

TEST CODE 6 1 1 2 0 2

FIAS – MGP 2023 – Cohort 13 Alt – Sectional Test #8

Time Allowed : Three Hours
समय : तीन घंटे

ForumIAS

Maximum Marks : 250
अधिकतम अंक : 250

GENERAL STUDIES / सामान्य अध्ययन

Name Of Candidate परीक्षार्थी का नाम	T BHUVANESH RAM		
Roll No./अनुक्रमांक	1910075716	Medium/माध्यम	English <input checked="" type="checkbox"/> हिंदी <input type="checkbox"/>
Center Code/परीक्षा केंद्र		Date/दिनांक	31/08/2023

*Center Code : For Online - 1900 / Delhi - Karol bagh - 1901, ORN - 1902, Mukharji Nagar - 1903 / Patna - Boring, Rd. - 2001 / Hyderabad - Jawahar Nagar - 2101

INDEX TABLE / अनुक्रमणिका			INSTRUCTION / अनुदेश	
Q. No. प्र.सं.	Max. Marks अधिकतम अंक	Marks Obtained प्राप्तांक	1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet. कृपया उत्तर-पुस्तिका में नाम, ईमेल, रोल नंबर और मोबाइल नंबर भरें।	
1			2. There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory. उत्तर पुस्तिका में अंग्रेजी/हिंदी में बीस प्रश्न दिए गए हैं, सभी प्रश्न अनिवार्य हैं।	
2			3. The number of marks carried by a question/part is indicated against it. प्रत्येक प्रश्न/भाग के लिए निर्धारित अंक उसके सामने अंकित किए गए हैं।	
3			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. उत्तर प्रवेश पत्र में अधिकृत माध्यम में लिखे जाने चाहिए, जो कि दिए गए स्थान में इस प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के कवर पर स्पष्ट रूप से लिखा जाना चाहिए।	
4			5. Word limit in questions, if specified, should be adhered to. Any page or portion of the page left blank in the Question-Cum Answer Booklet must be clearly Struck off. प्रश्नों में शब्द सीमा, यदि निर्दिष्ट हो, का पालन किया जाए। प्रश्न-सह-उत्तर पुस्तिका में खाली छोड़े गये किसी भी पृष्ठ या पृष्ठ के भाग का स्पष्ट रूप से काट दें।	
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Total/कुल अंक	250		For Student Only / केवल परीक्षार्थी प्रयोग हेतु	
Examiner's Discretion/मूल्यांकन कर्ता का विवेक :			Start Time/प्रारंभ करने का समय : 8.05 AM	End Time/समाप्त करने का समय : 11.20 AM
Total Marks/कुल अंक :			Mode Of Examination/ परीक्षा की विधि :	Online/ऑनलाइन <input type="checkbox"/> Offline/ऑफलाइन <input type="checkbox"/>
*Examiner's Discretion is the marks awarded at the discretion of the examiner based on your overall impression, on the basis of (but not limited to) your handwriting, presentation, use of diagrams, flowcharts, facts and figures or absolutely anything that he/she liked in your copy. मूल्यांकन कर्ता का विवेक अंक आपकी लिखावट प्रस्तुति आरंभ के उपयोग, प्रतीक, तथ्या और आंकड़ों या समय रूप किसी अन्य विषय वस्तु जो मूल्यांकन कर्ता का आपकी कॉपी में परफॉर्म करने के आधार पर (जोकिन इसी तक सीमित नहीं) पर दिए गए अंक हैं।			For Office Use Only / केवल कार्यालय प्रयोग हेतु	
			ECN CODE/ ईसीएन कोड :	Evaluation Date/ मूल्यांकन तिथि :
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Note: Students are expected to incorporate suggestions from the solution provided in the answers. Discussion classes for the tests are also available online in your portal to aid in your preparation. Further, students are requested to see the good copies of the tests and learn from them. You can also discuss your copy with a Mentor and discover ways and means to improve your answers, or if you have any issues with this test / copy. Asks specific questions, to get specific answers.

EXAMINER'S REMARKS

CRITERIA FOR THE FEEDBACK SECTION AT THE END OF EACH QUESTION

- AWIS = Answered What is Asked.** This means whether you have addressed the core demand of the question or not. Addressing the core demand of the question gets you an objectively fair score. It is examiner's perception if you have understood the question and if you know the answer in the first place. Creative answer writing, sometimes missing the core demand, may fetch very high or very low scores, and exposes your answer to the subjectivity of the examiner.
- CD & VA = Content Density & Value Addition.** Examiner will evaluate the quality and quantity of your content in the answer. In the same word limit and space limit have you (a) written what is asked (b) gone beyond what is asked (c) enriched answers through combination of (but not all) suggestions, quotes, flowcharts, diagrams, facts and figures, data etc. This affects objective components of assessment.
- S & F = Structure & Flow** - Whether you have structured your answer properly or not. Whether the answer has been broken into parts and sub parts, each part has been addressed appropriately or not. Whether the flow of the answer is maintained. Affects both subjective and objective components of assessment.
- P & R** - How your answer performs on the criteria of presentation, ease of read, clarity and apparent effort in writing the answer. This affects subjective components of assessment.

