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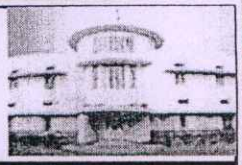

GENERAL STUDIES (Test Code : 485), 7 September

Name of Candidate	Suharsha Bhagat.	Registration No.	4707.
Schedule 4-7:00	~~Old Rajender Nagar~~	Module	
Place	ORN.	Time	4:700
Date	~~7to~~ 21/09/14.		
Classroom		Distance Learning	
Classroom & Distance Learning			

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	10	
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17	10	
18	10	
19	10	
20	10	
21	10	
22	10	
23	10	
24	10	
25	10	

Total Marks Obtained

Remarks:

Signature of Examiner

EVALUATION INDICATORS

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

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, ID Number and Test Code).
2. There are TWENTY-FIVE questions printed in ENGLISH.
3. All questions are compulsory.
4. The number of marks carried by a question/part is indicated against it.
5. 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.
6. Word limit in questions, if specified, should be adhered to.
7. Any page or portion of the page left blank in the Question-cum-Answer Booklet must be clearly struck off.

GENERAL STUDIES (Test Code : 485)

Overall Macro comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

All The Best

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1. Describe the salient features, which characterize tropical cyclones. Why, with only about 6% of world tropical cyclones, the Indian sub-continent is one of the worst cyclone affected areas of the world? 10

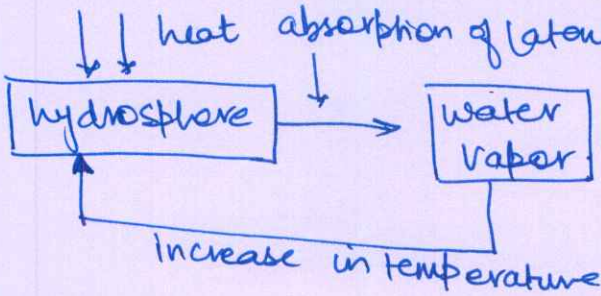
2. When the Earth warms up, a large number of changes take place in the atmosphere, the oceans and on the land surface. Some of these changes can, in turn, affect the temperature. These are called feedback effects. Some of these 'feedback effects' increase global warming, while others reduce it. Explain the feedback effects associated with the following: 10
   (i) Water vapour
   (ii) Snow and ice cover
   (iii) Clouds

Earth is a complex system, and atmosphere, hydrosphere, lithosphere and cryosphere are in a complex inter-relationship. In this system, feedback effects have a significant role to play.

(i) water vapor. is a green house gas. and increase in its may cause temperature to rise and hence it has a positive feed back. as it further leads to global warming.

with increase in temperature, there is increase

in the amount of water vapor.



feedback associated in formation of vapor.

(ii) Snow cover - has a high albedo and hence reflects about 80% of the incident light. Thus higher snow cover results in higher reflection thus lower warming effect. Due to this, warming of earth is reduced, hence this has a ~~negative~~ positive feedback effect. more the snow cover, its further formation is enhanced.

(iii) Cloud - feedback relationship associated with this is complex.

increased cloud cover results in higher albedo and hence net radiation is reduced. however due to more cloud, outgoing radiation is trapped more. which has higher net heating effect.

Thus both negative and positive feedback are at play here. in tropical area

higher cloud formation and subsequent rainfall decreases the temperature, but in temperate areas, rise in temp. is observed.

3. Explain the issue of 'Loss and Damage' with respect to UNFCC climate talks. Also examine the demand for creation of a third pillar in UNFCC deliberations, in addition to the two pillars of mitigation and adaptation, associated with loss and damage demands. 10

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4. Recently, Genetic Engineering and Appraisal Committee (GEAC) gave approval for field trials of a whole range of genetically modified crops in India. Should GM crops be allowed? Discuss with special reference to environment and biodiversity. 10

Introduction of Genetically modified crops is a complex issue with strong points in favour of it and against it. issue needs careful deliberation.

Points in support:-

- GM crops will increase yield and productivity ensuring food and nutritional security.
- reduce use of ~~fertil~~ pesticides and thus reduce the cost of agriculture.
- will prevent the loss of crops.
- will increase surplus, enabling India to export.

- Ensure income and farm security.
- will make agriculture more remunerative.

However there are serious concerns too against it'

- Its impact on biodiversity and environment is not understood completely.
- It causes a loss of biodiversity by causing a elimination of traditional genetically rich crops.
- In fields surrounding GM crops, there is genetic alteration of traditional crops.
- Use of G. terminator seed technology causes dependence of farmers on MNCs.
- Cases of occurrence of ~~pest~~ and growing pest resistance has been observed.

Introduction of GM may seem so, although beneficial, but there is a need for strong regulation, as changes introduced by it can be ir-reversible.

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5. (a) 'Ozone depletion and the formation of Polar Ozone Holes doesn't lead to a further warming of the troposphere, but to a slight cooling.' Explain. 5

- Ozone depletion results in formation of oxygen and oxygen free radical.
- free radical combines with CO and results in formation of CO_2. CO_2 has a lower Green house potential.
- Ozone depletion is associated with Polar Stratospheric clouds which ~~increa~~ prevents the sunlight from entering and thus there is slight cooling of troposphere.

