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GEOGRAPHY (TEST CODE : 950)

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Medium Hindi/Eng.	ENGLISH	Registration Number	28070
Center	KB	Date	04/10/2017

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1 (a)	10	
(b)	10	
(c)	10	
(d)	10	
(e)	10	
2(a)	15	
(b)	20	
(c)	15	
3(a)	15	
(b)	20	
(c)	15	
4(a)	15	
(b)	20	
(c)	15	
5(a)	10	
(b)	10	
(c)	10	
(d)	10	
(e)	10	
6(a)	15	
(b)	20	
(c)	15	
7(a)	15	
(b)	20	
(c)	15	
8(a)	15	
(b)	20	
(c)	15	

Total Marks Obtained:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
2. The Candidate should attempt FIVE Questions out of EIGHT questions strictly in accordance with the instructions given under each question printed in ENGLISH
3. The number of marks carried by a question/part is indicated against it.
4. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
5. Word limit in questions, if specified, should be adhered to.
6. Any page or portion of the page left blank in the Question Cum-Answer Booklet must be clearly struck off.

EVALUATION INDICATORS

1. Alignment Competence
2. Context Competence
3. Content Competence
4. Language Competence
5. Introduction Competence
6. Structure - Presentation Competence
7. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

1. **Attempt the following in about 150 words each** **(5 x10)**

(a) Elaborate the different types of erosional surfaces.

Erosional surfaces are an outcome of denudation chronology and depend on multiple factors like lithology, climate, relief, vegetation etc.

Generally they are classified according to the agent of erosion:

Various erosional surfaces:

1 Fluvial erosions landscapes

* Major erosional landforms are found in youth stage like steep valleys (I shaped or V-shaped), gorges, canyons, waterfalls etc.
* Finally the landscape turns into a Peneplain (according to Davision cycle) with relict dome shape hillocks called Monadnocks

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2. Aolian erosion landforms

* Wind is the agent of erosion which dominats in arid region giving rise ~~th~~ to landforms like Mushroom rocks, Zuegens, Yardangs, Mesas, Buttes, Stone lattice, Drieknater etc
* Finally a virtual relief-less ~~plain~~ stage is achieved known as Pediplain (L C King) with coalescence of Pediments.

3. Glacial erosion landforms

* Glaciers are very potent agents of erosion and give rise to erosional features like U-shape valleys, Corries/Cirque, Roche Mountonee, Truncated spurs, Hanging Valleys, etc Fjords etc.

4. Karst topography

* Limestone regions are chemically eroded to give rise to sink holes, dolines, uvalas, Polje, Caves, Clinks, Cone Karst etc

5. Coastal erosional features

* These include sea caves, sea arches, sea stack, sea cliff, wave cut terrace, etc.

1. (b) Low Level Jet streams and their effects.

Low level Jet streams are temporary Jet stream which appear seasonally and affect weather system.

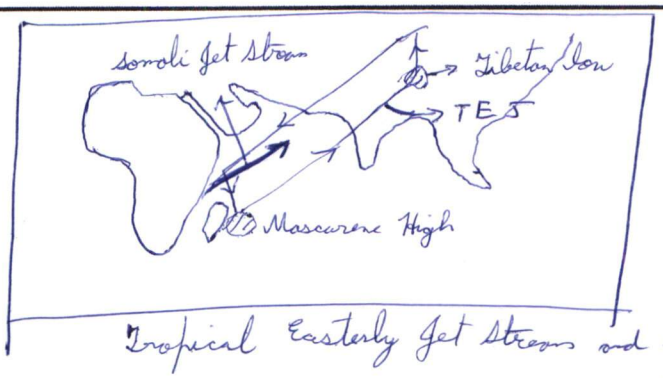
Examples

1. Tropical Easterly Jet Stream (TEJ)

* It is induced in the Summer Season of Northern Hemisphere over Tibetan Plateau and Mascarene High after the complete withdrawal of the southern branch of Sub Tropical Westerly Jet Stream (STWJ) from the Indian subcontinent

* The low pressure on the surface of Tibetan Plateau causes a corresponding high pressure in upper troposphere which flows toward the Mascarene High along Kolkata - Bangalore axis.