Q.1) What do you understand from land subsidence? Explaining various reasons behind land subsidence, recommend measures to arrest the calamity. (10 marks, 150 words)

भू-स्खलन से आप क्या समझते हैं? भू-स्खलन के पीछे के विभिन्न कारणों की व्याख्या करते हुए, आपदा को रोकने के उपाय सुझाएं। (10 अंक, 150 शब्द)

Land subsidence refers to the sudden downward movement of land, especially in hilly & seismic regions. It leads to destruction of man-made structures, collapse of land surface & even loss of lives. Most recent example is Toshima subsidence, Uttarakhand

Reasons behind subsidence:

① Natural reasons: Natural movement along faultlines due to build up of geological pressure leads to land subsidence.

Ex: subsidence of western coast of India

② Anthropogenic:

2.a) Unplanned infrastructure development in hilly regions.

Ex: Shimla carries 10x population compared to actual capacity

2.b) Neglect of geological conditions.

Ex: Joshimath built on ancient glacial deposit, according to MC Midha committee (1976)

2.c) Extensive Hydropower plant construction on Himalayan belt (young fold mountains)

2.d) Overpopulation and tourism pressures

2.e) Mining & blasting can create geological imbalance leading to subsidence.

Measures to avert calamity

Short term: ① Quick evacuation protocols to safe region

② Alerting local villages committees under Disaster management plan of villages

③ Stopping construction, hydropower mining activities

Long term: ① Satellite imaging - ISRO to map vulnerability

② Planned & sustainable development of cities

③ Alternative to hydropower in hilly regions like hybrid plants.

Land subsidence is a recurring issue, as seen in multiple land slides in Himachal Pradesh

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Here G is Good, Average and P is Poor.		
TOTAL MARKS		

Q.2) Despite being rich in forest resources, why do tropical regions have limited growth of the lumbering industry in comparison to temperate regions? (10 marks, 150 words)

वन संसाधनों में समृद्ध होने के बावजूद, समशीतोष्ण क्षेत्रों की तुलना में उष्णकटिबंधीय क्षेत्रों में लकड़ी उद्योग की सीमित वृद्धि क्यों है? (10 अंक, 150 शब्द)

Lumbering industry is the sector relating to cutting of wood from tree trunks, which is the auxiliary industry for paper & pulp, furniture etc.

The disadvantages of tropical regions in lumbering are:

① Absence of appropriate species.

Ex: Tropical forest

dominated by rosewood, ebony, mahogany rather than lumber-specific trees.

② Absence of fertile land in equatorial region due to excessive rains.

③ Overpopulation leads tropical regions more towards agriculture & pastoralism.



Fig: World map & lumbering industry

- ④ Plain regions of alluvial soils is more suited for food grain crops like rice & wheat rather than trees like teak, pine needed for lumbering.
- ⑤ Minimal hilly regions like Himalayas, African Rift makes lumbering non-feasible.

Advantage of temperate regions:

- ① Presence of appropriate species is abundant in Canada, Siberia & Scandinavian countries
 - ② Presence of rivers helps in easy & cheap transport
 - ③ Huge land availability w/o population pressures
 - ④ Boreal rainfall & temperate cyclones provides ideal precipitation & humidity
- These factors provide different comparative advantages to temperate regions.

Feedback

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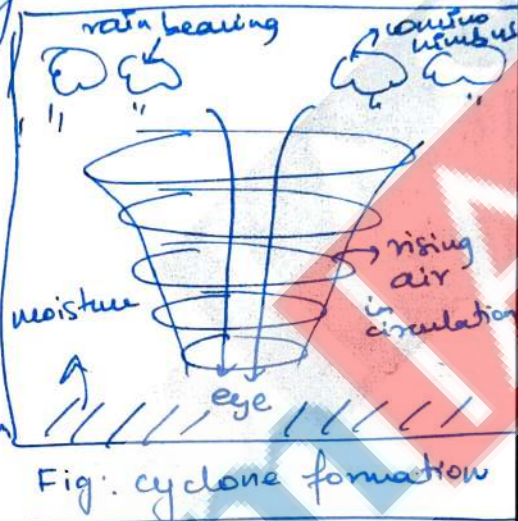
TOTAL MARKS

Q.3) What are the suitable conditions for the formation of a tropical cyclone? Also, bring out differences between a tropical and an extra-tropical cyclone. (10 marks, 150 words)

उष्ण कटिबंधीय चक्रवात के निर्माण के लिए उपयुक्त दशाएं क्या हैं? इसके साथ ही, उष्णकटिबंधीय और शीतोष्णकटिबंधीय चक्रवात के बीच अंतर को स्पष्ट कीजिए। (10 अंक, 150 शब्द)

Tropical cyclones are rising air circulations formed over a low-pressure region.