5. **(b)** How has the use of science and technology facilitated disaster prevention planning? 5

Science and Technology has enhanced disaster Prevention planning.

- Use of ICT and e-governance has enabled real time data collection of various parameters.
- Use of weather satellites has enabled forecasting of extreme weather events such as cyclone, heavy rainfall etc.
- Use of doppler radar predicts cloud burst
- Meteo-sat also enables prolonged gap in

rainfall by predicting breaks in monsoon.

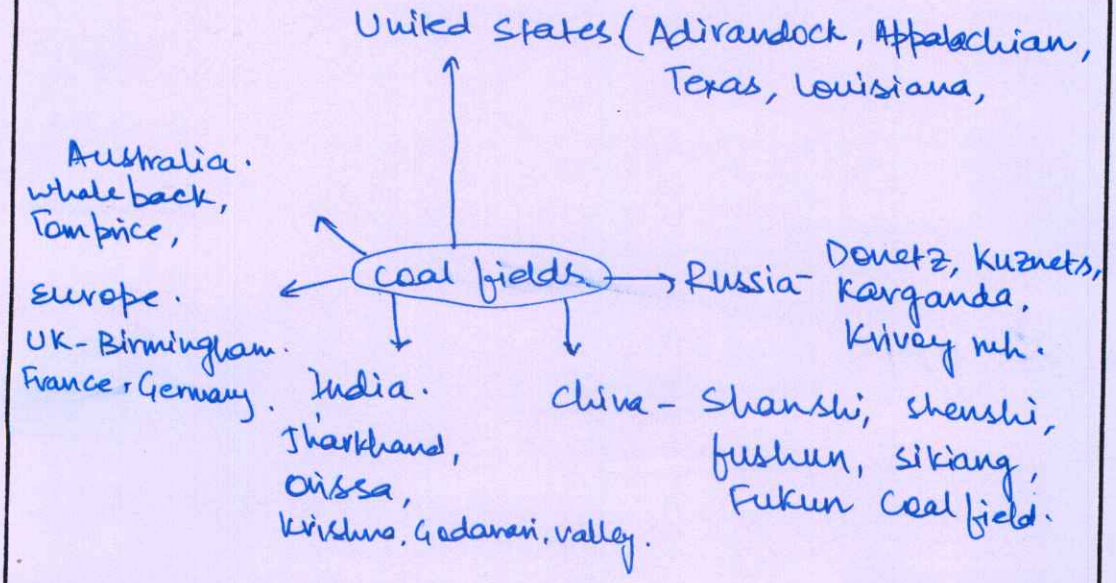
- Networking of meteorological station results in better coordination and timely issuing warning. e.g- ggr meteorological bulletin to farmers in case of drought.
- Experience of Gadchiroli: where pre-disaster and post disaster planning and its timely communication takes place ~~how~~ which is enabled by Science & Technology.

6. Do you agree that there is a drive towards increasing use of fossil fuels after the Fukushima nuclear disaster? Discuss the availability of coal in the world and in India. 10

After Fukushima, there is a shift away from nuclear energy. But the drive is not necessarily towards fossil fuel but also towards new and renewable energy sources.

- Developing countries are vying towards fossil fuels. eg- coal, oil, natural gas.
- Developed countries are inclined towards renewable energy. e.g. Germany, Netherland.

– Coal distribution in world is not uniform

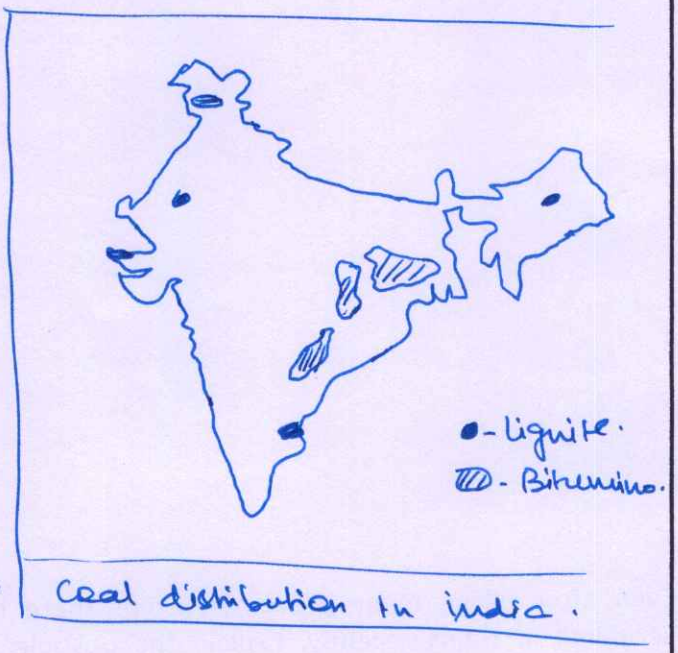


Major coal producing areas in world.

Coal distribution in India is distributed in few pockets. mainly Bituminous and lignite variety is found.

