```
(I) Select c_name, sum(quantity) as total_quantity
from orders group by c_name;

(II) Select * from orders where product like
'%phone%';

(III) Select o_id, c_name, product, quantity, price
from orders where price between 1500 and 12000;

(IV) Select max(price) from orders;
```

33. A csv file "Happiness.csv" contains the data of a survey. Each record of the file contains the following data:

- Name of a country
- Population of the country
- Sample Size (*Number of persons who participated in the survey in that country*)
- Happy (*Number of persons who accepted that they were Happy*)

For example, a sample record of the file may be:

['Signiland', 5673000, 5000, 3426]

Write the following Python functions to perform the specified operations on this file:

(I) Read all the data from the file in the form of a list and display all those records for which the population is more than 5000000.

(II) Count the number of records in the file.

(4)

34. Saman has been entrusted with the management of Law University Database. He needs to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below.

Table: **FACULTY**

F_ID	FName	LName	Hire_Date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

Table: **COURSES**

C_ID	F_ID	CName	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000

(4)

C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

(I) To display complete details (from both the tables) of those Faculties whose salary is less than 12000.

(II) To display the details of courses whose fees is in the range of 20000 to 50000 (both values included).

(III) To increase the fees of all courses by 500 which have "Computer" in their Course names.

(IV) (A) To display names (FName and LName) of faculty taking System Design.

OR

(B) To display the Cartesian Product of these two tables.

35. A table, named STATIONERY, in ITEMDB database, has the following structure: (4)

Field	Type
itemNo	int(11)
itemName	varchar(15)
price	float
qty	int(11)

Write the following Python function to perform the specified operation:
AddAndDisplay(): To input details of an item and store it in the table STATIONERY. The function should then retrieve and display all records from the STATIONERY table where the Price is greater than 120.

Assume the following for Python-Database connectivity:
Host: localhost, User: root, Password: Pencil

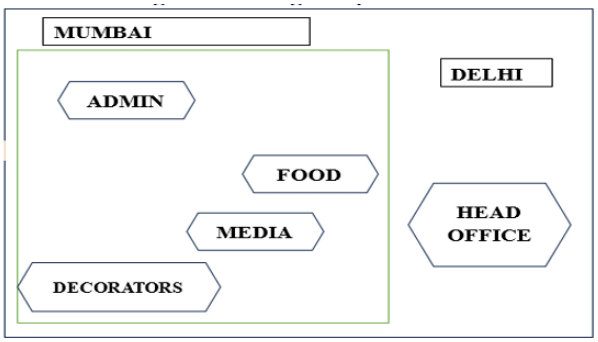
Q.No.	SECTION E (2 X 5 = 10 Marks)	Marks

36. Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this, he wants the following information of each candidate to be stored: (5)
- Candidate_ID – integer
- Candidate_Name – string
- Designation – string
- Experience – float

You, as a programmer of the company, have been assigned to do this job for Surya.

(I) Write a function to input the data of a candidate and append it in a binary file.

	(II) Write a function to update the data of candidates whose experience is more than 10 years and change their designation to "Senior Manager". (III) Write a function to read the data from the binary file and display the data of all those candidates who are not "Senior Manager".	
37.	Event Horizon Enterprises is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, FOOD, MEDIA, DECORATORS. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various blocks/buildings and other given parameters.	(5)



Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	FOOD	42 m
ADMIN	MEDIA	96 m
ADMIN	DECORATORS	48 m
FOOD	MEDIA	58 m
FOOD	DECORATORS	46 m
MEDIA	DECORATORS	42 m

Distance of Delhi Head Office from Mumbai Campus = 1500 km
Number of computers in each of the blocks/Center is as follows:

ADMIN	30
FOOD	18
MEDIA	25
DECORATORS	20
DELHI HEAD OFFICE	18

	(I) Suggest the most appropriate location of the server inside the MUMBAI campus. Justify your choice. (II) Which hardware device will you suggest to connect all the computers within each building? (III) Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. Which cable would you suggest for the most efficient data transfer over the network? (IV) Is there a requirement of a repeater in the given cable layout? Why/ Why not? (V) A) What would be your recommendation for enabling live visual communication between the Admin Office at the Mumbai campus and the DELHI Head Office from the following options: a) Video Conferencing b) Email c) Telephony d) Instant Messaging **OR** B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the MUMBAI campus?	