* TEJ reinforces Mascarene High and strengthens the South West Monsoon causing good rainfall.



Tropical Easterly Jet Stream and Somali Jet Stream

2. Somali Jet Stream

* It is a season low level jet streams which flows in a south west - North east direction in late summer along the African East coast
* It can push the south-west monsoon winds towards India and aid is good rainfall.

Both these jet stream aid the South West Monsoon and help in good rainfall over the Indian Subcontinent

1. (c) Larsen A, B and C.

Larsen A, B and C are huge ice shelves which are in the spotlight because they have detached or on the verge of detachment from the Antarctic Ice Mass.

Larsen A and B had broken off some years ago and Larsen C is the latest victim of global warming.

Significance

1. These are huge ice shelves and the their melting can cause a minor rise in sea level
2. Due to the influence on temperature of the ocean water in the vicinity it may adversely infact the biodiversity of the region

3. It can affect the thermohaline circulation as well as the surface ocean currents.

4. It is a clear indication of the ~~as~~ and impending disaster due to climate change if status quo is maintained.

5. It signal the need for strong and committed mitigation strategies on a global level like implementation of Paris Climate Deal (UNFCCC COP 21)

Larsen A, B, and C are warning for the mankind to ~~as~~ urgently switch to a sustainable lifestyle and give due importance to climate action

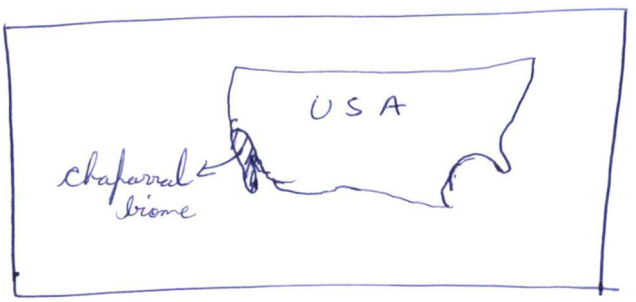
1. (d) Write a short note on Chaparral biome.

Chaparral biome is the scrub biome associated with the Mediterranean type of climate, especially in the California Region of United States of America

Climate:

* The climate in this region is ~~most~~ marked by a distinctive winter rainfall and dry summer (Koeppen Classification - Cs)

* The region remains very dry in summer due to offshore trade winds and receives rainfall in the winter due to the influence of onshore westerlies due to shifting of pressure belts.



Vegetation :

* This region is named after its distinctive scrub vegetation locally known as Chaparral
* It is famous for its citrus fruits like Sunkist Oranges
* It is also known for viticulture and wine manufacturing

Wildlife

* Small animals are found

1. (e) Factors affecting the monsoonal phenomenon in the recent decades.

Monsoon has remained an enigma till today and continues to defy trends and predictions. It is affected by a number of phenomena such as:

1. Complete withdrawal of ~~Sub Tr~~ southern branch of Sub Tropical Westerly Jet stream from the Indian subcontinent
2. ~~Set~~ Formation of Tropical Easterly Jet Stream between Tibetan Plateau and ~~Mascarene High~~
3. Shifting of the second Equatorial Trough northwards towards the Intertropical Convergence Zone (ITCZ)
4. Somali Jetstream and Somali current also reinforce rain bearing south west Monsoon winds

5. El Nino Southern Oscillation (ENSO) event adversely affects Indian Monsoon.

6. Positive Indian Ocean Dipole (IOD) enhances Monsoon rains.

7. Madden - Julian Oscillation (MJO) and Monsoonal rainfall during the wet phase and hinder rainfall during the dry phase.

Apart from these factors, there are several other phenomena which affect Indian Monsoon and are not completely understood

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2. (a) Differentiate between the ice crystal theory and the collision coalescence theory. 15

2.(b) Landforms are an outcome of a complex process having multiple influences. Discuss. 20

2. (c) Examine the recent changes in the Indian Ocean temperature and the possible causes and its impact. 15

3. (a) What are 'diversity indices' in a habitat and what role do they play. 15

Diversity indices are the different forms of indicators of the extent of biodiversity in a habitat. Some of the indices are:

1. Genetic Diversity

* It refers to the diversity in the genepool of a particular population of a species living in a specific habitat.
* It is a measure of the adaptability and variation within a species. More the diversity, more is the probability it can adapt to changing environment through natural selection.

