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GENERAL STUDIES (TEST CODE : 704)

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Medium Hindi/Eng.	ENGLISH	Registration Number	13773
Center	NEW DELHI	Date	04.10.15

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	12.5	
2	12.5	
3	12.5	
4	12.5	
5	12.5	
6	12.5	
7	12.5	
8	12.5	
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10	12.5	
11	12.5	
12	12.5	
13	12.5	
14	12.5	
15	12.5	
16	12.5	
17	12.5	
18	12.5	
19	12.5	
20	12.5	

Total Marks Obtained:

Remarks:

Signature of Examiner

INSTRUCTIONS

- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are TWENTY questions printed in HINDI and ENGLISH.
इसमें बीस प्रश्न हैं तथा हिन्दी और अंग्रेजी दोनों में छपे हैं।
- All questions are compulsory.
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- 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 than the authorized one.
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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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

All the questions are compulsory and carry 12.5 marks each. NOT MORE THAN 200 WORDS.

1. Even though the equatorial regions have great potential in timber resources, the lumbering industry has not developed properly in these regions. What could be the possible reasons behind this? Discuss the suitability of the equatorial regions for plantation agriculture.

यद्यपि विषुवतीय क्षेत्रों में इमारती लकड़ी संसाधनों की वृहत संभावना है, फिर भी इन क्षेत्रों में इमारती लकड़ी संबंधी उद्योग ठीक प्रकार से विकसित नहीं हुए हैं। इसके पीछे संभावित कारण क्या हो सकते हैं? रोपण कृषि हेतु विषुवतीय क्षेत्रों की उपयुक्तता पर चर्चा करें।

Equatorial regions are endowed with rich tropical rainforests which supplies good quality hardwood. However, the logged woods are not commercially used in these regions, rather they are exported to developed nations.

The lumbering industry has not been properly developed in these regions because of lack of capital, lack of appropriate technology and expertise. These regions are among the developing countries or even the least developed countries.

Plantation Agriculture should not be introduced in equatorial regions as ~~they~~ it will result in widescale deforestation.

of the Tropical Rainforests which will have huge environmental implications. Valuable carbon sinks will be destroyed. Although plantations of tropical crops like rubber, coffee, cashew nuts etc. can be suitably cultivated in these regions, it should not be encouraged.

2. Transport linkages and government policies are the two most important factors influencing the establishment of Footloose industries. What are the other factors, which influence the location of these industries? Discuss in the context of India.

परिवहन लिंकेज और सरकारी नीतियां फुटलूज उद्योगों की स्थापना को प्रभावित करने वाले दो सबसे महत्वपूर्ण कारक हैं। इन उद्योगों की अवस्थिति को प्रभावित करने वाले अन्य कारक कौन-से हैं? भारतीय संदर्भ में चर्चा करें।

FOOTLOOSE INDUSTRIES are those industries which can be organized anywhere in the world and are not tied down by those traditional factors which tie down other industries to a particular geographic location.

Footloose industries have emerged in the era of globalization, where different components of a product are manufactured across the globe to enjoy the comparative advantages and economies of ~~the~~ scale. It is in this context that transport linkages become important to organize and manage these flows. Government policies also become important as they incentivize these industries to expand their manufacturing bases in their country.

The other factors which influence the location of these industries are

as follows :

(i) ACCESS TO MARKETS

This is the most dominant locational factor as markets are needed for these manufactured goods. However, by 'MARKET', they mean DEMAND FOR THE GOODS as well as PURCHASING POWER. So, they would not locate in small regions with limited populations, but in those areas where they are large markets with ^{good} high purchasing powers, such as India.

(ii) ACCESS TO CHEAPEST RAW MATERIALS

They would ~~concentrate~~ purchase raw materials from those regions which will be priced most cheaply.

Developing countries like India offer this.

(iii) ACCESS TO CHEAP LABOUR

Since footloose industries aim at finding locations where there is abundant cheap labour, India and other developing countries is one such destination, where strict labour standards of developed countries can be avoided.

(iv) ACCESS TO TRANSPORT TERMINALS AND LOGISTICS PARKS.

Since different components of a product have to be transferred from

different locations to the centry of assembly, LOGISTICS PARKS and their services become essential. India is taking huge efforts to develop this sector.

(V) ~~ACCESS TO~~ Due to development of global communication systems, services related to industry can now be outsourced to countries like India which offer cheap and reasonably skilled english speaking workers.

It is for all of the above reasons that footloose industries find developing countries like India an attractive destination.

3. "Change in latitude and altitude leads to variation in temperature and vegetation". Analyze.

