

Paper - I (Part B)

Section - A

1(A) Comet : - It is a mass of dust and ice. When it passes in front of the sun, then, the ice melts and dust appears like a glowing tail in the sunlight.

1(B) Apogee : - When the moon is ~~the~~ <sup>at</sup> the furthest distance from the earth, it is called Apogee.

Perigee : - When the moon is at closest ~~position~~ distance to the earth, it is called perigee.

1(C) Narmattan : - They are also called as 'doctor-winds'. These are hot, dry, and dusty winds that blow from Sahara Desert towards the coast of Guinea in West Africa and make the climate of Guinean coast ~~conduct~~ conducive.

1(D) Landforms of glaciers : - 1) Drumlins  
2) Arêtes 3) Eskers

1(E) Dharwad ~~Rocks~~ Pargies : - These are important group of ~~mountains~~ rocks as they contain a variety of metallic and non-metallic mineral.

1(F) Chilka Lake : - It is a brackish water lake in the coastal region of Odisha.

1(G) Lipulekh Pass : - It is an important pass in the north-eastern state of Arunachal Pradesh.

(1)



2(H) New Moore Island: - It is situated in Bay of Bengal and is a matter of dispute between India and Bangladesh.

2(I) Express way: - These are 4/6/8 lane highways which provide faster commutation in comparison to national highways. E.g. → Yamuna expressway, Bundelkhand expressway.

2(J) Barak river: - It is a tributary of Brahmaputra river.

2(K) FSSAI: - It is a central agency concerned with the maintenance of food safety standards in India.

2(L) Agricultural Export Area: - It is an export area dedicated to the exports of agricultural products in the country. The concept of 'Mega Food Park' is closely related to this concept.

~~2(K)~~ 2(M) Consolidation: - It is one of the import-ant types of land reforms done in the country after independence. It deals with the consolidation of small land holdings into a larger one.

2(N) Fertigation: - Low use of fertilisers in irrigation.

2(O) National Institute of Disaster Management: - It is situated in Bhopal city of Madhya Pradesh.



## Section B

2 (A)

### Internal Structure of the Earth

The earth can be broadly divided into three parts: -

1) Crust: - It is the topmost layer of the earth and is composed generally of the weathered material. It is rich in topographic features like mountains, plateaus etc.

It is of two types: - Continental and Oceanic. The thickness of the Continental crust is about 33 Kms while that of the Oceanic Crust is 5-6 Kms. It is mainly composed of Silicon and Aluminium.

2) Mantle: - It lies from ~~the~~ the depth of 33 Kms to 2900 Kms. The uppermost part consists of molten rocks and it is known as Asthenosphere. It is mainly in molten state.

The upper mantle and the crust together constitute the lithosphere.

3) Core: - It extends from 2900-6400 Kms. It is the densest part of the earth and has a density of ~~13.7~~ 13.7 g/cm<sup>3</sup>. It is chiefly constituted of Nickel and Iron (NiFe).

### Sea Breeze

2 (B)

During daytime, in the coastal areas, the land gets warmer quickly in comparison to sea. As a result of intense heating of land,

(3)



a low pressure area develops over the land. Due to this, the wind starts moving from ~~the~~ sea towards the land (of coastal region). This is known as sea breeze.

### Land Breeze

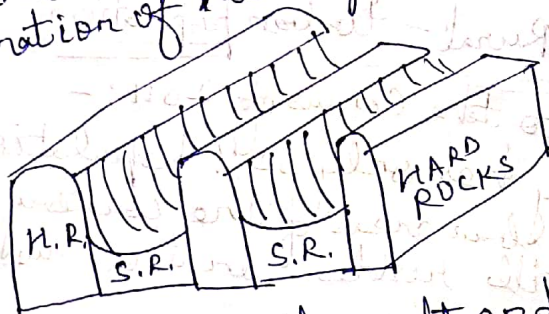
During night, the land loses heat more rapidly in comparison to sea and gets cooled up quickly. As a result, a high pressure area is developed over the coastal landmass and as a result, the wind starts blowing from land towards the sea and this is known as land breeze.