2. Species diversity:

* There are two modes of measuring this diversity - richness and evenness

* Species richness is a measure of the diversity is number of species in an habitat. More number of species means more species richness.

* Species evenness means no species dominates the habitat and the numbers population of each species is significant and similar in size.

3. Ecosystem Diversity

* It is the measure of the diversity in the number of interactions among the biotic and abiotic components of the habitat

Role of diversity indices.

1. They gives an idea about the ~~rate~~ resilience of the ecosystem.
2. They are an indicator for adaptability to changing environment.
3. They also show the health of the ecosystem and the level of stress on it
4. The trends of these ~~indices~~ can help us plan for preservation of biodiversity

3. (b) Do you agree that tropical cyclones are thermally generated weather phenomenon? 20

Tropical cyclones are ~~second~~ a major type of secondary circulations generated in some selected warm oceanic regions.

Conditions for formation:

1. High surface temperature on oceans
2. Extremely low pressure → depressions

3. Concentric isobars with steep pressure gradient

4. Significant coriolis force.

Geographical Distribution

1. Tropical Water of Indian Ocean, Bay of Bengal, Arabian Sea

2. Tropical South China Sea and Western Pacific

3. ~~Tropical~~ Florida Coast and tropical Western Atlantic Ocean

3. Mostly found in the Northern Hemisphere

4. Move in a general East-West direction due to influence of Trade winds and in ~~ato~~ ~~Anto~~ clockwise direction in Northern Hemisphere due to coriolis force

60

Distribution of Tropical Cyclone

Role of Thermal Energy:

1. Heat and temperature play a crucial role in generation of tropical cyclones by ensuring high sea surface temperature.
2. High sea surface temperature aid in development of intense low pressure
3. But they are not the only factor. If cyclones were a thermally generated weather phenomena, it should have been distributed in tropical water all over the world
4. Their absence in South Atlantic Ocean and Eastern Pacific, etc. points to significant influence of other factors

Other factors

1. Dynamic movement of monsoon trough.
2. Shifting of Inter-tropical convergence zone (ITCZ)
3. Coriolis force is absent on equator. Hence no cyclones are found in equatorial water.

Therefore cyclones are not thermally generated phenomena but are influenced by a number of factors

3. (c) Elaborate what is meant by microclimate and how it impacts a region. 15

Microclimate is the climatic conditions found in a very small region with limited territorial extent of 100 metres.

It is the specific weather conditions of a habitat averaged over a long period of time

Role of microclimate:

1. Microclimate determines the specific vegetation and wildlife composition of a biome habitat

2. It ~~create a specific~~ determine the biodiversity of the habitat.

3. It leads to specific adaptation in the plants and animals. ~~Eg: salt deter~~

4. It leads to a specific climatic succession of the ecosystem. Eg: sciophytes on the leeward slope of a hill

5. Microclimate also determines the specific components of the soil, hence affects vegetation and agriculture

6. Microclimate also helps shape local landforms like slope gradient

7. It also determines the rate of microbial activity and organic content

Thus microclimate plays a pivotal role in any region

4. (a) 'Rhodinia' and the later formations and the general process involved in such formations. 15

4. (b) How are hydrothermal vent formed in the oceans. Discuss the biotic and the abiotic components related with such vents. 20

4. (c) Anlayse the concept of biome resilience. 15

5. **Attempt the following in about 150 words each** **(5 x10)**

(a) Migration and emigration related challenges for source region.

Migration is the change in residence of people with significant distance. Emigration is a type of migration where the people leave their home country and settle in a foreign land.

Challenges for source region:

1. Migrants are mostly ~~from~~ in their productive age leading to loss of economic potential in the source region

2. Emigration leads to human resource loss through 'Brain Drain'

3. Both lead to demographic change like a skewed sex-ratio, increased dependency ratio, etc

4. Women may gain autonomy but also become vulnerable being isolated

5. Physchological stress due to separation in families.

6. Increased dependency on remittances

7. Reduced workforce prevents industrial development

8. Increased crime rate due to concentration of weaker sections like women, children and elderly

Migration and emigration ~~xxxx~~ pose various economic and social challenges on the source region

5. (b) Global Importance of pipeline networks.