IMD defines that a minimum speed of 64 kmph is needed to qualification as cyclone.



Suitable conditions for cyclone:

- ① Temperature: Above 27°C
- ② Moisture supply should be constant in the form of oceans
- ③ Pre-existing low pressure area
- ④ Low vertical wind shear
- ⑤ Presence of coriolis force to create the effect of circulation.

Differences between tropical & temperate cyclone

Tropical cyclones

- ① Focus majorly in $25^{\circ}N - 25^{\circ}S$
- ② Due to convection and low-pressure area
- ③ Moves from east to west (trade winds)
- ④ Generally smaller in radius
- ⑤ More destructive impact
- ⑥ Focus over ocean & landfall in land

Temperate cyclones

- ① Focus majorly around $65^{\circ}N$ (temperate pressure belts)
- ② Due to frontogenesis & difference in temperature of air masses
- ③ West to east under influence of westerlies
- ④ Can extend upto 100s of kms
- ⑤ Impact is typically lower
- ⑥ Focus both over sea and land

Increasing occurrence of off-season & Arabian sea cyclones need greater vigilance against same.

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TOTAL MARKS		

Q.4) Elucidate the differences between Western and Indian model of secularism. To what extent do you agree with the criticism that Indian model of secularism is susceptible to promoting minority appeasement? (10 marks, 150 words)

धर्मनिरपेक्षता के पश्चिमी और भारतीय मॉडल के बीच अंतर स्पष्ट कीजिए। आप इस आलोचना से किस हद तक सहमत हैं कि धर्मनिरपेक्षता का भारतीय मॉडल अल्पसंख्यक तुष्टीकरण को बढ़ावा देने के लिए अतिसंवेदनशील है?

(10 अंक, 150 शब्द)

Secularism is the philosophy of separation of religious affairs from the realm of the state. From French revolution to Din-Ilahi of Akbar secularism comes in various forms.

Indian model of secularism is a positive model of maintaining 'principled distance' from all religions, whereas western model advocates complete separation of religion & state.

Other differences are

Indian secularism	Western secularism
① Doesn't promote any religion in particular	① Doesn't promote religion at all
② Interferes in secular affairs	② Non-interference in religion, which

Ex: grants for minority institutions

is strictly personal

③ "Sawa Dharma Sambhava" philosophy

③ "Laiite" philosophy of France

④ Promotes religious harmony & tolerance

④ Strict intolerance of religion in public sphere

Ex: Constitutional right to religion freedom

Ex: ban on purdah in France

Indian model of secularism seems to promote minority appeasement in following ways:

① Shah Bano case was reversed on the eve of election in 1985

② Department of religion endowments strictly regulating ~~religious~~ ^{Hindu & Jain} temples

③ Difficulty in implementing UCC due to sectarian fears.

However, the secularism of India doesn't promote appeasement. Rather political parties do.

Feedback (For OFFICE use)

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TOTAL MARKS		

Q5) Discuss the multi-dimensional implications of uneven distribution of semiconductor industry in the world. (10 marks, 150 words)

विश्व में अर्धचालक उद्योग के असमान वितरण के बहुआयामी प्रभावों की चर्चा कीजिए। (10 अंक, 150 शब्द)

Semiconductors are the technology powering electronics behind space, defense, batteries etc & hence geo-political race for domination is being seen.



Multi-dimensional impacts:

① Economy: Semiconductors can dominate a nation's industrial & export profile. Ex: Taiwan's over reliance on semiconductors exports.

② Geopolitics: Resource distribution can create power imbalances & hence race to dominance.

Ex:- To diversify supplies, India recently entered Mineral security partnership (MSP)

③ Warfare: Semiconductors are crucial in defense sector & domination can help in supporting allies & defeating adversaries

④ Employment & FDI: Incentives can channel investments into countries to attract global leadership.

Ex: CHIPS Act (USA), semiconductor mission (India)

⑤ Monopoly & market power: China's dominance in semiconductor manufacturing impacted the global supply chain during COVID-19.

→ PLI scheme
 → semicon India → promote startups
 → Semiconductor mission → focus on foundry tech, ATMP etc.