Lignite is found in Neyveli, Umarsar, Kalakot, Lakhimpur, Palana.

Bituminous is found in Bokaro, Jharia, Giridih, Ranikhet, Singrauli, Singareni, Dhanbad.



Coal distribution in India.

Total coal production in India is 550 metric tonne, but it is not sufficient for its use. So about 150 metric tonne is imported.

Hence there is a need for effective coal mining policy.

7. Even after taking many preventive steps there have been several fire accidents in trains recently. Explain the possible reasons behind it and suggest few remedies. 10

Fire accidents is a serious and common hazard in India.

Reasons :-

- lack of security measures at stations.
- Carrying highly inflammable items such as LPG cylinder, diesel, kerosine etc.
- Practise of Cooking in trains by passengers especially on long distance trains.
- Unsafe practises in pantry car.
- lack of fire-extinguishers and safety water on train

- Short circuits are also ~~for~~ among possible reason.

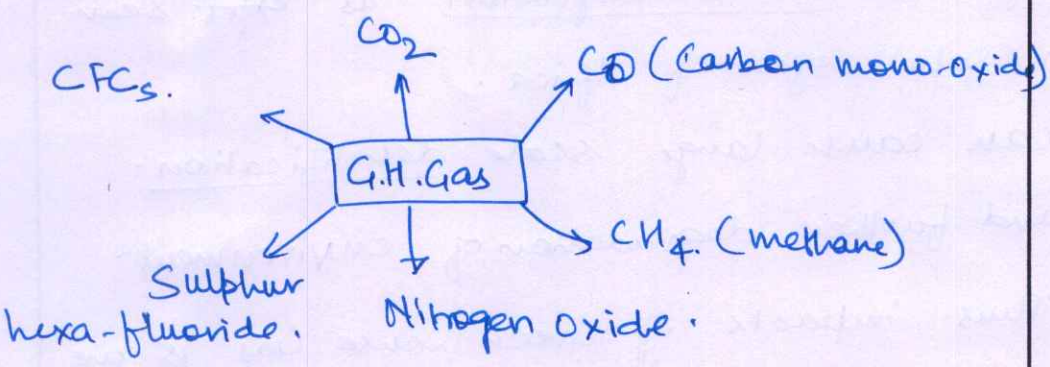
Remedies:

- Strict implementation of Railway safety code.
- Disallowing carriage of hazardous material
- Strict screening and checking at stations
- Provision for adequate safety mechanism. eg- fires, water tanks in special compartments
- Ensuring safe pantry cars and minimal use of LPG cylinders.
- Introducing ~~pre~~ hot, pre-cooked meals on the trains.

Kakodkar committee dealt in detail with the issue, however poor implementation has not addressed the issue.

8. What is greenhouse effect and what gases are responsible for it? Describe the potential social, economic and environmental impacts of the continued increase in greenhouse gases. 10

Green house effect means warming of the earth due to entrapment of long wave-length outgoing terrestrial radiations.



among these, SF_6 and CFCs are most potent.

GHGs have serious impact

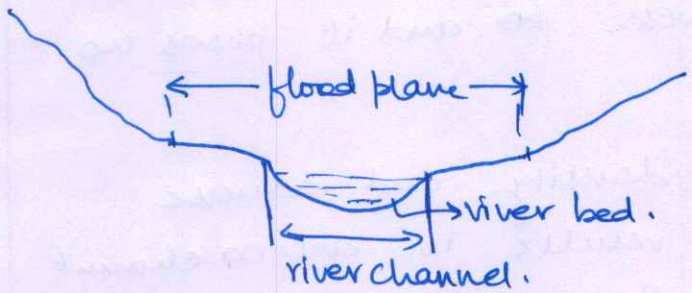
- It causes global warming, raising temperature of earth.
- Raising temperature leads to rise in sea water and coastal submergence
- melting of glaciers and polar ice.
- Climate change and recurring and frequent extreme weather events such as drought, flood, cloudburst. ~~etc~~
- Recent flood in J&K and Uttarakhand are

believed to be an impact of Climate changes

- Abrupt Climate severely affects agriculture thus resulting in decline in food production.
- it will cause food, income and livelihood insecurity.
- result in distress migration. as ~~exter~~ seen in Sahel region of Africa.
- can cause large scale desertification. and further degradation of environment.
- Thus impacts of Green house Gas is are severe and steps should be taken to reduce its emission. Kyoto protocol must be ratified and strictly adhered to limit GHG level to pre. Industrial revolution level.

9. Describe the formation of flood plains. Also illustrate why people live in flood prone zones. 10

Flood plains are formed by ~~de~~ deposition of silt, carried by rivers.



Cross-section of flood plain.

During flood, water exceeds the channel capacity and it splurges in the flood plain. The silt

carried by it is deposited and thus, flood plains are renewed every year.

formation of embankments to control the spread of water, limits its expanse and as a result, flood plains gradually rise resulting in the uplift of riverbed. High silt carrying rivers such as Kosi results in breach of embankment and hence its flood plains are extensive.

People often encroach the flood plains and severely alter the channel morphology and natural flow of the stream.