ICSE Solved Paper 2023
Geography
Class-X

(Maximum Marks : 80)

(Time allowed : Two hours)

***Part I** is **compulsory. All questions** from **Part I** are to be attempted.*
*A total of **five questions** are to be attempted from **Part II.***

The intended marks for questions or parts of questions are given in brackets [].

---

*To be supplied with this paper: Survey of India Map Sheet No. **G43S7.***

Note:

(i) *In all **Map Work,** make wise use of arrows to avoid overcrowding of the map.*

(ii) *The extract of **Survey of India Map Sheet No. G43S7** must not be taken out of the examination hall. It must be handed over to the Supervising Examiner on completion of the paper.*

(iii) *The Map given at the end of this question paper must be detached, and after marking, must be fastened to your answer booklet.*

(iv) ***All sub-sections of the questions attempted must be answered in the correct serial order.***

(v) *All working including rough work should be done on the some answer sheet which is used to answer the rest of the paper.*

PART I **(30 marks)**

*(Attempt **all** questions from this **Part**.)*

1. Study the extract of the Survey of India Map Sheet No. G43S7 an answer the following questions:

(i) (a) Give the four-figure grid reference for Δ224. [2]
(b) What is the contour interval used in the given map extract?

(ii) (a) Mention two made features seen in grid square 2706. [2]
(b) Mention two natural features seen in grid square 2905

(iii) (a) What do you understand by 1:50,000 printed below the map extract? [2]
(b) What is the *pattern of drainage* seen in the grid square 2505?

(iv) (a) What do you understand by .10r in 2709? [2]
(b) What is the *compass direction* of Mahudi Nani (2604) from Panswala (2909)?

(v) Calculate the area in *kilometre square* of the region enclose between *Easting 26 to 29 and Northing 05 to 11.* [2]

Ans.(i) (a) 2706
(b) Contour interval given in the map is 20 meters

(ii) (a) Two man-made features are metalled roads and temples.
(b) Two natural features are trees and seasonal stream.

(iii) (a) The scale of the given toposheet in representative fraction (RF) is 1:50000
(b) The drainage pattern in 2505 is dendritic.

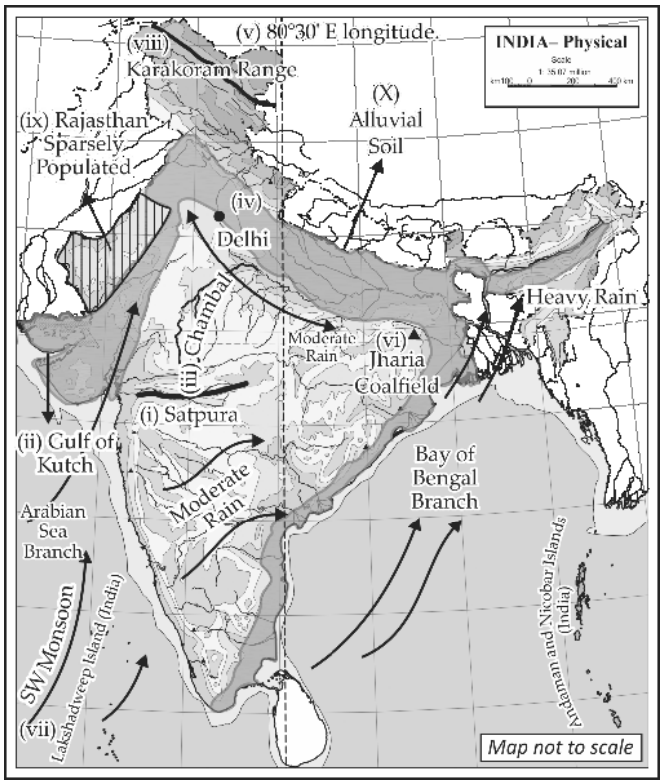
(iv) (a) 10r. is the height of a sand dune which is shaded in brown.
(b) The compass direction of Mahudi Nani (2604) from Panswala (2909) is north-east.