Pipelines are one of the most efficient mode of transport mainly used for fluids like energy sources - petroleum, natural gas, etc. Pipeline networks hence have become the energy lifelines of the world.

Global distribution:

1. Pipelines are used all over the world for transporting oil and natural gas.
2. Recently international pipelines are on the rise with projects like TAPI (Turkmenistan - Afghanistan - Pakistan - India), IPI (Iran - Pakistan - India), SAGE underwater pipeline from Gulf region to India etc.

Advantage of using pipelines:

1. Efficient transport
2. Eco-friendly and timely delivery
3. Low cost in the long run

Importance of oil and natural gas

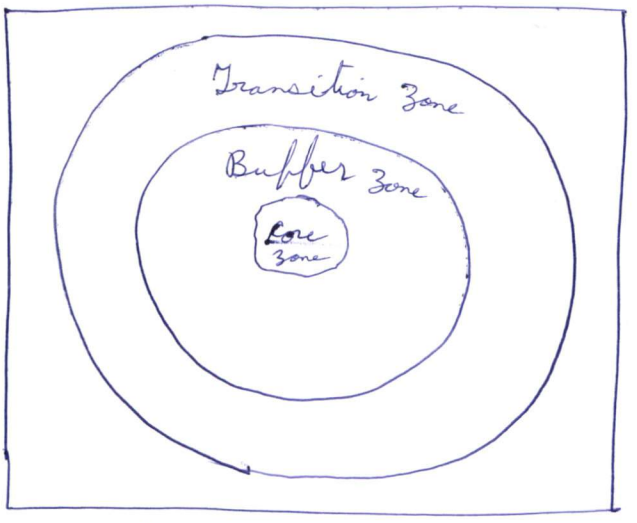
1. Clean source of energy - natural gas
2. Natural gas have very high calorific value
3. No residue like ash left on burning.
4. Ensuring energy security for the whole world

Hence pipeline network are pivotal for energy security and development, giving it global importance

5. (c) Elaborate a 'bid – rent curve' and its importance.

5. (d) Buffer zone and its relevance.

Buffer zone is the zone just outside the Core Area of a Biosphere Reserve which is considered as ecologically sensitive.



Organization of a Biosphere Reserve.

Relevance

1. Being in the vicinity of the Core Zone, they have a profound effect on it.
2. Only limited activities like regulated tourism, minor forest produce use, etc is permitted

3. It ensures minimum disturbance of the core zone.

4. It is the zone of habitation of the local tribal population who help in conservation through traditional knowledge.

5. It act as a shock absorbed due to changes in the environment.

6. It act as a zone of interaction between the natural and cultural world

7. It ensure free and unhindered movement of wildlife

Though Buffer zone are so critical for the conservation of Biosphere, only a limited Biosphere Reserves have a well defined Buffer Zone

5. (e) Write a short note on 'Bioregionalism'.

Bioregionalism can be defined as the spatial organisation of the biosphere with geographical arrangement of different biomes are specialized biotic regions with distinctive characteristics.

One of the method of Bioregionalism is the division of the world into separate Biogeographic zons or realms like:

1. Nearctic - North America
2. Palearctic - Eurasia excluding India
3. Oriental - India and south east Asia
4. Ethiopian - Sub Saharan Africa
5. Neo-Tropical - South America
6. Australian

Another method can be on the basis of biomes like Tundra, Taiga, Mediterranean, Tropical Rainforest, steppe etc.

Similarly there could be floristic division of the world

Another method could be delineation of megadiverse region and biodiversity hotspot or according to genepool (Vavilov)

All these forms of Bioregionalism are ways to organize the living world into distinct zones and study their interactions

6. (a) Role and scope of mariculture in overcoming nutritional problems. 15

Mariculture is a special type of aquaculture where aquatic life is nurtured in a carefully prepared open sea cage or coastal tanks.