"अक्षांश और ऊंचाई में परिवर्तन तापमान और वनस्पति में परिवर्तन उत्पन्न करता है।" विश्लेषण करें।

Due to the earth being spherical in shape, the sunlight received from the sun varies across different latitudes, with the tropics ($23\frac{1}{2}^{\circ}$ North and south latitude) receiving the maximum insolation, and the poles receiving the least.

It is due to this variation of insolation which determines the temperature and vegetation of each latitudinal zone. The tropics receiving the maximum insolation are very hot and wet with very diverse and abundant vegetation. The temperate zone (40° North to 60° North, and 40° south to 60° south) due to lesser insolation are warm in the summers but cool in the winters. Their vegetation also is less diverse than the equatorial regions. The polar zone (60° North and 60° South and beyond) receive the least amount of insolation and thus

are very cold with sparse vegetation such as mosses and ferns.

Alexander Von Humboldt pointed out that "ALTITUDE MIMICS LATITUDE".

It is for this reason that as altitude increases, we find conditions of temperature and vegetation of those of higher latitudes, regardless of which latitudinal zone the area belongs to. A case in point is Mt. Kenya and Mt. Chimbarazo, which ~~located~~ ~~in the~~ have their foot on the equator, but due to their altitude they have snow covered peaks.

4. Jute, "The Golden Fibre" enjoys significant ecological and economic advantages over other fibres yet it has been struggling to survive. In this context, discuss the problems associated with the Jute Industry in India. To what extent can the Jute Technology Mission address the same?

जूट, जिसे "गोल्डन फाइबर" के नाम से जाना जाता है, अन्य तंतुओं से अधिक महत्वपूर्ण पारिस्थितिकी और आर्थिक लाभ प्राप्त करता है, फिर भी यह अस्तित्व बचाने हेतु संघर्षरत है। इस संदर्भ में भारत में जूट उद्योग से जुड़ी समस्याओं पर चर्चा करें। जूट प्रौद्योगिकी मिशन किस हद तक इन समस्याओं का समाधान कर सकता है?

Jute is derived from the bast or inner bark of trees in jute growing regions from the tedious process of retting. Jute enjoys significant ecological and economic advantages. Jute is environmental friendly, as opposed to plastic or polythene. It is economical because its production cost is quite less and its selling price is also very modest.

However, this "Golden Fibre" is facing threats to its very survival. It is no longer being seen competitive when compared to Nylon and Synthetics. Complaints are also being made about its quality with respect to other fibres against parameters of strength and durability.

The Jute Industry in India is facing the crunch in demand, so much so that now there is a wide gap between demand & supply. Due to loss of revenues they are also unable to meet the cost of production, especially that of retting process, which requires a huge amount of water. This is leading to shut down of factories and unemployment for the displaced workers. Loss of revenue is also posing a problem in importing jute itself from Bangladesh (since post partition, jute producing areas went to East Pakistan).

The Jute Technology Mission 2005 however falls short of addressing all the problems. It merely prescribes jute packaging to be made mandatory for certain products bought or sold by the Government. What is actually needed the most is to make people aware of the benefits of this "golden fibre" to generate demand. Research needs to be promoted to improve the quality of jute to allow it to compete with other fibres.

Thus, all is not lost. With the right policies, the jute industry can be revived. The government has to come out with appropriate incentives and supportive measures to make jute India's 'Golden Fibre' again.

5. How do global pressure belts explain the formation of climatic regions across the world?

वैश्विक दाब पेटियाँ किस प्रकार विश्व भर में जलवायु क्षेत्रों के निर्माण की व्याख्या करती हैं?

Global Pressure belts have a huge role in the formation of climatic regions across the world.

The TRADE EASTERIES, which blow over the lower latitudes significantly determine the climate of the region. Since the direction of their flow is from East to West, they are onshore on the east coast of all continents bringing abundant precipitation and cool climatic conditions, while they are off shore on the west coast of all continents bringing aridity and desert like conditions.

The WESTERLIES, which blow over the middle latitudes have given a typical Mediterranean type of climate. Since the westerlies are onshore on the west coast

The Global Pressure Belts have a huge role to play in determining climatic regions across the world. This can be explained via two examples :

1. INDIAN MONSOON CLIMATE

It is believed that India's monsoonal climate has lots to do with the annual migration of the global pressure belts southwards. The shift is maximum in South Asia, about 27° . The shift of the global pressure belts is due to the shift of the sun southwards.