Using measures, India can secure her place in 4th order. Resilience

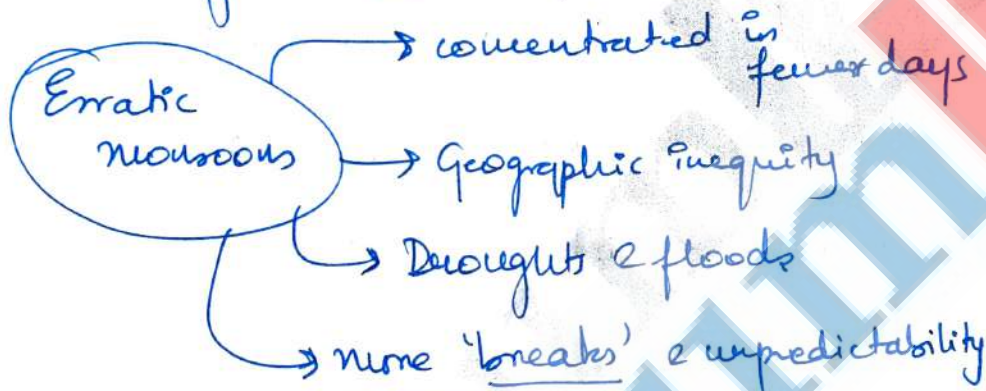
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TOTAL MARKS	

Q.6) Examining the reasons behind erratic Monsoon, highlight the possible outcomes of the same. (10 marks, 150 words)

अनिश्चित मानसून के कारणों की जांच करते हुए इसके संभावित परिणामों पर प्रकाश डालिए। (10 अंक, 150 शब्द)

Monsoons are the wind patterns that reverse with change in seasons & bring rainfall, particularly in South Asia.

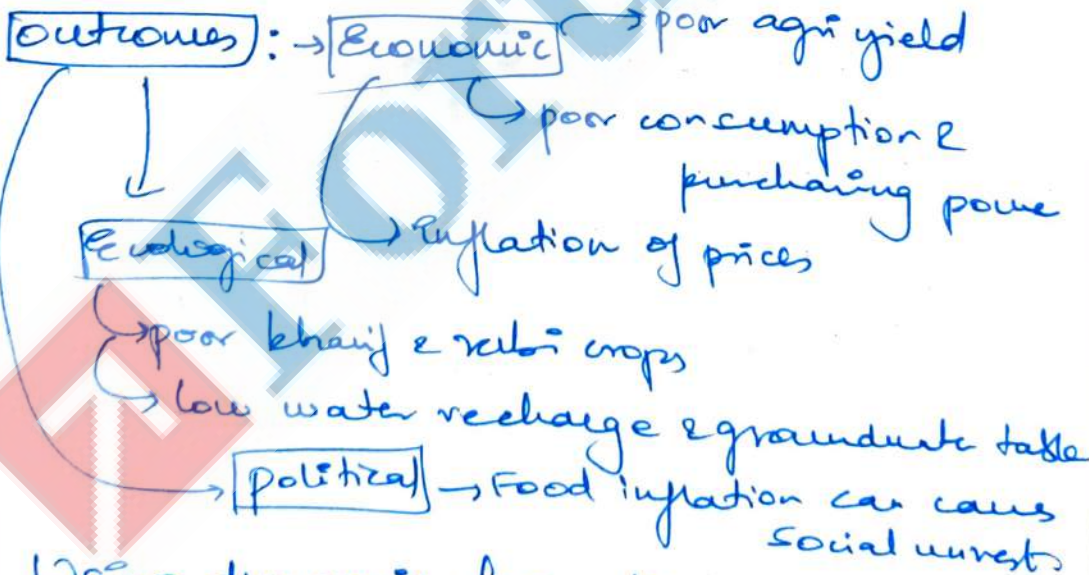


Reasons behind monsoon erraticity:

- ① Natural: Monsoon breaks are a natural occurrence, as rainfall is not even throughout space & time. However, man-made factors contribute to greater erraticity off-late.
- ② Global warming: Floods & drought spells are becoming common due to increase in temperature. Ex: cloud burst-

in Delhi (July 2023) while August 2023 saw a deficit of about 10%.

- ③ Indian ocean dipole: positive phase correlates with enhanced monsoon & vice versa
- ④ Nadden Julian oscillation
- ⑤ El Niño - La Niña: Impact of El Niño, as seen in 2023 monsoons (deficit build up)
- ⑥ Cyclogenesis also disturbs the rainfall during monsoons
- ⑦ Weakening of Mascarene high



Using dynamic forecasting of monsoon shift to climate-resilient millets is need of hour

Feedback
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Q.7) Why is Antarctic becoming an area of renewed human interest? Examine the significance of Antarctic bill, 2022 in protecting India's interest in the region. (10 marks, 150 words)

अंटार्कटिक नए सिरे से मानव हित का क्षेत्र क्यों बनता जा रहा है? इस क्षेत्र में भारत के हितों की रक्षा में अंटार्कटिक विधेयक, 2022 के महत्व का परीक्षण कीजिए। (10 अंक, 150 शब्द)

Antarctica is the seventh continent of the planet, with the least human population lying at the south pole of the earth.

