

MT EDUCARE LTD.

ICSE X

SUBJECT : **GEOGRAPHY**

The Climate of India STEP UP ANSWER SHEET

A.1.

- (a) Two cyclonic systems that affect India are :
- Temperate cyclones - Region - North west of India (Punjab, Haryana)
 - Tropical cyclones - Region-eastern coast of India (Andhra Pradesh, Tamil Nadu, West Bengal).
- (b) Characteristics of SW monsoon are :
- Orographic in nature.
 - Uncertain in amount and time.
- (c) Reasons :
- When the Malabar coast is receiving heavy rainfall in July, the Tamil Nadu coast is dry because it lies in rain shadow region of Arabian sea branch and Bay of Bengal is parallel to the coast.
 - Northern plains have continental climate because they are away from the moderating influence of the sea.
 - Central Maharashtra receives little rainfall because it lies in the rain shadow region of Western ghats when Arabian sea branch strikes it.
- (d) (i) Annual rainfall is 114.3 cm.
(ii) Suggested name is Chennai.
Because the station is receiving most of its rain in October and November.
(iii) Retreating monsoon season.

[2013]

A.2.

- (a) Punjab receives rainfall due to the cyclonic disturbances (westernly disturbances) that originate over the Eastern Mediterranean sea during the winter season. Tamil Nadu receives rain fall from Northeast Monsoon wind during the winter season.
- (b) (i) **Kerala** : The local wind is called Mango Shower . They bring little rain in April and May, which is helpful in the early ripening of mangoes, tea and coffee plants.
(ii) **West Bengal** : The local wind is called Norwesters or Kalbaisakhi. The rain is useful for rice and jute in West Bengal.
- (c) (i) Patna receives heavier rain than Delhi because the Bay of Bengal branch of South-West Monsoon goes up the Ganga plain. As it proceeds up the Ganga valley, the amount of rainfall keeps decreasing East to West. Since Patna is located to the east of Delhi,

it receives 102 cm of rainfall while Delhi gets 50 cm of rainfall annually.

- (ii) The Arabian sea branch of South-West Monsoon strikes the Saurashtra peninsula and passes over the western Rajasthan, parallel to the Aravalli range. It hardly causes any rain in Western Rajasthan because it undergoes thermal heating on blowing over the hot sands and gets unsaturated. As the area lies on the lee ward side of the Aravalli range, no rain is caused.
- (iii) Mangalore is located at the south of Tropic of Cancer along the Western Coast of India and enjoys the moderating influence of land and sea breeze throughout the year. The climate over there being equable or maritime type, the place does not experience any winter.
- (d) (i) Annual Range of temperature $\rightarrow 36.2^{\circ}\text{C} - 24.6^{\circ}\text{C} = 11.6^{\circ}\text{C}$.
 (ii) Total Annual Rainfall $\rightarrow 24.5 + 23.1 + 15.0 + 2.4 + 0.1 + 11.0 + 9.3 + 7.2 + 4.0 + 9.4 + 14.5 + 20.4 = 140.9$ cm.
 (iii) The station is located on the eastern coast of India, because heavy rainfall is observed in winter season.

[2014]

A.3.

- (a) The factors that affect the climate of India are as follows :
- Altitude :** Temperature decreases at the rate of 1°C for every 166m rise in height. Thus the mountains are always cooler than the plains. E.g. Darjeeling is cooler than Kolkata in summer.
- Distance from the sea :** The areas in the interior of the country have an extreme type of climate while the coastal areas have a moderate climate. This is mainly due to the influence of land and sea breeze caused by differential heating and cooling of land and sea. E.g. Delhi experiences an extreme, climate while Mumbai experiences an equable climate.
- (b) The rainfall caused during June to September in North India is caused by the South West Monsoon Winds. These are onshore winds which on being obstructed by the Himalayas, result in heavy rainfall. The rainfall caused during December - February in North India is caused by the Western Disturbances. These are temperate cyclones that originate in the Mediterranean Sea and travel towards India resulting in moderate rainfall.
- (c) (i) Kerala lies on the Malabar Coast and on the windward side of the South West Monsoon winds. As the Western Ghats obstruct the monsoon winds, it causes very heavy monsoon rainfall for a long duration along this coast.
 (ii) Orographic rainfall is mainly caused by the presence of a relief barrier. The Konkan coast comprises of a part of the Western Ghats which obstructs the onshore Arabian Sea branch of the South West monsoon winds. This causes heavy rainfall on the western slopes of

the Western Ghats which comprises the windward side of the Konkan coast. While the Eastern slopes receive less rainfall resulting in a rain shadow area. Hence the Konkan coast receives orographic rainfall due to the influence of the Western Ghats.

- (iii) Kanpur has an interior location while Chennai has a coastal location. The areas in the interior of the country have an extreme type of climate resulting in high annual range of temperature while the coastal areas have a moderate climate. This is mainly due to the influence of land and sea breeze caused by differential heating and cooling of land and sea.

- (d) (i) Hottest month is May.
 (ii) Total annual rainfall is 131.9 cm.
 (iii) The North East Monsoon winds.

[2015]

A.4.

- (a) Typical Monsoon type of Climate.

The factors which are responsible for monsoon type of climate in India :

1. Altitude.
2. Distance from the sea.

- (b) (i) Cherrapunji receives rains from the Bay of Bengal branch of South West Monsoon and N.E. monsoon.

- (ii) Mango Shower

- (c) (i) Kanpur is situated in the interior parts of the country and is away from the influence of the Sea. So it is very cold in Winter and very hot in Summer.

- (ii) Kochi is located closer to the equator whereas Mumbai is not. So Kochi experiences vertical rays of the Sun.

- (iii) Ganga plain lies in North India and the S.W. monsoon, first strikes the west coast of India, before North India.

- (d) (i) 128.7 cm

- (ii) 8°C

- (iii) **Eastern Coast** : As the station receives the bulk of its rainfall in the month of October-November period which is due to the retreating monsoon and North East Monsoon.

[2016]

A.5.

- (a) ● Hot-dry season (March-May).
 ● The rainy season or the season of South-West monsoon. (June-September).

- The season of the retreating South-West monsoon (October-November).
 - The winter season (December-February)
- (b) (i) Wheat
(ii) Tea
- (c) (i) The Bay of Bengal branch of South-West monsoon is deflected towards the west along the Himalayas. The rainfall goes on decreasing as it proceeds through the Ganga valley on its way it gives more rainfall to Kolkata in West Bengal. By the time it reaches Lucknow in U.P., it sheds less moisture.
- (ii) A high pressure gradient builds up between the hot North India with intense low pressure and cooler water bodies surrounding it with high pressure. The low pressure area attracts the South-East trade winds blowing in the Southern hemisphere. After crossing the equator these winds are deflected towards the Indian Sub-continent as South-West monsoon winds which blow over Arabian Sea.
- (iii) The Arabian sea branch of South-West monsoon runs parallel to the Aravalli which does not offer any obstruction. As a result Thar desert, located in the west of Aravalli, receives no rain. The moisture laden winds passing over Thar desert do not saturate as the heat in the desert region increases their capacity to hold moisture. So, Thar receives no rainfall.
- (d) (i) $36.2^{\circ}\text{C} - 12.0^{\circ}\text{C} = 24.2^{\circ}\text{C}$.
(ii) 112.9 cm.
(iii) Annual range of temperature is high 24.2°C .

[2017]