Advantages of mariculture

1. Mass production of commercial variety of seafood like prawn, shrimp, oyster, etc.
2. Uniform quality and early harvest
3. Increased employment and farmer income
4. Increased availability of protein rich food
5. Ease of catching large number of fishes

Aspect of nutritional security

1. Pink revolution focuses on production of prawn, shrimps etc to increase protein intake.

2. Seaweed like Kelp are a good source of food during the times of Climate Change

3. Being a cheap source of protein, they are automatically targeted towards the weaker sections

4. Scaling up and diversifying mariculture can easily nutritional security

5. By increasing former income, mariculture enables economic access to balanced food

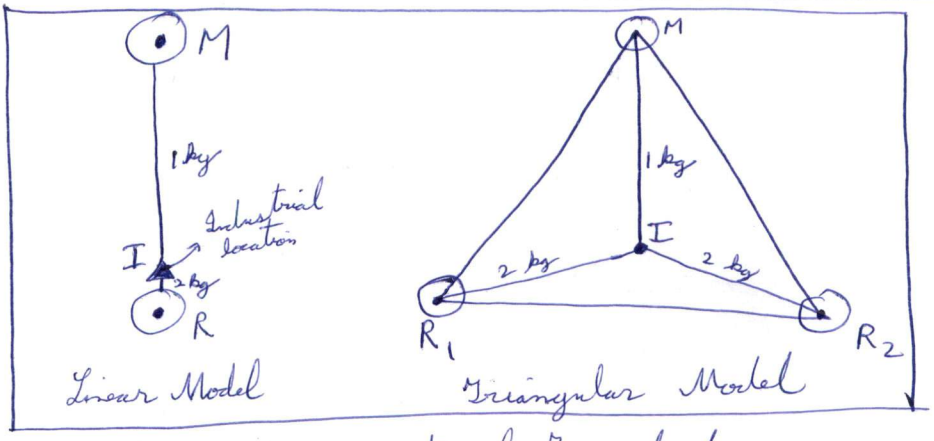
Hence mariculture by being a source of protein, seaweeds, etc and ensuring economic access to farming can go a long way in ensuring nutrition security

6. (b) Examine the relevance of Weberian model of industrial location for programs such as 'Make in India'? 20

Alfred Weber propose a model for the optimal location of industries based on the concept of minimizing cost of production

Summary of Weber's model

1. Minimizing cost of transportation
   * Weight losing and localized raw materials should compel industrial location close to the source of raw material



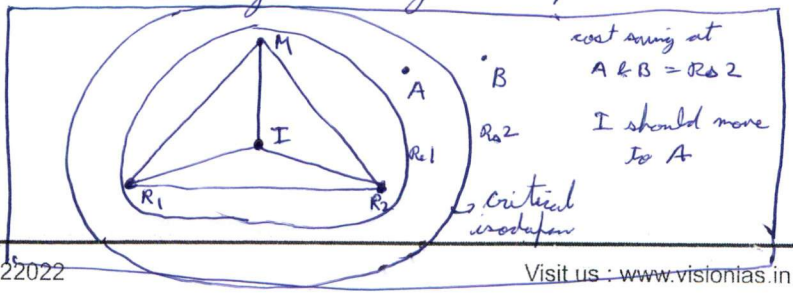
Minimizing cost of Transport.

2. Minimizing labour cost

* Industries should relocated to a place with lower labour cost if the site lies with the critical isodapane