(v) Areas between 26 to 29
Squares covered: 3 squares
Side of each square: 1 x 3 = 3 km
Areas between 05 to 11
Squares covered: 6 squares
Side of each square : 1 x 5 = 5 km
Total area = 15 sq. km

2. On the outline map of India provided:

(i) Mark and label the *Satpura*. [1]
(ii) Shade and label the *Gulf of Kutch*. [1]
(iii) Mark and label the *River Chambal*. [1]
(iv) Mark and label *Delhi*. [1]
(v) Mark and label *80°30′ E longitude*. [1]
(vi) Mark and label *Jharia coalfield*. [1]
(vii) Mark with arrows and name the *Southwest Monsoon winds*. [1]
(viii) Mark and label the *Karakoram Pass*. [1]
(ix) Shade and label a *sparsely populated* region in *Western India*. [1]
(x) Shade an area having *Alluvial soil*. [1]

Ans.



3. Choose the correct answer to the questions from the given options. [10]

(Do not copy the questions, write the correct answer only.)

(i) Which of the following area *receives rain* from the *North East Monsoon*?

(a) Konkan coast **(b)** Ganga basin
(c) Coromandel coast **(d)** Malabar coast

(ii) Which is the most widespread soil of India?

(a) Red soil **(b)** Alluvial soil
(c) Laterite soil **(d)** Black soil

(iii) Which type of forest is found mostly in the *coastal areas of India*?

(a) Tropical Evergreen Forest
(b) Tropical Desert Forest
(c) Littoral Forest
(d) Tropical Deciduous Forest

(iv) Which of the following is a ground water source?

(a) Pond **(b)** Lake
(c) Spring **(d)** River

(v) Copper is alloyed with Zinc to *form*:

(a) Stainless steel **(b)** Brass
(c) Bronze **(d)** Aluminium

(vi) Hirakud dam is based on which of the following *rivers*?

(a) River Godavari **(b)** River Mahanadi
(c) River Krishna **(d)** River Narmada

(vii) Which of the following is NOT a problem of *Indian agriculture*?

(a) Dependence on monsoon
(b) Small land holdings
(c) Two main cropping seasons
(d) Use of traditional methods of farming

(viii) Which of the following is a basic/key *industry*?

(a) Iron and steel industry
(b) Silk industry
(c) Electronic industry
(d) Cotton textile industry

(ix) Which of the following is a staple food grain of *Indians*?

(a) Wheat **(b)** Rice
(c) Gram **(d)** Arhar

(x) Which of the following method of waste disposal is *harmful*?

(a) Composting **(b)** Segregation
(c) Dumping **(d)** Vermicomposting

Ans. (i) Option (c) is correct.

Explanation: The monsoon winds become weaker and start withdrawing from the country from north to south. These winds pick up moisture from the Bay of Bengal and give rainfall to the Coramandel coast.

(ii) Option (b) is correct.

Explanation: Alluvial soil is formed by depositions of silt by rivers and extremely fertile and soft. It is fine grained and widely spread in India. This soil occupies about 46% of the total land area.

(iii) Option (c) is correct.

Explanation: Littoral forests are found along the coasts and the mouth of the rivers which are affected by tides. It is also known as tidal or Mangrove forests.

(iv) Option (c) is correct.

Explanation: Groundwater sources are beneath the land surface and include springs and wells. A spring is a natural discharge point of subterranean water at the surface of the ground or directly into the bed of a stream, lake, or sea.

(v) Option (b) is correct.

Explanation: Copper and zinc are metals and the alloy formed by these metals is known as Brass. In brass, the composition of copper is 60-80% and zinc 20-40% respectively. Brass is used in scientific instruments and it is highly malleable and has high tensile strength.

(vi) Option (c) is correct.

Explanation: Hirakud dam is built across the River Mahanadi, about fifteen kilometers from Sambalpur in Odisha. It is the first major multipurpose river valley project started after independence.