### Topography of Wind Erosion

2(D)

The wind erosion is particularly effective in desert regions which are devoid of the vegetation cover and contributes in the creation of following landforms:-

a) yardangs :- In the desert regions, if the soft and ~~rock~~ hard rocks lie beside each other in a pattern, then the soft rocks are worn out more rapidly and results in the formation of yardangs.



b) Zugor :- When the soft and hard rocks, lie on one - another, it is a desert region.



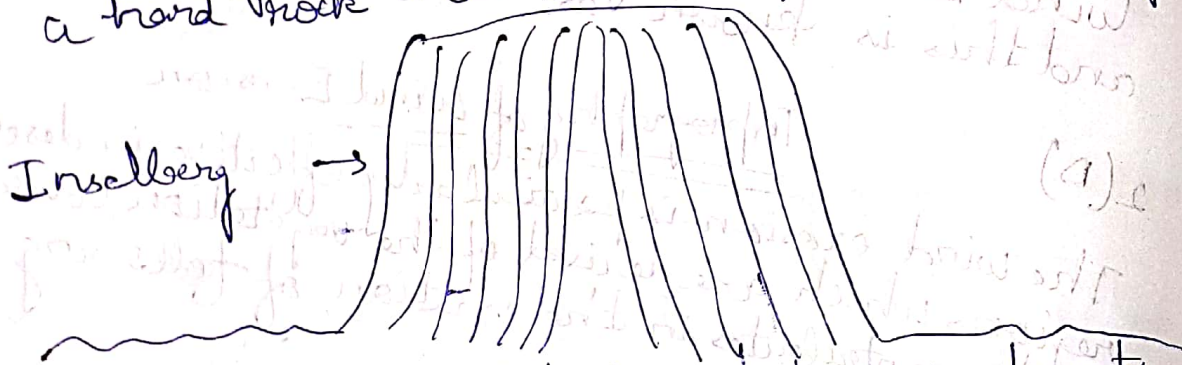
then this type of topography results



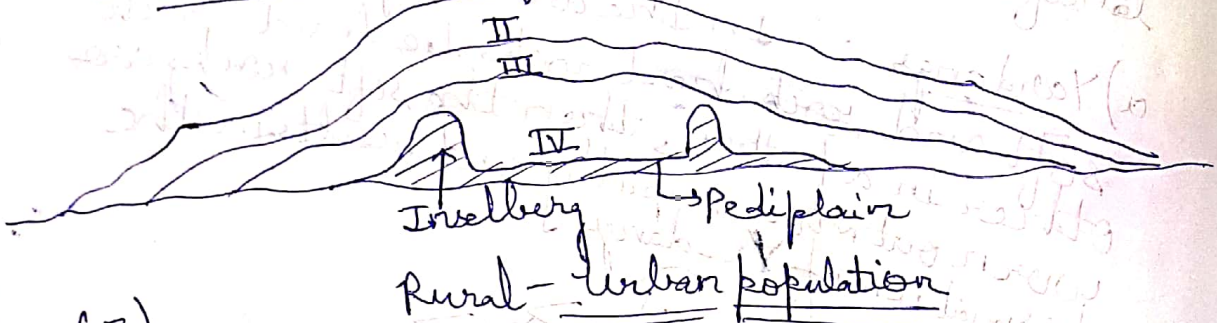
H.R. → Hard Rocks

S.R. → Soft Rocks

c) Insellberg :- In the plateaus situated in the desert regions, the erosion of the wind may completely level the plateau resulting in the remaining formation of insellberg, which is a hard rock and does not get eroded easily.



d) Pediplains → Eroded plateaus mountains in deserts.



2(E)

According to the Census of 2011 :-

a) The country has only 32% population living in the urban areas of the country while the rest still resides in the rural areas.

(5)



b) At the time of census, the country has about 6,40,000 villages.

c) The highest urbanisation is witnessed in the state of Goa.