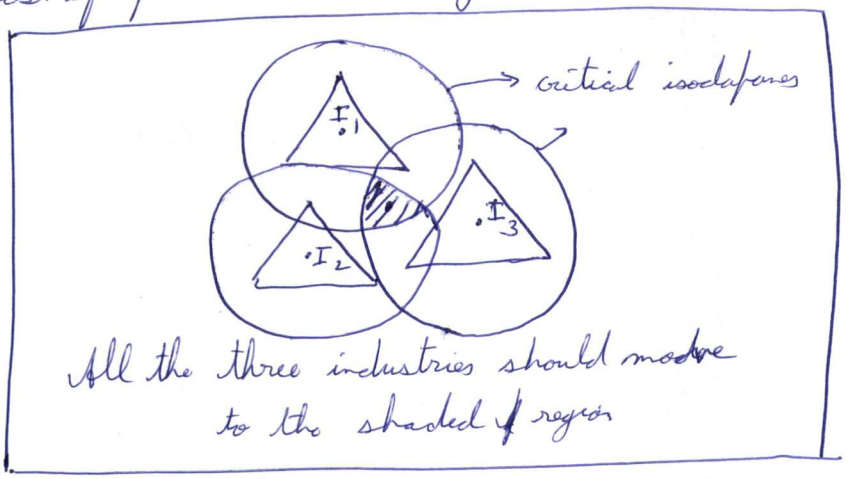
* Isodapane are cost contours or line joining point of equal additional cost of transporting raw material and finished goods.

* Critical isodapane corresponds to the isodapane equal to cost saving through cheap labour



3. Agglomeration effect

* Co-location of many industries can reduce cost of production through agglomeration



Utility in Make in India:

1. Make in India aims at specific industries which are labour intensive and have multiplier effect. Eg: Textile, leather etc Hence they should be located in regions of cheap labour to gain economy. Eg: Leather industry in Eastern Uttar Pradesh, Textile industry in smaller cities or towns employing women

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2. Footloose industries like electronics should be located near raw-material dependent industry like iron and steel to gain from agglomeration. Another example could be petrochemical, fertilizer and synthetic textile industry co-locate.

3. Industrial complex should be created in raw-material rich, cheap labour providing, backward region to economise production as well as lead to balanced growth. Eg; Odisha & Chhattisgarh region

6. (c) Do you agree underpopulated regions in present day world are generally resource poor regions. Elaborate your view with examples. 15

Optimal population theory states that a region is underpopulated if the population is unable to adequately utilize all the resources in the region.

Hence underpopulated region have more resources than they can harness

Examples

1. Central Asian Region

* Countries like Uzbekistan, Kazakhstan, Turkmenistan etc have d rest reserves of minerals like Uranium, natural gas etc. But their small population cannot use all these resources and they need to export these surplus minerals to rest of the world

2. Central Africa

* This region is also rich in minerals like coffer, diamond, petroleum etc but has a small population.

* There is also surplus of cultivable land

3. Amazon Basin

* This region is the richest source of biodiversity and forest produce but

has a small population.

* There is plenty of water resources which is untapped

4. Sahara Desert

* The desert region is rich in solar energy which can be tapped to harness electricity.

* But lack of technical skill & and sparse population has kept this resource untapped.

All these examples prove that underpopulated region are not deficient in resources but have surplus resources. With technological advancement these areas can realize their potential

7. (a) Write an analytical note on 'The stages of economic growth: a non-communist manifesto' 15

WW Rostow proposed the 'Stages of economic growth: a non-communist manifesto' where he mentioned 5 stages of growth:

1. Traditional society
* Characterized by primitive technology and rigid hierarchy
* Resource wasted in non-productive activity like Religion and Military

2. Pre-conditions to take-off
* External stimulus leads to some improvement in agriculture and basic industries. Eg: Colonialism
* This leads to increased investment in Agrarian infrastructure
* Economically elite group emerges and centralization of state

3. Take-off

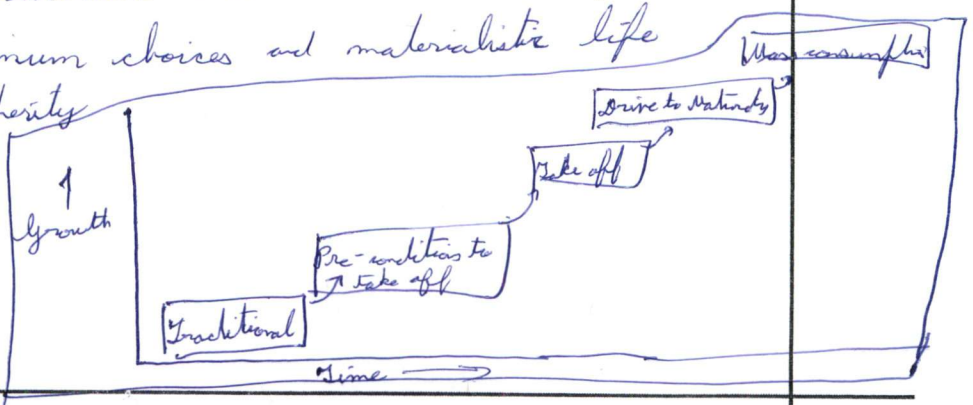
* Rapid growth takes place in selected industries like agriculture, railways, textile
* Increased savings is reinvested in industrialization
* Rostow termed this stage as the 'Great Watershed of Civilization'