- for a major part of year, water in rivers are very less, ~~so~~ and it poses no danger.
- High population density and adverse land-man ratio results in encroachment of flood plain zone.
- People settle there and also carry out agricultural practise.
- Thus, they are exposed ~~to th~~ when

flood comes.

- Govt formulated Flood Plain Zoning Act to regulate its use, and prevent it from being encroached. Strict implementation is needed.

10. What are the types and sources of air pollution and how does it affect living organisms? List a few measures to control air pollution. 10

Sources of air pollution can be categorised as

- Point source
  - industries.
  - thermal plants
  - Domestic source
- Non-point source.
  - Vehicles, transport
  - Agricultural practices
  - land & forest degradation

Point source means the source is fixed where as non-point sources are not fixed.

Among types of pollution.

- CO_2 and CO - mainly by burning of fossil fuels.
- NO_x, SO_x - major sources are coal and Petroleum.
- suspended particles - due to incomplete burning
- Aromatics - are ~~soot~~ from organic chemicals

It has serious impact on living organisms.
- cause breathing problems. Smog ~~is~~ i.e. mixture of smoke and fog is injurious to health.
- may cause Pneumonia, asbestosis.

- causes acid rain and impacts soil, natural monuments, acidification of water bodies.

Measures to control.

- Reducing use of fossil fuels by enhancing efficiency.
- use of advanced technologies such as cyclone separator, electro-static precipitator to reduce pollution.
- Introducing strict Bharat stage norms for fuel and engines.
- Empowering CPCB and SPCB to monitor and check pollution.

11. Even though Africa is very rich in natural resources, it is the most backward continent. Comment. 10

Backwardness of Africa can be summarised as "Resource curse" by Joseph Stiglitz.

Reasons for backwardness are:-

- History of colonialism and rampant exploitation
- lack in Human resource capabilities and state capacity. to exploit the natural resources.
- lack of capital. thus inability to ~~spend for~~ invest in natural resources.

- Lack of advanced technology needed for exploration and extraction.
- Political instability in various resource rich countries eg. Congo, Nigeria, Zimbabwe.
- Intervention by outside capitalist countries and undermining African interest. e.g. in Sudan, Angola,

Thus, there is need to empower Africa and to assist it in exploiting and using natural resources for its own benefit.

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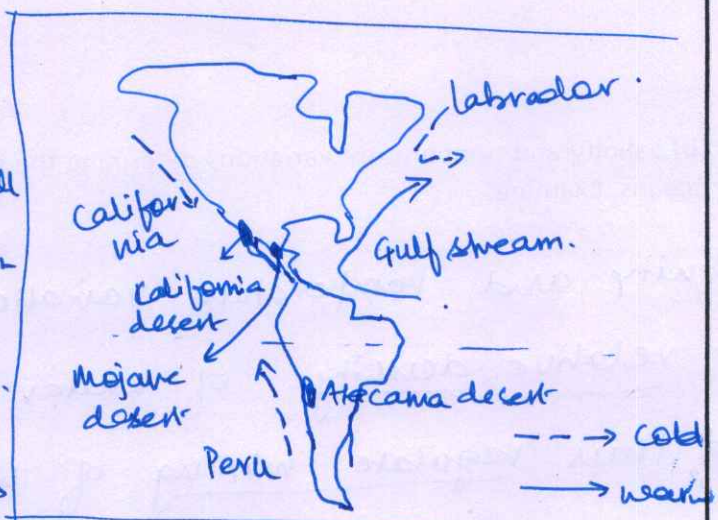
12. (a) What are ocean currents? How do they affect the climate of coasts? Illustrate. 5

Ocean currents are swift flowing mass of water of significant breadth along the coast. They affect the coastal climate.

- moderating effect on climate. Cold currents reduce the temp. such as Labrador, Peru, Kuroshio current, whereas warm current increases the temp. such as Gulf stream.

- Cold currents reduce the amount of rainfall along the western coast, thus desert is formed.



Ill: Currents of North & South America.

- on shore winds cause rainfall in coastal areas.

- mixing of warm and cold current results in formation of fog.

Thus currents have significant impact on coastal climate.

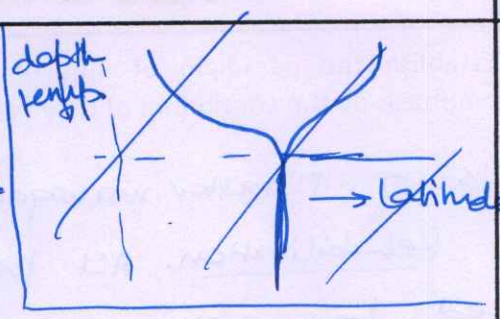
12. **(b)** Salinity and temperature variations determine the stratified structure of oceans. Examine. 5

Salinity and temperature variation affect the relative density of water mass and thus regulate mixing of water and prevent mixing beyond certain depth, resulting in formation of stratified structure.

Impact of temp. and salinity can be studied by T-S diagram.

layer of Thermocline.

prevents mixing of warm water of surface from underlying cold water.



