Kattinte Uravidom Thedi

Que 1: what are the factors affecting for the formation of monsoon winds? *Marks :(3)*

Ans: The apparent movement of the sun

Coriolis force

differences in heating

Que 2: Write the correct statement Marks :(1)

a. Pressure decreases with altitude.

b. As the altitude increases, the pressure decreases.

Ans: b. As the altitude increases, the pressure decreases.

Que 3: Find the correct statement from those given below. Marks :(1)

a. If the quantity of water vapour is more in a unit volume of air, the pressure of that air is high

b. If the quantity of water vapour is more in a unit volume of air, the atmospheric pressure will be less

c. When the amount of vapour in the air is high enough, the pressure of that air will remain unchanged.

d. If the volume of vapour in a given volume of air is low, the pressure of that air is low

Ans: b. If the quantity of water vapour is more in a unit volume of air, the atmospheric pressure will be less

Que 4: List out the global pressure belts? Describe two of them. Marks :(6)

Ans: Equatorial Low-pressure Belt, Sub tropical High-Pressure Belt, Sub-polar Low-Pressure Belt, Polar High-Pressure Belt

*Equatorial Low-pressure Belt-The equatorial low-pressure belt is situated between 5° North and South latitudes. As the air in this zone ascends on a large scale, winds are very feable here.

*Polar High-Pressure Belt- This zone experiences severe cold throughout the year. As a result, the air remains chilled under the extreme cold that prevails over the Poles, and this contributes to the steady high pressure experienced here.

Que 5: Which is the pressure belt found between the subtropical and polar high-
pressure belts? Make a note on this pressure belt.Marks :(5)

Ans:

- Sub-polar low-pressure belt
- This zone is close to the Pole, the air is colder here. Though the cold air remains close to the earth, the air is thrown up due to the rotation of the earth. As a result, low pressure is experienced all along the sub polar region.

Que 6: Explain the cause of the occurrence of high pressure in 30 degree latitudes. *Marks :(2)*

Ans: The hot air ascending from the equatorial low pressure belt cools gradually and subsides at the sub-tropical zone due to the rotation of the Earth.

Que 7: Why the local wind Harmattan is known as Dr. Harmattan ? Marks :(1)

Ans: On the arrival of Harmattan, the humid and sultry conditions of West Africa improve significantly.

Que 8: Which is the local wind that blows down the eastern slope of the RockyMountains of North America? How does this wind help the wheat farming in theCanadian low lands?Marks :(2)

Ans: Chinook Reduces the severity of the cold.

Que 9: Trade winds blow from the north east in the northern hemisphere and thesoutheast in the southern hemisphere. Why?Marks :(3)

Ans: *Coriolis effect

Due to the rotation of the earth, wind deflects towards the right in the Northern Hemisphere and towards the left in the Southern Hemisphere.

Que 10: Describe the global pressure belts Marks :(6)

Ans: Equatorial Low-pressure belt

Subtropical High-Pressure belts Sub-polar low-pressure belts

Polar High-pressure belts

(To clarify how these are formed)

Que 11: Write the Pressure belt that includes the following longitudes. *Marks :(4)*

| atitude | Pr | essure Belt |
|-----------|--|---|
| 0 Degree | а | |
| 30 Degree | b | |
| 60 Degree | C | |
| 90 Degree | d | |
| | atitude 0 Degree 30 Degree 60 Degree 90 Degree | atitude Pr 0 Degree a 30 Degree b 60 Degree c 90 Degree d |

Ans: a) Equatorial Low-pressure belt

- b) Subtropical High-Pressure belts
- c) Sub-polar low-pressure belts
- d) Polar High-pressure belts

Que 12: What are the factors that influence the speed and direction of wind ? *Marks :(3)*

Ans: Pressure gradient

Coriolis force Friction

Que 13: The pattern of isobars in two different situations are depicted in the figure 'A' and 'B'. In which of these situations the speed of the wind be higher? Why? *Marks :(2)*



Ans:

- Figure 'A'
- When the isobars are closer, Pressure gradient force will be higher. The pressure gradient is said to be steeper when the pressure difference is more over shorter distances.