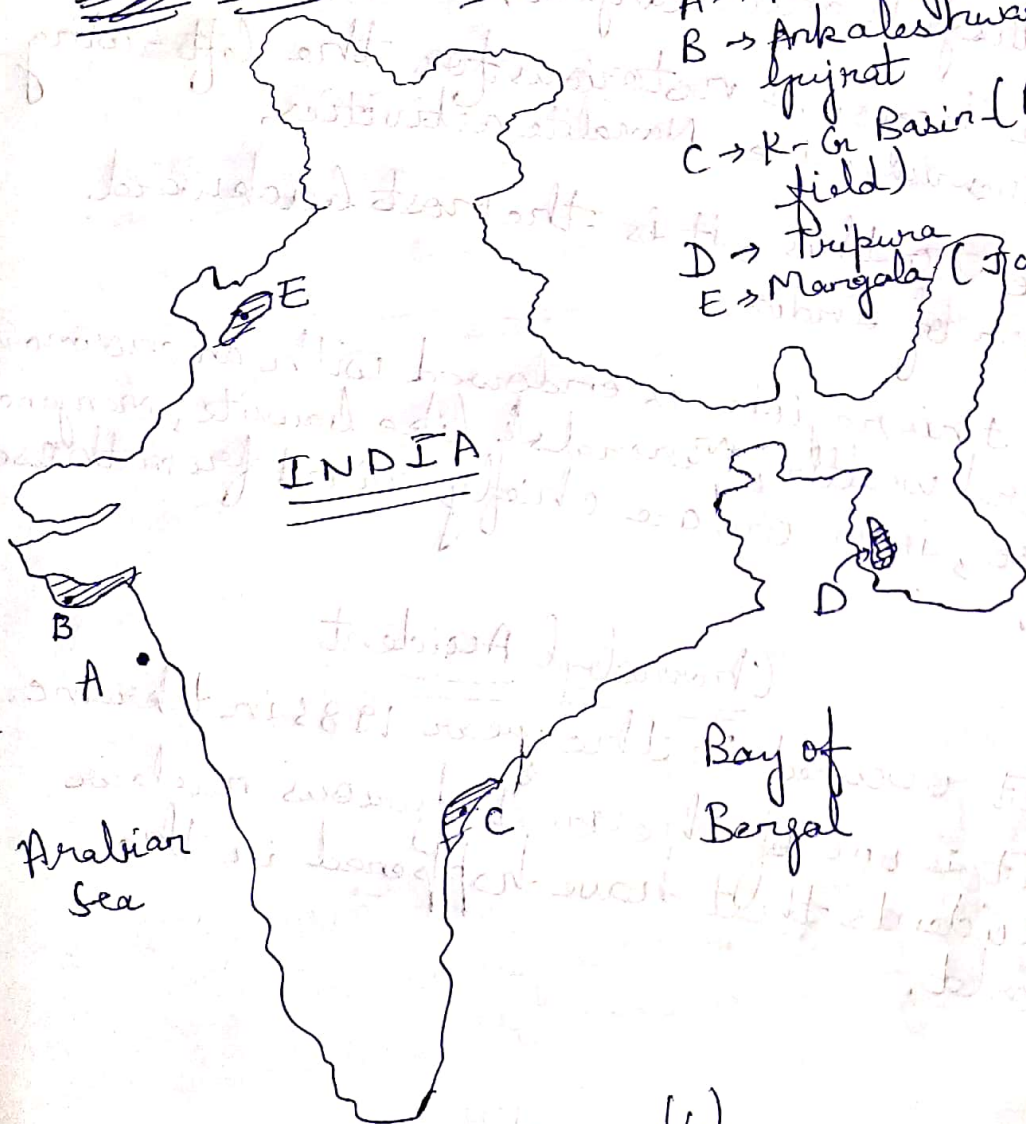
d) The rural sex ratio is much better than that of the ~~urban~~ urban sex ratio.

e) The number of million plus cities in the country as per the Census 2011 are 53.

2(E) 2(G)

Petroleum Producing Regions

- A → Bombay High
- B → Ankaleshwar in Gujarat
- C → K-G Basin (Ravva oil field)
- D → Tripura
- E → Mangala (Jaisalmer)



(6)



A large part of the crude oil production of the country comes from the Bombay high, which is an off-shore oil field.

Margala and Aishwarya oil fields are the recently discovered oil fields (onshore) at the site of erstwhile Tethys sea in Rajasthan's Thar Desert.

2 (H)

### Darbhanga Plateau

1) The plateau of Darbhanga is famous for situated mostly in the state of Orissa and some part of it is also in Maharashtra, Chattisgarh and Telangana.

2) The region is notorious for the left-wing extremism, i.e. Naxalite activities.

3) Due to this, it is the most backward region of India.