- Picnocline formed due to salt content makes lower water denser and thus heavier, which prevent mixing of water.

Hence Stratified structure is formed in oceans

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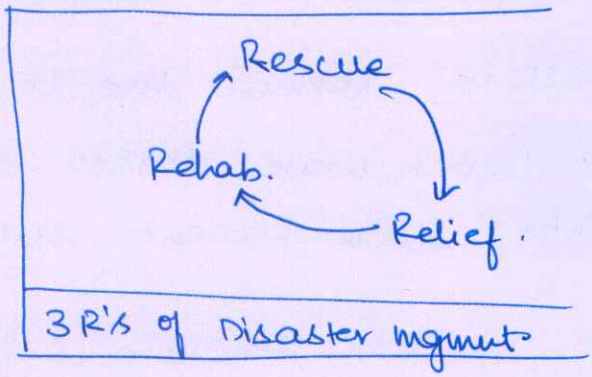
13. Establish the paradigm of 3R's of Disaster Management with special emphasis on the continuum of their relation. 10

3 R's of Disaster management are Rescue, Relief and Rehabilitation. All three are intricately linked. for 3 R's to be more effective in dealing with the disaster, there is a need for better Planning, Prevention and mitigation measures.



3 R's of Disaster mgmnt.

First step after any disaster is Rescue operation without losing any time. Rescue in golden hour is critical in saving lives. reaching out to first respondent is critical in such case.

After Rescue, next logical step is carrying out Relief operation which is more broad based and aimed at providing food, medicine, first-aid and other basic needs. Special focus is on women, children and old age. steps are also needed to prevent outbreak of communicable diseases due to death of animals.

~~In the long~~ Rehabilitation and restoration of status quo is the final step in the disaster management. It establishes the pre-disaster conditions.

After Hyogo framework, 3R's have been mainstreamed in the overall development process. The whole approach is to make it preventive rather than reactive.

14. **(a)** Illustrate the role of 'Crisis Mapping' in Disaster Management. 5

Crisis mapping means ~~cutting~~ outlining the areas which are most vulnerable to the hazard.

- It is critical in planning for disaster management.
- It helps in better co-ordination ~~of~~ in of various agencies in relief efforts.

- crisis mapping can be done for flood prone or drought prone areas. It should be communicated to all the stakeholders in the area - Agencies involved in Rescue,

Relief and Rehab are informed on real time basis, which smoothens out the whole operation.

- better Co-ordination makes the whole process fast and swift hence more efficient.

Thus Crisis mapping helps in SWOT analysis and makes management easier and effective.

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14. **(b)** Differentiate between Risk Assessment and Risk Evaluation. 5

15. Analyze the difference in approach to Disaster Management of the 1999 Orissa supercyclone and the 2013 Phailin cyclone. 10

Disaster management of Phailin was a resounding success, as it built upon the lessons learned from supercyclone of 1999.

- Nodal agency at centre had informed state beforehand about the threat. Thus there was early warning and ample time to prepare.
- formation of SDMA at state level, it directed the ~~affected~~ threatened districts and rescue operation was taken on a war footing note.

- State capacity was considerably enhanced. communication upto village level was done.
- District magistrates at dist- level played important role of co-ordination of various agencies at grass-roots level.
- Aim for the entire operation was ZERO LOSS of HUMAN LIFE. and indeed human casualty was minimum.
- Cyclone shelter homes were built and basic amenities provided therein.
- Just after the cyclone, reconstruction efforts were taken by restoring transport and communication lines. Electricity was restored at the earliest.
- operation was successful due to overwhelming participation at local level.
- NDRF supported in the entire operation. Orissa SDRF also played crucial role.
- Large scale awareness and consciousness was there due to previous experience.

Thus lessons learned from past experience and political will and administrative zeal

reduced the disastrous effects of Plaisu.

16. Despite Disaster Management Authority being institutionalized in 2005, it has failed to develop sufficient capacity in preparedness as well as relief and rescue operations. Discuss. 10

NDMA, A 2005 has not lived upto the desired expectations in developing capacity and preparedness in fighting disasters.

- SDMA at state levels are not formed
- funds and personnels for establishing the authority is not adequate.
- lack of proper co-ordination among various agencies and stakeholders.
- lack of awareness among leaders, administrators and even people.
- Unplanned development in disaster prone areas as showcased in Uttarakhand and Recent J&K flood.
- ~~Poor~~ Inadequate personnel in NDRF.
- lack of mainstreaming of prevention measures in development proces
- lack of local participation in planning, mitigation, adaption, rescue and relief operations.

the general attitude is of ~~post facto~~ post disaster management and not on prevention of disasters.

There is a need to holistically look into the entire disaster management operation.