2. MEDITERRANEAN TYPE OF CLIMATE

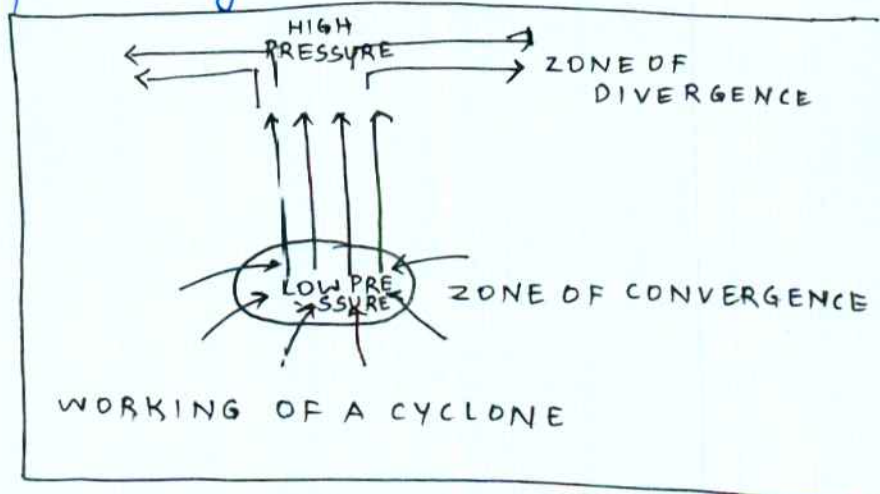
This type of climate is found in areas around Mediterranean, Cape Province South Africa, Central Chile, California and North Australia.

Due to the shifting of pressure belts, these above regions are under the influence of trade easterlies in the summer and thus their climate is hot and dry^(OFFSHORE), while in the winter they are under

the influence of westerlies, which are onshore on all these west facing locations and therefore their climate is cool & and wet.

6. What are extra tropical cyclones? How are they different from tropical cyclones? Why do the tropical cyclones weaken over the land after landfall? बहिरुष्णकटिबंधीय चक्रवात क्या होते हैं? ये उष्ण कटिबंधीय चक्रवात से कैसे भिन्न होते हैं? उष्णकटिबंधीय चक्रवात लैंडफाल के पश्चात् कमजोर क्यों हो जाते हैं?

Extra Tropical cyclones, also known as TEMPERATE CYCLONES are cyclones which originate in the temperate regions. They are a windsystem having a low pressure system at the centre (ZONE OF CONVERGENCE). They move anticlockwise in Northern Hemisphere and clockwise in the Southern hemisphere. Temperate cyclones share all these characteristics with Tropical cyclones.



DIFFERENCE BETWEEN TEMPERATE
AND TROPICAL CYCLONES

TEMPERATE CYCLONES

TROPICAL CYCLONES

1. They are always accompanied with a front. They are FRONTAL IN ORIGIN.

2. They are formed over the ocean and draw heat from it. They are THERMAL in ORIGIN.

2. They move in the direction of West to East as they are under the influence of Westerlies.

2. They move in the direction of East to West as they are under the influence of tropical easterlies.

3. They have ELLIPTICAL ISOBARS.

3. They have CIRCULAR ISOBARS.

4. They occur very frequently and are non destructive to weak Pressure gradient force.

4. They occur very rarely but are destructive to strong Pressure Gradient Force.

5. Width: 800-1600 km

- Width: 100-150 km

6. Speed: 30-50 km/hr

6. Speed: 15-20 km/hr

7. They occur in temperate regions

7. They occur in tropical regions.

Tropical cyclones weaken over the land after landfall because:

1. Losses due to FRICTIONAL DRAG on landing

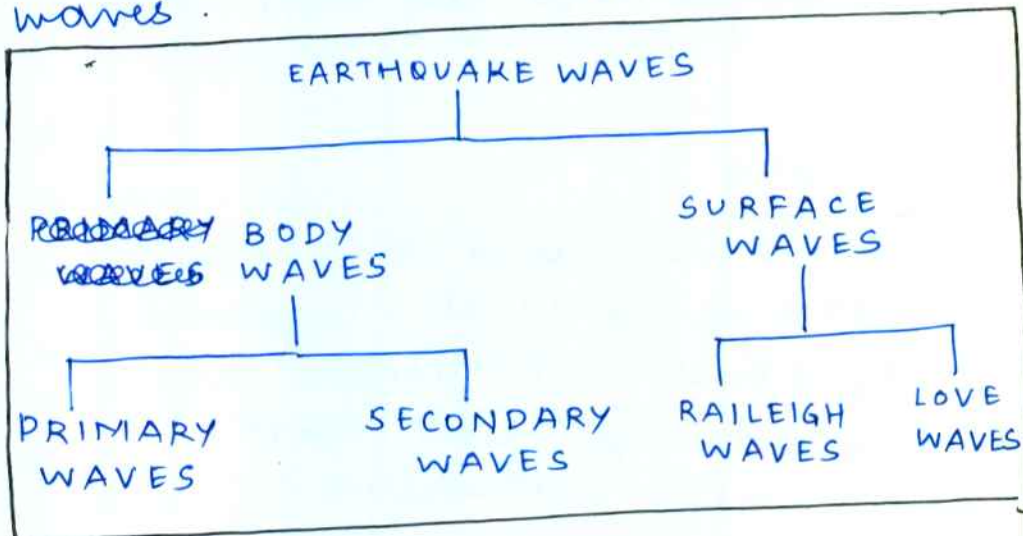
2. They are cut off from their source of energy, i.e., the ocean from where they draw sensible and latent heat. Thus, they die when falling on the land.