4) But this region is endowed with an enormous mineral wealth. Minerals like bauxite, manganese, iron-ore are chiefly mined from these areas.

2 (I)

### Chernobyl Accident

1) It occurred in the year 1986 in Ukraine.  
2) It is one of the most furious nuclear accidents that have happened in the world.

(7)



3) It happened due to the uncontrolled nuclear fission reaction which resulted in the blast of one of the boilers of steam and due to this, nuclear material leaked into the surroundings.

4) Many people died in the incident.

## 2(J) Measures to avoid Cyclone damage

a) Early Warning Systems - A robust early warning system is the foremost need to tackle the recurring cyclones. It may help in the early evacuation of the cyclone affected areas and this may result in low damage to life and property.

b) Planting shelter belts: - Shelter belts of trees like coconut - palm must be planted sideways the coast so as to decrease the intensity of cyclonic winds.

c) Construction at or very near to the sea - coasts, which are frequently affected by cyclones must be ~~prohibit~~ prohibited.

## 2(K) Methods of efficient irrigation system

a) using sprinklers: - It is a type of micro-irrigation technique in which water is sprinkled slowly over the area in the field. This



helps in the saving of freshwater and also prevents water-logging and salinity in the field.

- b) Utilising water for irrigation from small tanks constructed on the fields in which the water is stored from rainfall and canals.
- c) Making vedicas in the field so that water reaches to all parts of the field through these narrow channels and this may help in prevention of water-logging.

2 (L) Food processing industry in Madhya Pradesh  
Madhya Pradesh is fast emerging as the agricultural hub of the country. In the recent years, with the efforts of the government, the state of Madhya Pradesh has progressed a lot in the production of wheat, sugarcane, cotton, soyabean, rice, Coar etc.

The Malwa region of Madhya Pradesh is most fertile of region of the state due to its black soil. In the recent times, it has become a leader in the production of cotton, wheat and soyabean.

Hence, the region of Malwa has a potential of atleast 4 Mega-food parks, so that the agricultural produce could be easily processed, packed and exported. Recently, 'Aravli Mega Food



Park<sup>s</sup> has been constructed under 'SAMPADA' yojana. Chhindwara and its surrounding districts have progressed a lot in the production of corn and rice. This means that this region has also wide prospects of ~~in~~ food processing industry.

### Section-C

3(A)

#### Sea - Salinity

- 1) The salinity of the sea is determined by the amount of salts (in grams) dissolved in 1kg of sea water. It is expressed in per thousand (‰).
- 2) The average of salinity of the sea water is 35‰.
- 3) The main constituent salt is NaCl, which is about 77.80% in the total salt content of the sea water.
- 4) It is measured by an instrument known as 'salino-rector'.

#### Factors affecting the salinity

- 1) Addition of fresh-water: - If there is a huge addition of fresh water by rivers into the sea then the salinity will definitely be less. It is due to this reason that the salinity



of East Coast of India is ~~more~~<sup>less</sup> than the salinity of West Coast of India.

2) Rate of vapourisation :- It has been observed that if the rate of vapourisation is more than the salinity of the sea will be more than normal.

3) Ocean currents :- The ocean-currents are also responsible for the transport of saline water to the ~~less~~ saline regions.

4) Position of sea :- If the sea is situated in the continental interior and is nearly landlocked, then in such cases, the rate of salinity will be high.

5) Rate of precipitation :- The regions like Equator having very heavy rainfall possess low salinity while the seas near the desert regions, are more saline.

3 (B) Ganges - River System

1) It is the largest river system of India.

2) In this river system, Ganga is the main river which originates at Devaprayag after the confluence of Alaknanda and Bhagirathi rivers.



3) The River Ganga and its tributaries form a pattern of drainage, which is like the branches of a tree. This is known as the dendritic drainage pattern.

4) With the river Brahmaputra, Ganga river forms the largest delta of the world, which is known as the Sunderbans delta.

5) In the mid-Gangetic river valley, due to the deposition of ~~fertile~~ sediments, alluvial plains are formed, which are named as the 'Great North Plains'.

6) The left bank tributaries of River Ganga are Yamuna, Son, etc. while the important right bank tributaries are Ramganga, Gandak, Ghaghra, Kosi, Mahanada, Gomti etc.