Que 14: Complete the flowchart

Marks :(3)



Ans: A. Periodic Winds, B. Variable Winds

C. Trade Winds/Westerlies/Polar Easterlies.

D. Loo / Foehn / Chinook / Harmattan / Mango showers / Kalbaisakhi

Que 15: What are Planetary Winds? Write two examples. Marks :(3)

Ans: Winds forming between global pressure belts

Trade Winds, Westerlies, Polar Easterlies

Que 16: The Coriolis Force is a decisive factor that influence the direction of
wind. Explain.Marks :(2)

Ans: The winds in the Northern Hemisphere deflect towards their right and those in the Southern Hemisphere deflect towards their left due to the Coriolis Effect. This force increases as it moves towards the Poles from the Equator.

Que 17: What is the reason for the formation of low-pressure belt at 60 ° latitudes? By what name is this pressure belt known? *Marks :(2)*

Ans:

- The air is thrown away due to the rotation of the earth. This results in a pressure drop across the sub-polar region. As a result, low pressure is experienced all along the sub polar region.
- Sub-polar low-pressure belt

Que 18: What are the factors that lead to the formation of Global Pressure Belts ? *Marks :(2)*

Ans:

- Rotation of earth
- Variation in solar energy

Que 19: The temperature and the atmospheric pressure are inversely
proportional. ExplainMarks :(2)

Ans: The air expands when it gets heated. The expanded air is less dense and hence it ascends. This leads to the lowering of atmospheric pressure. On cooling, it becomes dense and descends. As a result the atmospheric pressure increases.

Que 20: Mention how the south-east trade winds become the south-west monsoon. *Marks :(2)*

Ans: Coriolis effect

Differences in heating

Que 21: Find the local wind that blows in southern India during the summer. *Marks :(1)*

a. Loo b. Ka Baisakhi

c. Chinook d. Mango shower

Ans: d. Mango shower

Que 22: Which of the following is a correct statement?

a. The North East Monsoon is the result of high pressure over the Asian Continent and low pressure over the Indian Ocean.

b. The North East Monsoon is the result of a low pressure over the Asian Continent and a high Pressure over the Indian Ocean. *Marks :(2)*

Ans: a. The Northeast Monsoon is the result of high pressure over the Asian continent and low pressure over the Indian Ocean.

Que 23: State the Ferrel's law. Marks :(1)

Ans: The winds in the Northern Hemisphere deflect towards their right and those in the Southern Hemisphere deflect towards their left due to the Coriolis Effect.

Que 24: Name the zone where the trade winds from both the hemispheres
converge.Marks :(1)

Ans: Inter Tropical Convergence Zone (ITCZ).

Que 25: Which of the following statements is correct? Marks :(1)

a. The Coriolis force increases towards the Poles from the Equator.

b. The Coriolis force decreases towards the Poles from the Equator.

Ans: a. The Coriolis force increases as towards the Poles from the Equator.

Que 26: Identify the correct statement .

a. Due to the vast expanse of oceans, the Westerlies are stronger in the Southern Hemisphere

b. Westerlies play a significant role in the climate of North America, Northern European countries and Russia. Marks :(1)

Ans: a. Due to the vast expanse of oceans, the Westerlies are stronger in the Southern Hemisphere

Que 27: The speed of wind will be high in the southern hemisphere than the northern hemisphere. Why? *Marks :(2)*

Ans: Due to the vast expanse of oceans in the Southern Hemisphere, the friction is less.