(vii) Option (c) is correct.

Explanation: The agricultural activities in India possible throughout the year begin with the onset on monsoon. The farmers grow different crops based on the availability of water. India has three different agricultural seasons.

(viii) Option (a) is correct.

Explanation: Iron and steel industry is called the basic industry as most of the small and medium industries are dependent on it. This industry is also a major source of employment to a large number of people.

(ix) Option (a) is correct.

Explanation: Rice is the first most important staple food in India. The second most important staple food in India is wheat. India has the largest area, about 45 million hectares, under rice cultivation in the world.

(x) Option (c) is correct.

Explanation: Dumping waste is one of the conventional, inexpensive and widely used method of waste disposal. It is harmful for the environment as well as for humans and other living organisms.

PART II (50 marks)

*(Attempt **any five** questions from this **Part**.)*

4.(i) Name the *seasons* of India and mention the *durations* of each season. [2]

(ii) Why *maximum rainfall* in India occurs after the *summer season*? [2]

(iii) Give a geographical reason for each of the following: [3]

(a) The *Malabar coast* receives heavy rainfall in the month of *July* but the *Coromandel coast* during this time remains comparatively dry.

(b) *Punjab* receives rainfall in winter season.

(c) *Mumbai* is warmer than *Delhi* in the month of December.

(iv) Study the climate data of Station X and answer the questions that follow: [3]

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp in °C	21.0	21.9	24.3	27.2	28.0	26.4	26.1	25.4	26.0	26.0	23.8	21.2
Rainfall in cm	5.1	2.8	1.2	1.7	3.9	4.6	8.4	11.4	11.9	31.6	34.5	14.8

(a) Calculate the *annual range of temperature* of Station X.

(b) Name the *wind* that brings most of the rainfall to this station.

(c) On which *coast of India* is Station X located?

Ans.(i) There are four distinct seasons in India:

(a) The Cold Weather Season or Winter season : December to February

(b) The Hot Weather Season or Summer season : March to May

(c) The Rainy or the Monsoon Season : June to September

(d) Retreating Monsoon Season : October to November

(ii) (a) The Southwestern monsoons wind provides maximum rainfall in India. Due to differential heating and cooling of the land a high pressure is produced in the Indian Ocean. These moisture laded winds carry rain towards the end of the summer.

(b) Punjab gets rainfall in the winter months due to the western disturbances. This rainfall is beneficial for the cultivation of Rabi crops i.e., Wheat and Barley .

(c) Mumbai is hotter that Delhi because Mumbai is located on the shore of the sea. This

increases the specific heat capacity of the area and the presence of a large amount of water keeps the climate warmer in winter and cooler in summer.

(iii) **(a)** The Malabar Coast is located on the western coastal plains where the South-West Monsoons strike first. Therefore, it gets heavy rain. Coromandel coast is on the eastern coastal plain which is on the rain shadow region usually gets less rainfall from North East Monsoons.

(b) Punjab gets rainfall in the winter months due to the western disturbances. This rainfall is beneficial for the cultivation of Rabi crops *i.e.*, Wheat and Barley.

(c) Mumbai is hotter than Delhi because Mumbai is located on the shore of the Sea. this increases the specific heat capacity of the area and the presence of a large amount of water keeps the climate warmer in winter and cooler in summer.

(iv) **(a)** Annual range of temperature = (28.0 – 21.0)°C = 7°C

(b) The Retreating Monsoons

(c) The station X lies on the eastern coast of the South India.

5. (i) (a) Mention *any two* causes of soil erosion in India. [2]

(b) Name *two* soil conservation methods that may be practised in arid (dry) regions.

(ii) Mention *two* characteristics of *Black soil*. [2]

(iii) Name the soil: [3]

(a) That is found on the *summits* of Eastern and Western Ghats.

(b) That is suitable for *dry farming*.

(c) That varies in *texture*.

(iv) Give a geographical reason for each of the following: [3]

(a) *Terrace forming* is an ideal soil conservation method for hilly areas.