Renewed human interest in Antarctica:

① Scientific reasons: Research into cryology, ancient life forms & evolution of species is of great interest to scientific community

② Climate change: Studying Antarctica & its role in climate change becomes essential to understand change in sea ice, albedo etc

Ex: Rising instance of zombie ice in Antarctica

③ Expeditions: Individual countries undertake expeditions & set up scientific outposts to get ahead in the race.

Ex: India → Himadri, Dakshin Gangotri etc.

(Don't Write in this Area)
पर कुछ न लिखें

- ④ Studying Antarctica can help in analysing feasibility of extracting freshwater from ice-caps, as they store 97.1% of freshwater
- ⑤ Impact on biodiversity: Effect on niche species like emperor penguins can be studied.

Role of Antarctic Bill 2022

- ① India aims to regulate scientific missions through the Bill
- ② The Bill would encourage private expeditions & sharing the benefit of research
- ③ It helps in fruition of cryographic & biological research in topics like preservation of fossils, DNA etc under ice.
- ④ It helps in fulfilling obligation under Antarctic treaty of 1960s
- ⑤ Ensures no country enjoys control over Antarctica by ensuring India's presence.

Feedback
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Q.8) How coast?
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Q.8) How does the Eastern coast of India differ in its geographical features from the western coast? (10 marks, 150 words)

भारत का पूर्वी तट अपनी भौगोलिक विशेषताओं में पश्चिमी तट से किस प्रकार भिन्न है? (10 अंक, 150 शब्द)

India has a long
wastline of 7500 km
out of which around
5000 km comes
from mainland &
rest from the
islands

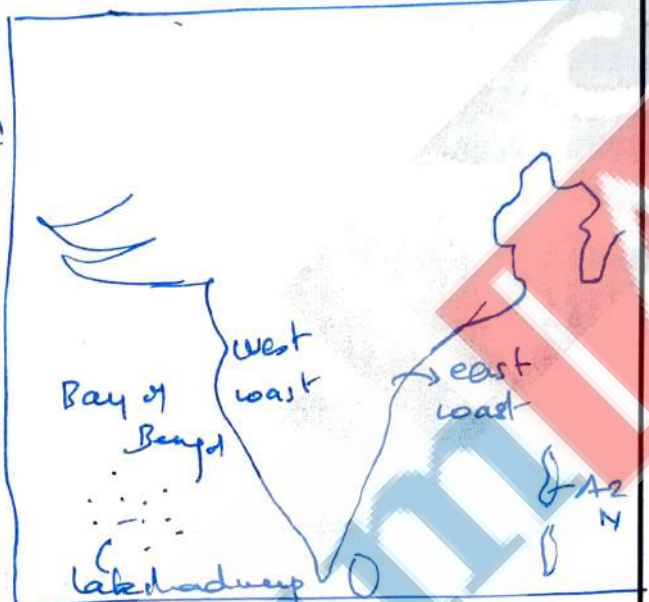


Fig: Indian coast line

The east & western
coasts of India

differ in various ways as explained

EAST COAST

① ~~Large~~ place of
merging for rivers like
Godavari, Krishna etc

② Has a larger continental
shelf due to
Delta deposits

WEST COAST

① Source of both
west flowing &
east flowing rivers

② Smaller continental
shelf.

③ characterised by deposition

Ex: Beaches of visakhapatnam, Chennai

④ Less conducive for port building → shallowness

⑤ More prone to cyclones from warmer Bay of Bengal

⑥ Didn't experience subsidence

② characterised by erosion

Ex: Water falls in Karnataka, Kerala

⑦ More deep & rugged territorial exterior is more convenient for port building.

Ex: upcountry vizhinjam port

⑧ Cyclone in Arabian Sea (frequency) is 1/4th of Bay of Bengal

⑨ Subsidence led to formation of waterfalls & waterfalls

Both west & east coast have different aesthetic, economic & environmental scales.

Feedback
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Q.9) Explain the meaning of colour-coded weather warnings for:

(10 marks, 150 words)

- a) Rainstorms
- b) Thunderstorms
- c) Duststorms

रंग-कूटबद्ध मौसम चेतावनियों का अर्थ समझाएं :

(10 अंक, 150 शब्द)

- a) तूफानी वर्षा
- b) तड़ित झंझावत
- c) धूल भरी आंधी

Color coded weather warnings for rainstorms, thunderstorms & duststorms

- ① Green: All is well. No need to panic immediately.
- ② Yellow: "Be alert". It implies that rainstorms, thunderstorms or duststorms may affect the locality within next 72 hours.