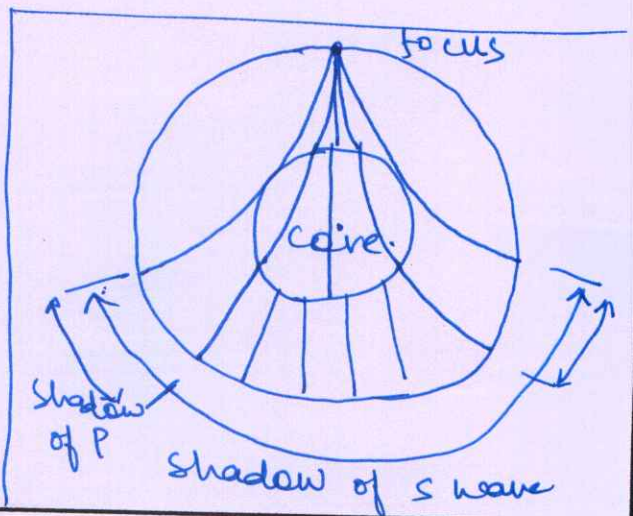
17. Why do earthquake waves develop shadow zones? Also explain the significance of such zones in providing information about the interior of the earth. 10

Seismic waves produced by earthquake ~~as~~ work as investigative tool to study the interior of the earth.

Primary (P) and Secondary (S) wave help in studying interior.

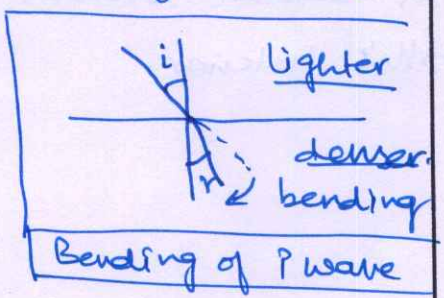
Shadow of 120° is formed by S waves.

S waves being transverse waves are unable to travel in the liquid.



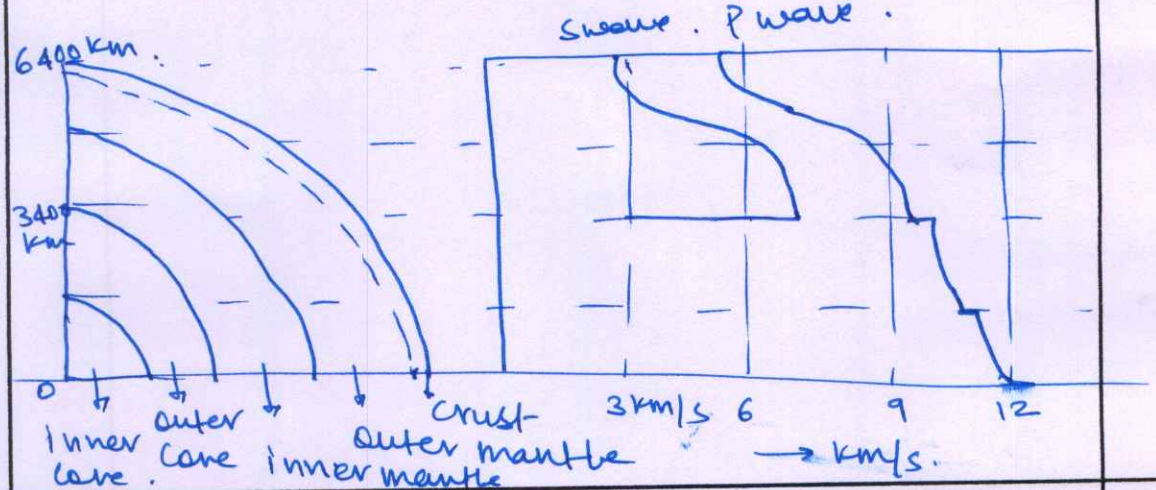
Core of the earth is in liquid state and hence S waves are not able to penetrate it.

Shadow of P wave is observed between 120° and 143°. P wave is compressive in nature and can travel through liquid. However due to increasing density it refracts as it goes inside the high density.



Bending of P wave

- Study of velocity profile along with shadow zone present a picture of earth's interior. discontinuities (abrupt) in the earth is presented by change in the velocity as shown in the figure below.



thus study of seismic wave indicate presence of Conrad, Guttenberg and Lehman discontinuity at boundary of crust-mantle mantle-core and inner and outer-core respectively.

Thus Seismic waves help in understanding earth's interior.

18. What do you understand by shifting of wind belts? Illustrate their impact on climate of a region. 10

Permanent wind ~~patterns~~ belts show a phenomena of shifting of patterns in summer and winter season. This is caused due to relative motion of sun ~~wrt~~ with respect to equator.

Shifting of trade winds, westerlies and polar easterlies has significant impact on the climate of the region.