(b) *Khadar* soils are preferred over *Bhangar* soils.

(c) Foothills of Himalayas have been affected by *soil erosion*.

Ans. (i) **(a)** Deforestation and overgrazing.

(b) Planting of shelter belts and Restrictions on overgrazing of animals.

(ii) Main characteristics of black soil are:

- Black in colour due to its iron content
- Clayey in nature

(iii) **(a)** Laterite soil

(b) Red soil

(c) Alluvial soil

(iv) **(a)** Terrace farming is the oldest soil conservation methods along the hill slopes. The slope of the hill is cut into a series of terraces. There is enough level land on terrace for cultivation. It checks the flow of water, promotes absorption of water by soil and thus reduces erosion.

(b) Khadar soils are preferred to Bhangar soils as they consist of mainly fine silt and clay. They are very fertile as they are replenished every year by floods. On the other hand, the Bhangar soils contain pebbles and gravels and are coarse in nature.

(c) The foothills of the Himalayas are prone to extreme soil erosion because of the less vegetation cover over there. There are not many plant or tree roots to hold the soil in place, which makes the foothills of the Himalayas prone to excessive soil erosion.

6.(i) State *two* ways in which forests help in protecting the environment. [2]

(ii) Mention *two* ways in which Tropical Desert vegetation has adapted to its environment. [2]

(iii) (a) In which natural vegetation belt is *Sundari* tree found? [3]

(b) Why is the *Tropical Deciduous Forest* commercially the most exploited forest belt of India? (*Two points*)

(iv) (a) Name one region in India where Tropical Evergreen Forest is found. [3]

(b) Mention the *temperature* and *rainfall* conditions found suitable for its growth.

Ans. (i) **(a)** Forests help control or reduce the risk of soil erosion, landslides and avalanches.

(b) It is home to various organisms and thus helps in promoting biodiversity.

(ii)
- The trees are less dense and small in size but there roots are thick and long so that they can use the underground water in the best possible manner.
- Their thick barks prevent excess evaporation.

(iii) **(a)** Littoral or Tidal forests

(b) The tropical deciduous forest is commercially most exploited forest belt in India:
- as they yield valuable timber
- provide variety of forest products

(iv) **(a)** The Tropical Evergreen forests are found in the Western side of Western Ghats.

(b) These forests grow in the region with 200 cm of rainfall, 24°C of temperature and with humidity more than 70 percent.

7.(i) Give a reason for each of the following:

(a) *Agriculture sector* in India needs the support of *irrigation*. [2]

(b) *Well irrigation* is a popular means of irrigation in *Northern India*.

(ii) Distinguish between *inundation canal* and *perennial canal*. [2]

(iii) (a) Where in India is *tank irrigation* most widely used? [3]

(b) Give *one* factor that has led to its popularity in the region mentioned by you.

(c) Mention *one* advantage of using tank as a means of irrigation.

(iv) (a) What is *Rainwater Harvesting*? [3]

(b) Give *two* ways in which *Rainwater Harvesting* is important for India.

Ans. (i) (a) A major part of India is located in the tropical and sub-tropical region. Being a hot country, with seasonal and irregular rainfall, irrigation is needed to carry on agricultural activities during dry periods.

(b) Well irrigation is widely practiced in Northern India due to the presence of high level of ground water. Moreover, soft nature of rocks make digging of tube wells easy.

(ii)

Inundation Canals	Perennial Canals
Inundation canal have water in them when excess water flows into them during rainy seasons.	Perennial canals have water in them throughout the year as they draw out water from perennial sources.

(iii) (a) Deccan region (Andhra Pradesh/Tamil Nadu/ Karnataka)

(b) Deccan Plateau is made up of hard impermeable rock which does not allow the rainwater to percolate underground. The Deccan Plateau is highly dissected and so has many natural hollows and depressions.

(c) One advantage of tank irrigation is that it is an inexpensive and cost-effective method of irrigation.

(iv) (a) It is the technique of collecting rain, flood and underground water and then using it according to one's requirement.

(b) Rainwater Harvesting helps to meet the increasing demand for water.