Also indicates that the district administrator should be on the watch.

③ Orange: "Be prepared". It implies that the disaster of storms is more imminent & may strike within 48 hours.

The administration must keep evacuation camps & relief material in readiness according to NDMA protocol.

④ Red: This means "take action" & indicates highest level of urgency. It is given 24 hours before the event.

Different colors indicate the threat levels of disaster & enables citizens & government to take proportionate steps accordingly.

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Please put tick marks in the table.	
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TOTAL MARKS	

Q.10) How has globalization and urbanization impacted the Indian family system? (10 marks, 150 words)

वैश्वीकरण और शहरीकरण ने भारतीय परिवार व्यवस्था को कैसे प्रभावित किया है? (10 अंक, 150 शब्द)

Indian family system is the basic building block of the society which satisfies various psych., sociological & economic needs.

With >33% population in urban areas (2011 census) & a globalised world, various impacts are seen.

Impact of globalisation

positive

negative

→ Greater variety of lifestyles → Food, music
Ex: K-pop
→ Greater avenue for travel as family.
Ex: cheap

→ Reduced family bonding time
→ domination of technology &

South-east Asian tourism like Bali

→ Greater acceptance of LGBTQ community within families

→ Greater economic prospects led to increased disposable income for families

erosion of traditional family norms

→ western individualism incompatible with Indian collectivism

→ nuclear families lead to emotional distress

→ rise in old age homes neglect of elderly

Urbanisation

positive

→ Better prospect of education for children

→ Greater avenues for entertainment enhances family bonding

→ new models → live-in, hybrid joint family

negative

⇒ Neglect of elderly

→ Lesser time with children lead to development of social evil like drug abuse

→ Conflict in traditional role of 'woman' presumed to take care of in-laws

Sustainable urbanisation is necessary to achieve SDG 8, 9 & 11

Feedback (For OFFICE)

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Please put the marks in the table
Here G is Good Average and P is Poor
TOTAL MARKS

Q.11) Coral reefs are considered to be at the epicentre of marine ecology; however, their existence is threatened due to a plethora of anthropogenic and natural causes. Comment.
(15 marks, 250 words)

प्रवाल भित्तियों को समुद्री पारिस्थितिकी के केंद्र में माना जाता है, हालांकि, उनके अस्तित्व को मानवजनित और प्राकृतिक कारणों की अधिकता के कारण खतरा है। टिप्पणी करें।
(15 अंक, 250 शब्द)

Coral reefs are the "largest living systems" of the world, consisting of coral polyps living in symbiosis with microorganisms like zooxanthellae.

Epicentre of marine ecology:

① Supports fisheries: Coral reefs form the ideal shoaling grounds for various aquatic species like fish, seahorse etc.

Ex: Great Australian Barrier Reef

② Provides nutrition: Reefs act as the major source of nutrition and multiplication of aquatic flora & fauna.

③ Coastal protection: Reefs help in moderating the impact of cyclones and Tsunami as they help in dampening excessive flow.

Ex: Coasts along Andhra protected by Reefs.

④ Health Indicator: Coral reefs' health acts as a proxy to the overall health of the marine ecosystem.

Ex: Installation of Artificial reefs along coast of Tamil Nadu

⑤ Coral reefs help in thriving various phytoplankton & zooplankton by acting as their shelters.

Threats for their existence comes from both natural & anthropogenic causes.

Natural threats

- Cyclones, storm surges or Tsunami can uproot coral ecosystem
- Inflow of ocean currents can change temperature
- Sandy beds in the coast obstruct the photosynthesis of Zooxanthella.

→ Oversaturation of fishes increases Biological oxygen demand (BOD) & competition for the reefs.

Man-made threats:

- Global warming contribute to coral bleaching. Ex: Bleaching of Lakshadweep reef
- Marine pollution obstructs natural processes
- Disposal of plastic & municipal solid waste
- Disposal of ghost nets by fishermen
- ocean acidification makes it difficult for calcifying structures.

- Solutions**
- artificial reefs
 - reef barriers for protection
 - controlling marine pollution
 - cooling system.

Coral reefs are an integral component of marine ecology & conservation helps in attaining

SPG 14

Feedback
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Q.12) Discuss the causes for salinity ingress along with its various consequences and potential solutions. (15 marks, 250 words)

लवणता अंतःप्रवेश के कारणों के साथ-साथ इसके विभिन्न परिणामों और संभावित समाधानों पर चर्चा कीजिए। (15 अंक, 250 शब्द)

With a 7500 km coastline, the Indian territory is highly prone to salinisation of the coasts.

Causes of salinity ingress

① Climate change: Increasing melting of glaciers have accelerated the sea level rise.

Ex: 20 cm rise in oceans every year.