7. Describe the different types of earthquake waves and their modes of propagation. How do the earthquakes occurring in the Fold Mountain regions differ from those occurring at large reservoirs/dams? What is the difference between Shallow-focus and deep-focus earthquakes?

विभिन्न प्रकार की भूकम्पीय तरंगों और उनके संचरण के प्रकारों का वर्णन करें। वलित पर्वतीय क्षेत्रों में आने वाले भूकम्प बड़े जलाशयों/बांधों के क्षेत्र में आने वाले भूकम्प से कैसे भिन्न होते हैं? छिछले केन्द्र और गहरे केन्द्र वाले भूकम्पों में क्या अन्तर है।

~~There are~~

Earthquake waves refer to the release of energy which moves in waves during the time of an earthquake. There are two kinds of earthquake waves.



I. BODY WAVES

Body waves are waves which travel in the body of the earth. They are further divided into ~~Body~~ Primary waves and Secondary waves.

Primary waves are like sound waves, they can travel in

any medium - solid, liquid or gaseous. Their movement is back-and-forth and therefore, they are also known as PUSH-PULL or COMPRESSIONAL WAVES.

Secondary waves are these ~~eq~~ earthquake waves which can move only in ~~liq~~ solid medium. They can't move in Asthenosphere as it is not solid enough. They are also called SHEAR WAVES and they move in ~~horizon~~ vertically perpendicular direction.

II. SURFACE WAVES

Surface waves are waves which move on the surface of the earth. They come after Body waves and therefore they are also called Long Period Waves. They are the most destructive.

Raileigh Waves are the waves to arrive at the last. They move in elliptical motion.

Love Waves are the most destructive waves, they move in a horizontally perpendicular direction.

Earthquakes occurring in the Fold Mountains are TECTONIC IN ORIGIN, while those occurring at large reservoirs and dams are HUMAN INDUCED.

Being tectonic in origin, earthquakes of the Fold Mountains are much more destructive than the human induced earthquakes at reservoirs.

Shallow Earthquakes are those which have a focal depth of 70 km.

They are the most destructive.

Deep Focus Earthquakes are those which have a focal depth between 300 km to 700 km.

8. Which are the prominent monsoon regions other than the Indian sub-continent? Elucidate the crucial role played by the Tibetan Plateau in regulating monsoons over the sub-continent.

भारतीय उपमहाद्वीप से भिन्न अन्य प्रमुख मानसून क्षेत्र कौन से हैं? उपमहाद्वीप के ऊपर मानसून को विनियमित करने में तिब्बत के पठार द्वारा निभायी जाने वाली महत्वपूर्ण भूमिका को स्पष्ट करें।

The other prominent monsoon regions other than the Indian sub continent is South Western Australia, South East Asia and Eastern Africa. All these regions have hot and wet summer due to the shift of global pressure belts, and similarly cold and dry winter for the same reason. All these regions experience seasonal reversal of winds during monsoons, especially the regions lying in South Asia, due to migration of pressure belts by over 27° .

TIBETAN PLATEAU plays a very important role in regulating monsoons over the sub continent. The plateau acts both as a mechanical barrier and a heat reservoir. The plateau is at 4500 metre elevation and 600 metre width in the east and 1000 metre width in the west. During the monsoon season, an anti

cyclonic circulation develops over Indonesia and starts moving North West. By June, it situates ~~over~~ itself over the Tibetan Plateau. This anticyclonic circulation then becomes the high pressure system for the low pressure system causing precipitation over the Indian sub continent.

9. What are Rare Earth Elements? What are their uses? How is India positioned in the global distribution of these resources?

दुर्लभ मृदा तत्व कौन से हैं? उनके उपयोग क्या हैं? इन संसाधनों के वैश्विक वितरण के हिसाब से भारत की स्थिति कैसी है?

Rare Earth Elements (REEs) are elements similar in chemical composition and occur together in the periodic table. However, they are not rare as their name suggests. In fact their crustal abundance is 200 times that of Gold. They are relatively widespread globally however their extraction is limited by the fact that they are often not concentrated in one place to make their extraction economically viable.