- It helps to check surface run-off that chokes the drain.
- It also recharges round water resource.

8.(i) (a) Name the state of India that leads in the production of *Manganese*. [2]

(b) What is the importance of *Manganese for the Iron and Steel industry*?

(ii) Why is *conventional source of energy* not considered an *ecofriendly* source of energy? [2]

(iii) (a) How is *Bhakra Nangal dam* beneficial for Punjab? [3]

(b) Name *two* states where coal is mined in abundance.

(c) Mention *one* advantage of using wind energy.

(iv) Name the following: [3]

(a) A mineral used to *generate* nuclear energy.

(b) The non-conventional energy source that has the *most widespread* potential usage in India.

(c) An *offshore* oil field of India.

Ans. (i) (a) Madhya Pradesh is the leading producer of Manganese in India.

(b) Manganese makes the steel tough, hard and rust resistant.

(ii) The conventional source of energy are not considered as an eco-friendly source of energy:

- They are exhaustible sources of energy.
- They produce waste materials and cause pollution.
- They are expensive. (Any Two Points)

(iii) (a) The main aim of the Bhakra-Nangal dam is to harness the water of river Sutlej for the benefit of the state of Punjab. It also aims to provide irrigation and generate electricity.

(b) Jharia and Bokaro coal fields are most important due to the abundance.

(c) Wind energy is renewable and plentiful.

(iv) (a) Uranium is a mineral used to generate nuclear energy.

(b) Solar energy is the most widespread non-conventional source of energy in India.

(c) Mumbai high

9.(i) Differentiate between *Intensive forming* and *Extensive farming*. [2]

(ii) Mention *two* problems faced by the India farmers. [2]

(iii) (a) Give *one* advantage of *transplantation method* of sowing rice. [3]

(b) What is '*Ginning*'?

(c) Name *any two* pulses grown in India.

(iv) (a) What is meant by '*Retting*'? [3]

(b) What kind of soil is required for the cultivation of tea?

(c) Why is pruning necessary for tea plant?

Ans. (i)

Intensive Farming	Extensive Farming
(i) It is practised in the regions where the density of population is high.	**(i)** It is practiced in the areas of sparse population.
(ii) There is an excessive use of fertilizers to get maximum yields.	**(ii)** Machinery is used.

(ii) Dependence on rainfall: Indian farmers are dependent to a large extent on the monsoons which are uncertain, and unreliable.

Fragmented Holdings: The small holdings of the farmers do not encourage modern methods of farming, like use of scientific cultivation, improved implements and seeds. A lot of time, labour and power are wasted on small holdings as returns are poor.

(iii) **(a)** Transplantation method enables to select only healthy seedlings for the rice plants.

(b) Ginning is the process in which the cotton seeds are separated from fibre.

(c) Pulses grown in India are Chana, Tur, etc.

(iv) **(a)** Retting is the process in which jute fibre is separated from the stalk by submerging it in a pool of gently flowing clear water.

(b) A well drained fertile loam is best suited for the tea plant.

(c) Pruning is done to encourage the growth of new leaves.

10. (i) How are the *industries* important for India? (*Two points*) [2]

(ii) State the difference between *Agro based industry* and *Forest based industry*. Give *one* example for each type of industry. [2]

(iii) (a) What has made Mumbai an important centre for *cotton textile* production? (*Write any two points*) [3]

(b) Why are the *petrochemical* products in great demand?

(iv) (a) Mention *two* problems faced by the *sugar industry* of India. [3]

(b) Where is *Tata Steel* located?

(c) Why is the *Silk industry* losing the market in recent times?

Ans. (i) Importance of industries in India:

- Industrialisation helps in modernizing agriculture, which is the main occupation of people of India.
- Industries help in increasing our exports and thus maintain a favourable balance of trade.

(ii)

Agro-based Industry	Forest-based Industry
• These industries depend on agricultural products for their raw material.	• These industries obtained their raw materials from the plant kingdom, such as trees, bushes, grasses etc.\
• e.g., Sugar and Cotton	• e.g., Paper, Furniture

(iii) **(a)** The factors favoured for the development of cotton textile production in Mumbai:

- Favourable climatic conditions specially the humid climate.
- The port facility helps in the import of long staple cotton and machinery as well as the export of the finished product.