② Coastal erosion: Due to strong wave action, coastal erosion can impact stability of land mass, paving way for salinity ingress.

③ Deforestation: Mangrove destruction loosens the coastal soil & accelerates salinity.

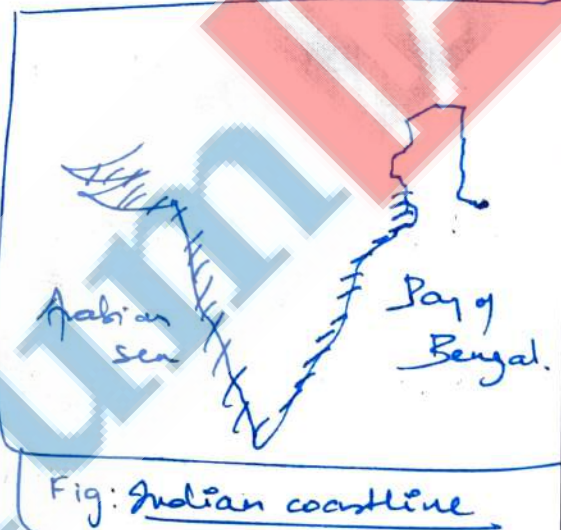


Fig: Indian coastline

inguen.

Ex. loss in mangroves is 3-4 times faster than loss of forests, according to UNESCO

- ④ Land conversion: Coastal lands are not regulated properly. poor CRZ implementation leads to unsupervised development
- ⑤ Poor beach protection: Unprotected stretches of beaches are highly prone to salinity increase
- ⑥ Increased groundwater exploitation → 50% of urban drinking needs
 ↳ 80% of rural needs
 ↳ India largest exploiter in world

Consequences:

- ① Geographic: → Decreased coastal biodiversity
 → Impact on salinity-sensitive species
 → Rotting of roots in coastal trees.
- ② Ecological → Reduced fisheries yield for fishermen.

- Impact on coastal seagrass
- Ill-effect on groundwater and the dependent population.

- ③ Economic: Loss of livelihood for coastal farmers & fishermen
- Increased dependence on purchased drinking water from towns.

Potential solutions:

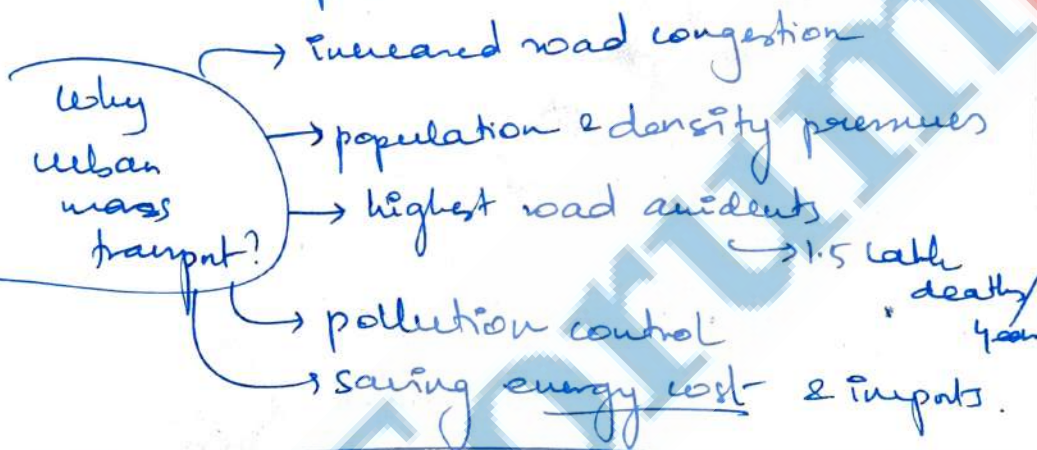
- ① Strict implementation of CRZ rules 2011 to reduce coastal deforestation
 - ② Plantation of mangroves under MISHM scheme
 - ③ Protection of beaches with boulders
 - ④ Vulnerability mapping in collaboration with CGWB & ISRO along coasts
 - ⑤ De-salination plants for industrial & drinking water use.
- Tackling salinity increase will help us enhance livelihood & save land

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Q.13) The actualization of a seamless urban mass transport is hobbled by a slew of factors. Identifying these factors, recommend measures to create a robust paradigm for urban mass transport. (15 marks, 250 words)

एक निर्बाध शहरी जन परिवहन की वास्तविकता कई कारकों से प्रभावित होता है। इन कारकों की पहचान करते हुए, शहरी जन परिवहन के लिए एक मजबूत प्रतिमान बनाने के उपायों की सिफारिश कीजिए। (15 अंक, 250 शब्द)

India is among the fastest urbanising nations in the world. Urban mass transport refers to various public transport systems like bus, metro, train services to encourage shared transport.