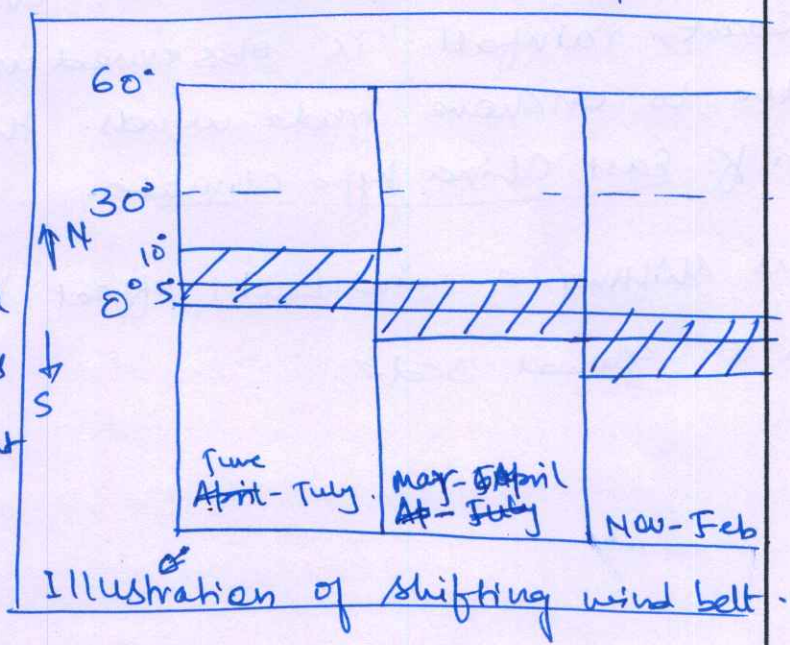
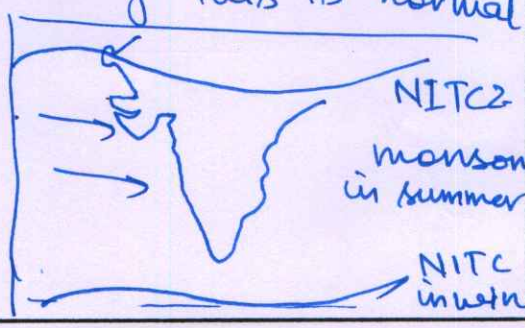


Illustration of shifting wind belt.

- In equatorial region relative shift of ITCZ to north causes monsoon climate and its shifting to south establishes retreating monsoon. In reality this is normal trade wind.



- due to ~~veto~~ shift in permanent wind, between 30° - 40° in Northern and Southern

hemisphere, mediterranean climate is found. rainfall is caused in winter on western continental part as westerlies become onshore due to its shift southwards.

- Similarly in temperate zone, on eastern coast, rainfall is observed in summer due to onshore trade winds. this results in of East China type climate.

Thus shifting of wind belts effect temperature on a global scale.

19. What are the various statutory procedures of conducting Environmental Impact Assessments? How do these procedures ensure public participation in development process? 10

EIA, regulation of 1980 introduced various statutory measures, which were further strengthened in communication of 2006

Provisions in conducting EIA are:

- Study of Environmental, human, socio-economic, social-cultural and demographic factors.
- EIA has become compulsory for major developmental projects eg- Industry, thermal plants. infra projects such as- road. railway, Ports, airports etc.

- Steps involved are identifying issues, measurement of various parameters, implementation of safeguards, monitoring of project, and communicating the results
- EIA regulation focus on strengthening capacity, creating legal framework, Political awareness, Public participation, ensuring finance, availability of data and information.

- Thus public participation assure that development is based on broad consensus and ~~gov~~ is inclusive. It also addresses various grievances arising out of the development process and hence ensures environmental sustainable and just and equitable development.

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20. (a) What do you understand by the phenomenon of 'coral bleaching'? Discuss the threats that corals are facing. 5

Coral bleaching means discolouring of corals due to death of algae with which is an indicative of death of coral polyps.

Threats to corals are :-

- Global warming - rising temp. causes death.
- Elnino results in coral bleaching.
- Coral blight, a disease causes death of corals.
- increasing salinity.
- rise in pollution and sediments.
- cold waters, in upwelling zone are also a threat.
- ocean acidification.

Thus there is a need for protection of corals as they are rich in biodiversity and provide several important eco-system services.

20. **(b)** National River linking project of India aims to transfer water from surplus regions to deficit parts of the country. Analyse. 5

National river linking project - envisaged by Prof. K.L.Rao by formation of National water grid.

Advantages :-

- will address Spatial and temporal imbalances.
- will mitigate droughts and flood.
- Increase in irrigation, and agriculture.
- help in power generation.
- easier Inland navigation.

However there are severe challenges:-

- Prohibitive cost of transferring water.
- Feasibility study shows that transferring water is a huge challenge.
- Surplus states may not share water.
- Ecological and environmental impact is not done.

Hence, there is a need for interlinking at ~~a lower~~ micro levels. Country wide connection of large rivers may be difficult.

21. Do you agree that multinational companies are shifting their center of gravity towards Asia? Comment with justification. 10

MNCs are surely shifting center of gravity towards asia. various factors provide Asia competitive advantage.

- low wage rates. ~~Asi~~ wage rates are low in Asian countries as compared to capitalist countries. China, East asia and India are case in point.
- low cost of manufacturing - factors of production eg. land is cheaper in Asian countries.
- large population in Asia. provides abundant cheap labour.
- Focus of Asian countries on manufacturing. Asian countries have traditionally been agricultural. now the focus is on manufacturing to generate more productive employment, growth at higher rate and transformation of economy. so Asian countries esp. India and China have liberalised their economy for attracting ~~MNCs~~ FDI.
- cheap source of raw material - Asian countries are rich in resources. and provide a suitable

~~not~~ base for manf. industries.