4. Drive to Maturity

* Rapid growth spreads to all other sectors of the economy
* ~~Increase~~ Almost 10-20% of National Income is re-invested in capital formation

5. Age of Mass consumption

* Consumerism and rise in consumer goods
* Maximum choices and materialistic life
* Prosperity



Example:

Stage 1 - US during colonialism Stage 2 - early 18th cent.

Stage 3 - Mid 18th century Stage 4 - Till late 20th cent.

Stage 5 - Present US

Criticism :

1. Not seen in much of the world.
2. Based on observations of western world only
3. Singapore jumped stages
4. Over-emphasis on capitalism

The model is a simplistic representation which find few association in real world

7. (b) Critically analyse the role that 'Polluter pays principle' plays in strengthening environmentalism. 20

Polluter pays principle (PPP) is the doctrine of penalizing the polluter in order to nudge him towards sustainable practices.

Methods

1. Carbon tax

* It is one of the most effective strategy to disincentivise pollution by increasing its economic cost

* Eg: Coal cess, higher excise duty on fossil fuel products etc

2. Compensatory Afforestation

* The party causing deforestation is ~~liable~~ responsible for the compensatory afforestation and has to pay for the same.

3. Heavy penalty for deviance

* Oil spills, chemical leakage etc are liable to attract heavy penalty ~~as~~ which can be used for cleaning up

4. Carbon credits

* The carbon trade mechanism through clean development mechanism of Kyoto Protocol allowed parties to increase

emissions after buying 'Certified Emission Reduction' units

Role in environmentalism

1. PPP disincentivising pollution by raising its cost
2. It nudges industries and individuals towards sustainable practices
3. It raises funds to develop clean technology and fund climate actions
4. It sets an example with attachment of moral responsibility for pollution
5. With international adoption of PPP, many positive steps have been taken to minimize emission

Polluter pay principle since has turned out to be very effective with most industries switching to cleaner technologies and energy efficient modes of production

7. (c) Compare the lifestyle of slum-dwellers with that of tribesmen in different parts of the world. 15

There are many similarities as well as differences between the lifestyle of slum-dwellers and tribesmen in different parts of the world

Similarities

1. Slum dwellers live in very compact and poorly built settlements just like some tribes like the Headhunters of Nagaland

2. Slum-dwellers have a large section of migrant population just as tribes like Badawins, Tuaregs, Kirghiz etc

3. Slum-dwellers are relatively isolated from the surrounding areas similar to the tribes

4. Slum-dwellers have poor socio-economic indicators so do have tribes like Andamanese tribes

Differences

Slum dwellers	Tribesmen
1. Always compact settlement	Rarely compact settlement
2. Engaged in low-income jobs	Engaged in primitive activities
3. ~~Rare~~ Live in cities	Live isolated in countryside
4. Poor social cohesion	Strong social cohesion,

Slum dwellers	Tribesmen
5. Lack of access to basic necessities	Derive basic necessities through traditional modes
6. Illegally occupy land	Land belongs to them for generations
7. Fear of eviction	Fear of displacement

Though both groups have some similarities, they differ vastly in most aspects. ~~Smm~~ Slum dwellers may have some traits common with specific tribes but are largely distinct from tribesmen as a whole

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8. (a) 'The focus of welfare geography is on spatial inequality and territorial justice'. Analyse this statement. 15

8. (b) 'Industries and industrial investments are the new tools of geopolitics.' Critically analyse. 20

8. (c) What are the causes of decline of crude oil as a energy source and its impact. 15