REEs are widely used in everyday devices like computer memory, DVDs, mobile devices. Their use is also in the defence sector — night vision goggles, precision weapons. They are used in RECHARGEABLE BATTERIES in electric & hybrid vehicles. With growing concerns about energy security and climate change, its importance will only increase with respect to hybrid electric vehicles.

China is the number one producer

and consumer of REEs. USA and Japan are the second and third largest consumers.

India, with respect to global distribution, has considerable amounts of REEs, however, India has not made much efforts towards exploration, extraction or enhancing technology for extraction of REEs. However, India has signed treaties with other countries like Japan and China to ensure REEs are imported and Indian demand is met.

10. "The potential of Inland Water transport (IWT) to encourage and support increased economic and social development is enormous". Discuss the factors responsible for the slow growth of IWT in India with special emphasis on geographical limitations. Enumerate some steps taken by the government in order to make this form of transportation competitive with respect to rail and road.

"अंतर्देशीय जल परिवहन (आई. डब्ल्यू. टी.) में वर्धित आर्थिक व सामाजिक विकास को प्रोत्साहित एवं समर्थन प्रदान करने की अत्यधिक संभाव्यता है।" भौगोलिक परिसीमाओं पर विशेष बल देते हुए भारत में आई. डब्ल्यू. टी. की धीमी गति से विकास के लिए उत्तरदायी कारकों पर चर्चा करें। परिवहन के इस रूप को रेल और सड़क यातायात के साथ प्रतिस्पर्धी परिवहन साधन बनाने के क्रम में सरकार द्वारा उठाए गए कुछ कदमों का उल्लेख करें।

Inland Water Transport can offer a great alternative to traditional means of transport. It will be cost effective, less polluting and environmental friendly. In fact, the present government has taken efforts towards this direction. They have proposed a bill in the Parliament to convert 101 ~~waterways~~ Rivers and streams in the country into waterways.

However, Inland Water Transport (IWT) has been not utilized to its potential till now. Many factors are responsible for

this. First, many rivers and streams are really small and narrow to be converted into economically viable projects. Second, such a move ~~poses~~ may result into Inter State River Waters Disputes. It may also lead to federalization challenges as Inland waterways is a state subject, and the states may see it as encroachment of the Centre.

11. Lakshadweep has been facing a drastic decline in coral cover in recent years. Discuss various environmental and anthropogenic factors behind this phenomenon. How can El Nino be disastrous for the world's coral reefs? Illustrate.

हाल के वर्षों में लक्षद्वीप के प्रवाल आच्छादन में भारी क्षय देखने को मिला है। इस परिघटना के लिए उत्तरदायी विभिन्न पर्यावरणीय एवं मानवीय कारकों पर चर्चा करें। अलनीनो विश्व की प्रवाल भित्तियों के लिए किस प्रकार विनाशकारी हो सकता है? वर्णन करें।

Lakshadweep Islands, being submarine platforms and extension of Arkan Yoma Ranges, have an abundant coral cover. However, recently, their CORAL ATOLLS are facing a drastic decline. There are many reasons behind this.

1. ENVIRONMENTAL FACTORS

(i) change in temperature due to seasonal variation. Corals are temperature sensitive. They require temperature between 25° to 30° celsius.

2. ANTHROPOGENIC FACTORS

(i) change in temperature due to Global Warming destroys corals.
(ii) Marine Pollution such as OIL SPILLS also kill the corals.

(iii) overexploitation during fishing is also another cause. Use of dynamite and cyanide during fishing releases toxic chemicals, which are harmful to corals.

(iv) Ocean Acidification weakens the process of calcification, thereby rendering corals weak.

(v) Cultural Eutrophication is another big factor. Addition of excessive nitrates and phosphates to water harms the corals extensively.

El Nino can be disastrous for the world's coral reefs. El Nino raises the temperature of the ocean abnormally. The corals being temperature sensitive are negatively impacted. The symbiotic algae *Zooxanthellae* of coral polyps are heat sensitive and they die. Since these algae provide colour to corals, discolouration happens on their death, which is called "CORAL BLEACHING". Thus, El Nino

can ~~also~~ enhance the phenomena of coral bleaching and put the cereals of the world in peril.