Que 28: Why does the pressure decreases when the humidity increases?

a. Vapour and air has same density

b. Vapour is heavier than air

c. The vapour is lighter than the air

Marks :(1)

Ans: c. The vapour is lighter than the air

Que 29: Match the following

Marks :(4)

| А | В |
|-----------|---------------|
| Harmattan | India |
| Loo | Africa |
| Foehn | North America |
| Chinook | Europe |

Ans:

| А | В |
|-----------|---------------|
| Harmattan | Africa |
| Loo | India |
| Foehn | Europe |
| Chinook | North America |

Que 30: Observe the picture and answer the questions given below.



a. By what name is the wind blowing in the areas marked 'A' and 'B'?

b. From what directions are these winds blowing in the northern hemisphere and southern hemisphere? *Marks :(4)*

Ans: a) 'A'- Trade Winds, 'B'- Westerlies.

b) Northern hemisphere :- A-North East, B-South West

Southern hemisphere :- A-South East, B- North West

Que 31: Observe the picture and answer the following questions.

- 1. By what name are the winds depicted in figures 'A' and 'B' known?
- 2. How do these are formed?

Marks :(4)





Ans: 1.'A'-South West Monsoon Wind

'B'-North East Monsoon Wind

2. The low pressure formed over the land due to the intense day temperature attracts these sea winds and further contributes to the formation of the southwest monsoon winds.

During winter and low-pressure zones over the Indian Ocean, the northeast

trade winds get strengthened.

Que 32: Prepare a description on global winds. Marks :(6)

Ans: *Trade winds-

The winds blow continuously towards the equatorial low-pressure belt from sub-tropical high-pressure belt.

*Westerlies-

Winds blow continuously from sub-tropical high-pressure belt to sub polar lowpressure belt. As the direction of these winds are mostly from the west, these are known as the westerlies.

*Polar Easterlies-

The polar winds are the cold winds that blow from polar high-pressure belt to the sub polar low-pressure belt. These winds blow from the east in both the hemispheres due to the Coriolis force. Hence these are known as polar easterlies.

Que 33: Prepare a description on the South West Monsoon winds. Marks :(6)

Ans:

- Sunrays fall vertically to the north of the Equator during certain months due to the tilt of the earth's axis.
- As the trade winds cross the equator, they get deflected and transform into South West monsoon winds under the influence of the Coriolis effect.

Que 34: Which is the pressure belt found between the equatorial and sub polar low-pressure belts? How does these winds develop? *Marks :(5)*

Ans: Subtropical High-Pressure Belt

*The hot air ascending from the equatorial low pressure belt cools gradually and subsides at the subtropical zone due to the rotation of the earth.

Que 35: Identify the correct statements.

Marks :(2)

a. As the heat increases, the pressure increases.

- b. As the humidity increases, pressure decreases.
- c. As the heat increases, the pressure decreases
- d. As the altitude increases, Pressure increases.

Ans: b, c

Que 36: Observe the picture and answer the following questions.



- a. Name the winds shown in diagrams A and B?
- b. Describe the situation in which they form? Marks :(4)

Ans: a) 'A' - Valley Breeze, 'B' - Mountain Breeze

b) The day time the air in the valley gets heated up more than the air on the mountain tops. As a result, the wind blows upslope from the valley. This is known as valley breeze.

At night the air in the mountainous regions cools due to the intense cold conditions in that region. As cool air is denser, it blows towards the valley. This is known as mountain breeze.

Que 37: Observe the picture and answer the following questions Marks :(4)



a) Name the winds shown as A and B.

b) Describe the situation in which they form?

Ans: a: Picture 'A' - Sea breeze, Picture 'B'- Land breeze

b: *The land and sea react differently to Sun's heat. The land gets heated up and air ascends during day time. This leads to the formation of low pressure and causes the comparatively cooler air to blow from the sea. This is known as sea breeze.

*The land cools faster than the sea during the night.

This causes the movement of air from the land to sea. This is the land breeze.

Que 38: Observe pictures and answer the questions given below. Marks :(3)





a) In which of these situations do winds blow smoothly?

b) What is the reason?

Ans: a) Picture 'A'- Over ocean surfaces

b) Friction:- The speed of wind will be high over ocean surfaces and plains as the friction is less.