- Huge market :- growing middle class and consumerism have led to tremendous increase in demand of consumerables eg. electronic items and automobiles.
- Good Rate of return :- there is also a rush of MNCs to investment because Asian countries have a higher RoR

Thus due to these factors, MNCs are attracted to investment in Asia.

22. The lure of mineral wealth has attracted many immigrants into desert regions. Explain the above statement by giving examples of desert regions around the world that have been transformed by the discovery of mineral resources. 10

Though inhospitable, desert regions have seen immigration in hope of mineral resources.

- Gold rush in California in 19th century. due to huge inflow of europeans, the region was transformed.
- Miracle in middle-east.

Middle-east is completely transformed, due to rich oil-reserves. Petro dollars fuelled massive growth of Urban centres, real-estate sector and tourism industry.

region has become rich in cash and has

formed sovereign wealth funds which seek to invest in various ventures.

Henry Kissinger has described the phenomena as huge transfer of wealth, unprecedented in world history.

Dubai, Sharjah, ~~Etc~~ have emerged as new ~~Gen~~ financial centres.

~~Ar~~ Saudi Arabia, Kuwait, Bahrain have seen immense transformation.

- ~~Aus~~tralia is also rich in precious minerals. eg- Gold, Uranium, Aluminium and coal, mines in Coolgardie, Koolgarlie, Tom Price have transformed the desert areas.

- Similar rush has been observed in India in Barmer region with the finding of oil resources.

Thus lure of mineral resources provides the ~~ce~~ decisive pull for migration even in inhabitable deserts.

23. Elaborate on the measures that can be taken to mitigate the effect of tsunamis. What global mechanisms are in place for providing early warning related to tsunamis? What are the different technologies used for detecting the presence of tsunami waves? 10

Effects of Tsunami can be mitigated in following ways.

- Setting up of Early warning systems for Tsunamis.
- Establishing communication network in litteral states of Atlantic, Pacific and Indian ocean.
- Adequate Planning in vulnerable areas. e.g- in Hawaii, evacuation plans are made for quick scape.
- Buildings should be made perpendicular to coast to mitigate adverse impacts
- Land use zoning in coastal areas. eg. Hilo is followed in Japan which involves construction at higher reaches.
- construction of wave breakers and barriers along coast.
- Ensuring mangrove plantation as they have function as biological shield as evident during 2004 Tsunami.

Global mechanisms for early warning are.

- Pacific states have ~~THRSU~~ THRSUST- Tsunami Hazard Reduction using Systems Technology.
- Indian ocean Tsunami Alert system.
- Global Tsunami monitoring Agency.

- Technologies used for detecting tsunami waves are.

- Use of hydrostatic buoys which communicate to the monitoring centre about change in water level.
- Setting up seismic stations in ~~ocean~~ open seas, which can help in prediction of Tsunami
- now satellites such as Oceansat can detect even minute change in sea level.

Thus technology plays an important role in early Tsunami detection.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

24. In the beginning of 2014, North America was badly affected by a cold wave – a fallout of Polar Vortex. What do you understand by Polar Vortex? How does it affect ozone depletion? 10

Polar vortex are long meandering, fast travelling, air mass of considerably low temperature above the poles in a circular motion.

These are upper atmospheric circulation which have considerable impact on circulation of air at the earth's surface.

Polar vortex over America

During winter, when the sun is ~~three~~ over

Tropic of Capricorn, temperature falls considerably over the north polar region and Polar vortex becomes strong and extends upto 60° N.
This upper moving atmospheric disturbance causes movement of airmasses. upper air anticyclonic condition cause cyclonic condition on ground and atmospheric instability is caused resulting in movement of cold polar airmass resulting into cold waves.

Polar vortex affects ozone layer as it results in formation of stratospheric clouds which reduce the temperature and result in formation of free-radicals from CFCs. these free radicals combine with ozone and break them down.
So, low temperature of Polar Stratospheric clouds caused due to Polar Vortex is responsible for ozone depletion.

25. Critically analyze the factors for the centralization of IT industry in India. 10

Despit I.T. industry have shown tremendous growth, however they growth is concentrated at few places, giving rise to inequality and exclusions.

Factors for rapid rise are:-

- Growth of service sector in India.
- Increasing number of graduates in I.T. sector. growing number of colleges offering I.T.
- huge mobility in I.T. sector. it can be easily setup and capital costs are low.

However centralization is due to

- Assured supply of electricity is only in urban areas.

  hence clustering is observed in Bangalore, Mumbai, Gurgaon, Noida e.t.c.
- Better infrastructure is available in cities.
- more companies are registered in urban areas hence demand for IT enabled services.
- I.T. sector often needs English speaking

human resource, which is available in South and western India.

Northern Hindi speaking belt has not seen growth of I.T. industry.

- Further formation of I.T. Parks by big business has led to its centralisation.

Hence adequate steps are needed to ensure its growth in at backward areas focus should be on Dist. level as govt is focussing on e-governance and thus, it will lead to increase in demand for IT and ITES.