12. Municipal Solid waste management is fast becoming a nightmare for citizens and local authorities in cities across India. Enumerate the steps taken by various municipal bodies to tackle this enormous problem in India. Can WtE (Waste to Energy) be a feasible solution to this fast growing problem?
- सम्पूर्ण भारत के शहरों में नगरपालिका ठोस अपशिष्ट प्रबंधन तेजी से नागरिकों और स्थानीय अधिकारियों के लिए दुःस्वप्न बनता जा रहा है। भारत की इस वृहत समस्या से निपटने के लिए विभिन्न नगर निकायों द्वारा उठाए गए कदमों की गणना करें। क्या डब्ल्यू.टी.ई. (अपशिष्ट से ऊर्जा) इस तेजी से बढ़ती समस्या हेतु एक व्यवहार्य समाधान हो सकता है?

Municipal solid waste management is a big problem in cities today and lack of a coherent strategy to tackle mounting wastes is further aggravating the problem. It is causing environmental damage, economic losses and even affecting the landscape. It poses ~~huge~~ negative health threats for the population.

Municipal bodies are tackling this problem by the following measures:

1. LANDFILLS

The disposed waste is buried in landfills and covered. ~~by the~~ Such landfills are located outside city borders.

2. INCERINATION

To eliminate the wastes, Municipalities are going for direct burning to destroy them.

3. PROPER MAINTENANCE OF DRAINAGE SYSTEM to prevent clogging and proper channelization of wastes in the dumping pits.

4. Municipalities have started door to door waste collection trucks to combat this menace.

5. Dustbins have also been placed at ~~roads & and~~ ~~crannies~~ to avoid all ~~important~~ places which see maximum waste. ~~dis~~

Waste to Energy (W+E) can be a very good solution to this problem as not only will the waste get eliminated but also energy security challenges of the nation will be addressed.

13. It has been observed that the ozone hole develops over Antarctica, and not over manufacturing centers where chlorofluorocarbons are released prodigiously. How can you explain this phenomenon? Examine the possible health and environmental impacts of ozone depletion.

ऐसा दृष्टिगत हुआ है कि ओजोन छिद्र अंटार्कटिका के ऊपर विकसित होता है, न कि उत्पादन केन्द्रों के ऊपर जहां से क्लोरोफ्लोरोकार्बन वृहद मात्रा में मुक्त होता है। इस परिघटना की व्याख्या आप कैसे कर सकते हैं? ओजोन क्षरण से संभावित स्वास्थ्य एवं पर्यावरणीय प्रभावों का परीक्षण कीजिए।

Ozone hole is defined as depletion of stratospheric ozone to an extent that its concentration falls below 220 Dobson units.

Ozone hole is found specifically developing over Antarctica and not over manufacturing centres of CFCs due to 2 reasons:

1. Intense cold conditions exist over the Antarctica which gives rise to polar stratospheric clouds. These clouds contain Ice crystals that act as substrates for breakdown of CFCs to ^{or} chlorine atoms, which then reacts with Ozone, disturbs the Chapman Cycle's equilibrium, and destroys ozone.
2. The Polar Vortex over Antarctica remains throughout the year due to less thermal contrasts. This further

cools the Antarctica and increases the amount of Ice crystals in the Polar Stratospheric clouds.

(i) Health Impacts of Ozone Depletion
SKIN CANCER

The Ozone layer absorbs UV rays which are harmful to the human skin. If its depletion will increase the exposure to UV rays and cause diseases like skin cancer.

Environmental Impacts of Ozone Depletion :

The Ozone Layer which used to absorb UV Rays, used to keep the atmosphere warm. In its absence, cold conditions would increase and this in turn will impact climate, vegetation, soil, flora and fauna.

14. India is the 3rd largest producer of coal in the world but commercial production of Coal Bed Methane has not yet started. What are the environmental and economic constraints associated with the production of coal bed methane in India?

भारत दुनिया में कोयले का तीसरा सबसे बड़ा उत्पादक है, लेकिन कोल बेड मीथेन का वाणिज्यिक उत्पादन अब तक आरंभ नहीं हुआ है। भारत में कोल बेड मीथेन के उत्पादन से जुड़ी पर्यावरणीय एवं आर्थिक बाधाएं क्या हैं?

15. Hydrofluorocarbons have emerged as contentious issue in climate talks. Discuss whether HFCs should be dealt with under Montreal or Kyoto Protocol.

हाइड्रोफ्लोरोकार्बन जलवायु वार्ताओं में विवादास्पद मुद्दे के रूप में उभरा है। क्या हाइड्रोफ्लोरोकार्बन से मॉन्ट्रियल या क्योटो प्रोटोकॉल के तहत निपटा जाना चाहिए, चर्चा करें।

Hydrofluorocarbons (HFCs) were mooted as alternative to Ozone depleting substances like CFCs and HCFCs. However, HFCs are having huge global warming potential, that of 20,000 times of that of CO₂. Therefore, HFCs have now come under the scanner of climate talks.