### Importance of River Ganga

a) It is the lifeline of the people of North India especially those living in the fertile alluvial plains.

b) The Great North Plains of India provides the employment of a large part of population of Uttar Pradesh, Bihar and Bengal in the agricultural activities.



c) It provides drinking water supply to the urban areas situated at or near its bank and the banks of its tributaries.

d) Many of the industries which are situated in the basin of Ganga and its tributaries are dependent on it for the supply of water.

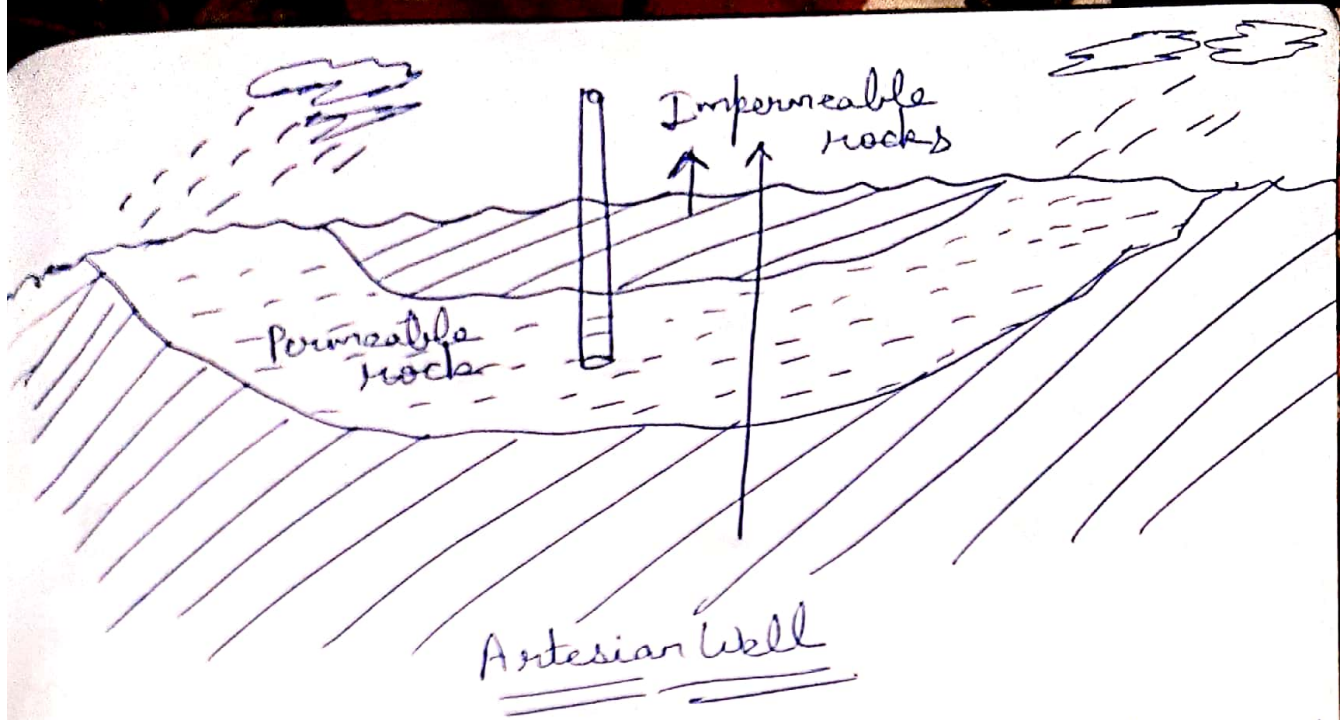
### 3 (d) Underground Water

The water that gets stored in the aquifers found in between the rocks in the earth's crust is known as underground water. Now-a-days, it is being extensively harnessed in agriculture, industries and for domestic consumption. But as its sources are also limited, there is an urgent need of using the underground water judiciously.

#### Sources of Underground Water

1) Artesian Wells :- These are common in Australia. When a permeable rock is sandwiched between the two impermeable rocks, then water gets trapped in it under high pressure. Whenever a hole is drilled, then such water occurs in the form of fountain.





2) Springs :- These are also the important sources of underground water. They occur in those regions naturally, where the water which is stored under high pressure, ~~is~~ makes its way through the faults to the surface.  
 E.g. → Vulsian spring in limestone region regions.