(b) The petrochemical products are in great demand because:

- They are cost effective, economic and cheap.
- Raw materials are easily available.

(iv) **(a)** The problems of sugar industry:

- Price of sugarcane is fixed by the government so farmers are dissatisfied.
- Industry is seasonal in character as sugarcane is available only at the time of harvest and the crushing season is short. Therefore, cost of production is high.

(b) Tata Iron and Steel Company is located at Tatanagar near Jamshedpur in Jharkhand.

(c) The competition from artificial and synthetic materials is the main problems of the Indian silk industry.

11.(i) Why is it *important* to have a well develop *means of transport* in India? [2]

(ii) "*Though an expensive mode of transport, Airways is gaining popularity in India.*" Explain giving two reasons. [2]

(iii) (a) Why are *South Indian* rivers not ideal for inland water transport? [3]

(b) Mention *two* advantages of *waterways*.

(iv) (a) Why are *roadways* considered *more important* than any other means of transport? [3]

(b) Mention two advantages of using *railways* as means of transport.

Ans. (i) It is important to have a well developed transport in India:

- An efficient system of transport provides the basic strength to the national economy and an important link between production and consumption of goods.
- The growth of transport facilities accelerates the process of industrialisation and urbanization.

(ii) Airways is gaining popularity in India:

- It is the fastest and most comfortable mode of transportation.
- It can cover difficult terrains like mountains, deserts, forest an oceans with ease.

(iii) **(a)** Most of the peninsular rivers are seasonal which dry up during summer.

(b) The advantages of waterways are:

- They are the cheapest means of transport to carry heavy and bulky goods.
- They are fuel efficient and an environmental- friendly means of transport.

(iv) **(a)** Roadways are considered as the important means of transportation:

- Roads are comparatively easier and cheaper to construct and maintain.
- Roads can negotiate steep slope and sharp turns and provides door to door services.

(b) The two advantages of railways are:

- Railways have helped in developing tourism.
- It is the main mode of transport for freight and passengers.

12.(i) Why should *waste management* be practiced in every school? [2]

(ii) Mention one advantage and *one* disadvantages of dumping of waste. [2]

(iii) Briefly answer the following: [3]

(a) How is *segregation* of the waste helpful?

(b) Mention one way in which we can *reuse waste*.

(c) Mention *one* benefit of *Composting*.

(iv) (a) How is *recycling* of waste helpful? Give an example of recycling of waste. [3]

(b) Mention *any* one initiative taken by the *Government* to manage waste.

Ans. (i) It is very important for the proper waste disposal and management of waste by applying the 3R – Reduce, Reuse and Recycle.

(1) Reducing means lessening the amount of trash/garbage produced and reusing of paper for all kinds.

(2) Reducing, reusing, recycling and waste material will improve the economic and environmental performance of the school.

(ii) The advantage of dumping waste is this is the conventional, inexpensive and widely used method of waste disposal.

The disadvantage of this method is that the solid waste materials which are left in the open give out bad odour and are the breeding grounds for mosquitoes, flies and other harmful bacteria which causes a variety of diseases.

(iii) **(a)** Segregation of waste is the first and important step of safe disposal of waste for an effective waste management. Waste Segregation causes lesser pollution.

(b) Old tyres can be reused for making shoes, chappals etc.

(c) Compost is a way of Recycling and Reuse of organic waste. It not only reduces waste accumulation but also increases plant growth.

(iv) **(a)** Recycling of waste reduces the consumption of raw materials and energy usage and also reduces air and water pollution. It is the key component of modern waste reduction procedure.

e.g., Paper: It would save our forest if less trees were cut. Paper can be recycled by selling them to be used again.

(b) One of the initiatives taken by the government to manage waste is through the following programmes:

- Swachh Bharat Mission', 'National Water Mission' and 'Waste to Wealth Mission'.

❑❑❑