The developed countries allege that HFCs are a big source of Global Warming and therefore should be brought under MONTREAL PROTOCOL because Montreal Protocol is binding on all countries, developed and developing alike, while KYOTO PROTOCOL is binding only on developed nations.

Developing countries, like India, are resisting such an attempt. However now, looking at the gravity of the situation and being a responsible nation, India has approved the

move to include HFCs under Montreal Protocol, but only on the following conditions :

- (i) There should be different targets for developed and developing countries.
- (ii) Technology transfers from developed ^{to} ~~and~~ developing countries as a must.

Thus, HFCs should be brought under Montreal Protocol so that legal commitments are put on nations to phase it out. However, concerns of developing nations like India must be taken into consideration.

16. "Wetlands provide ecosystem services essential to people and the environment, valued at billions of dollars". Explain briefly. Enumerate the causes for wetland losses across India. Further, elaborate on some international and national measures taken to protect them.

"आर्द्रभूमि लोगों और पर्यावरण के लिए आवश्यक पारिस्थितिकीय सेवाएं अपलब्ध कराती है," जिनका मूल्य अरबों डालर में आंका गया है। संक्षेप में व्याख्या करें। भारत भर में आर्द्रभूमियों के लोप के कारणों का उल्लेख करें। इसके अतिरिक्त, इनके संरक्षण के लिए उठाए गए अन्तर्राष्ट्रीय और राष्ट्रीय कदमों की विस्तार से चर्चा करें।

Wetlands have a huge economic and ecological significance. Wetlands prevent saline ingress in surface water bodies. They provide an effective check against tsunamis and storm surges. They filter sea water. They also provide nesting and breeding grounds for migratory fauna.

However, wetlands are being lost across India due to the following reasons:

- (i) Land Reclamation for developmental projects in wetland areas
- (ii) Land Degradation of wetland areas due to disposal of wastes.
- (iii) Cultural eutrophication - addition of nitrates and phosphates due to excessive use of fertilizers in agriculture.

(iv) Unsustainable agricultural practices

To conserve wetlands, India has undertaken National Wetland Conservation Programme 1985-1986. It aims to preserve, protect and naturally restore over 200 wetland sites in India.

International efforts include RAMSAR CONVENTION ON WETLANDS 1971, which gives international recognition to chosen important wetland sites in each ~~country~~ ratifying country, puts binding commitment on each ratifying country to preserve and protect it. India has 26 Ramsar convention sites.

17. What do you understand by the phenomenon of Cloud Burst? How is it related to flash floods? Why are hilly areas more prone to the ill effects of cloud burst?

बादल फटने की परिघटना से आप क्या समझते हैं? यह फ्लैश फ्लड से कैसे सम्बन्धित है? पर्वतीय क्षेत्र बादल फटने के दुष्प्रभावों से सबसे ज्यादा ग्रसित क्यों होते हैं?

cloud Burst refers to sudden heavy precipitation due to local convective phenomena, over a particular small geographic region.

cloud Burst is related to flash floods. Flash floods are floods caused to massive torrential downpour within a short period, between 2 to 6 hours. Therefore, cloud ~~Hilly Areas are more prone~~ burst often triggers flash floods. cloud burst is the cause and flash floods the consequence. An example is the Uttarakhand tragedy of 2013.

Hilly Areas are more prone to the ill effects of cloud burst because mountain barriers aid the local heating or convective process. They make winds ~~rise~~ ^{go} up

by being an orogenetic barrier and thus aid precipitation. The block the movement of air currents and force them to move move to get adiabatically cooled and cause rain. Therefore, mountains aid and enhance cloud burst and therefore hilly areas are so vulnerable.

18. What are Tsunamigenic zones? Give examples of such zones in the vicinity of Indian Coastal regions. Examine the preparedness level of India to minimize the impact of Tsunamis.

सुनामीजेनिक मण्डल क्या है? भारतीय तटीय क्षेत्रों के आसपास ऐसे मण्डलों का उदाहरण दें। सुनामी के प्रभावों को कम करने के लिए भारत की तैयारियों के स्तर का परीक्षण करें।

Tsunamigenic zones are zones which frequently witness Tsunami. Tsunamis ~~are~~ ^{or} 'HARBOR WAVES' are huge waves (reaching height upto 60 metres) due to movement in the earth's crust along a fault plane.

Since Tsunamis are tectonic in ~~an~~ origin and are often even induced by earthquakes, they are located near to margins of tectonic (lithospheric plates). Such zones in the Indian coastal Region are near the coast of Tamil Nadu and Andaman and Nicobar Islands. As a result, both these places witnessed the Tsunami of 2004.

Since the Tsunami Disaster of 2004, India has scaled up its preparation;

1. India has installed Tsunami Early Warning Systems to give warnings to coastal locations in local languages.
2. It is promoting research and documentation for proper planning to mitigate the impacts of Tsunamis. For this, traditional knowledge of people are being incorporated.
3. Capacity building Activities have also been undertaken to train the local people.
4. Geo Spatial Imagery, Remote sensing by satellites, Live simulation Models etc. are being used to predict Tsunami.
5. satellite based global communication systems are also being used to share Tsunami's information across vulnerable countries.

19. "Community based disaster management, which seeks to empower community directly to enhance their indigenous coping mechanisms, is a must". Elaborate.

"समुदाय आधारित आपदा प्रबन्धन जो आपदा से मुकाबला करने के स्थानीय तरीकों को बढ़ावा देने के लिए सीधे समुदाय का सशक्तिकरण करना चाहती है, अत्यावश्यक है।" व्याख्या करें।

Community based disaster management ^{means} involving the community in identifying, assessing and jointly acting towards disaster reduction and disaster mitigation.

Community based disaster management is very critical to the success of any disaster mitigation strategies since it is the community which is the FIRST RESPONDER to any crisis.

The strategies used in community based disaster management aim at empowering people to increase the resilience of the community and reduce vulnerabilities. The most easiest way to do this is by strengthening the indigenous coping mechanisms of the community.

Community based disaster management empowers the indigenous coping mechanisms of the community in the following ways:

(i) INCREASING PUBLIC AWARENESS.

This is the first step to create a local

demand for disaster reduction efforts. It can be achieved by organizing community meetings, promoting NGOs in the field and awareness intervention by the government.

(ii) RESEARCH & AND DOCUMENTATION

This involves giving due credence to traditional knowledge systems of the community which has evolved over centuries and synchronising it with relevant data and historical experiences.

(iii) CAPACITY BUILDING

This can be done by COMMUNITY OUTREACH PROGRAMMES which aim at training the community, strengthening their resilience. It aims at building long term partnerships via NETWORKING, so that as first responders they are able to help themselves till help arrives.

(iv) SUSTAINABILITY

The community based disaster management should be ever lasting.

Thus, it is clear that community based disaster management and their indigenous coping mechanisms strengthened by the above steps can considerably increase the resilience of the community, allow them to help themselves till outside help arrives and develops a "culture of preparedness".

Hence, community based disaster management is ^acritical component of the 1st stage of disaster management, i.e., RISK REDUCTION, without which, a crucial link would be missing in the cycle of the "3 Rs" (Risk Reduction, Response and Recovery) of Disaster Management.

- 2C. National Disaster Management Authority was set up to give effect to the provisions of Disaster Management Act, 2005. Critically examine its functioning with respect to the management of recent natural hazards.

राष्ट्रीय आपदा प्रबन्धन प्राधिकरण की स्थापना आपदा प्रबन्धन अधिनियम, 2005 के प्रावधानों को प्रभावी बनाने के लिए की गयी थी। हाल की प्राकृतिक आपदाओं के प्रबन्धन के सम्बन्ध में इसके कार्यों का गम्भीरतापूर्वक परीक्षण करें।

The National Disaster Management Authority (NDMA) was set up under the National Disaster Management Act, 2005 to provide legal-institutional mechanism for disaster management and disaster reduction in the country, as well as to lay guidelines and oversee the implementation of a National Disaster Management Plan.

Despite its establishment 10 years ago, the country's disaster preparedness is as lacking as it was before. The Uttarakhand deluge of 2013 amply demonstrates it. Some of the important limitations being faced by the NDMA, as seen in the Uttarakhand tragedy are as follows.

First, the NDMA faces critical shortage of personnel. There is inadequate skilled and trained manpower.

Second, according to a 2012 IDSA (Institute of Defence and Strategic Analyses) Report, many states, including Uttarakhand, have not even set up

State Disaster Management Authority (SDMA) to coordinate with the NDMA.

Third, the 2013 CAG Performance Audit of NDMA revealed that:

(i) The National Executive Committee (NEC) had not met even once since 2008 (which therefore impacted the disaster response strategies in Uttarakhand in 2013).

(ii) No National Disaster Management Plan has been formulated till now. This has cost the country heavily.

(iii) Mismanagement and misutilization of funds of State Disaster Relief Fund.

However, all is not lost. The workings of NDMA are now steadily improving. It has been able to gradually inculcate a "spirit of preparedness", as can be seen from the successful handling of cyclone Phalin (2013) and cyclone Hudhud (2014). The NDMA closely monitored, coordinated actions at all levels (centre, state and district) and was successful in averting the disaster.