Obstacles in expanding urban transport

① Land acquisition: Skyrocketing land prices has made acquiring land a herculean task

② unplanned development: ~~After~~ Absence of

City master plans (CMPs) and adherence to same makes linear construction difficult.

③ Environmental concerns: Expansion of mass transport projects often leads to ecological compromise. Ex: Sane Aarey movement in Mumbai

④ Fragmentation: Multiple modes of transport without a hub and spoke model makes the experience difficult for citizens

⑤ Lack of amenability for differently abled.

Ex: App for railway ticket booking without screen-read option

⑥ Financial health issues of public utilities

Ex: controversy around 'free travel' for women in buses of Karnataka, debt burden of state transport corporat-ions

For a robust urban mass transport, following steps are needed.

① Earlier shifting between modes of transport:
National Common Mobility Card (NCMC) must be upscaled quickly to all cities.

② Focusing on last mile connectivity: Increased deployment of cabs & autos can help in augmenting this. Ex: Regulation of new startups like Rapido

③ New forms of technology: Metro, CNG-enabled buses, e-autorickshaw promoted under FAME Scheme

④ Financial revival of state transport corporation by bridging the gap between expenditure & revenue

⑤ Promoting carpooling, congestion pricing etc via new age startups.

Seamless transport would help us in promoting SDG 9 - sustainable cities.

Feedback
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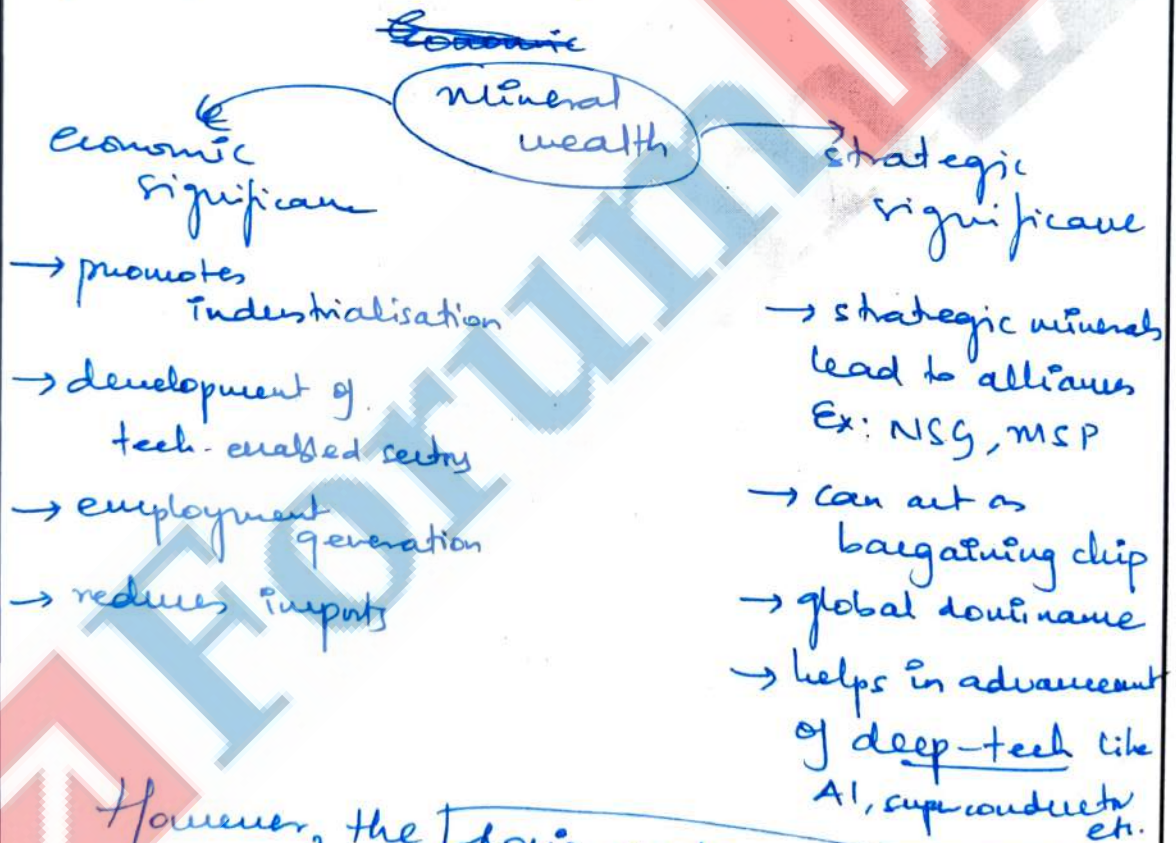
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Q.14) The economic and strategic significance of mineral wealth of a country cannot be seen in isolation from the associated socio-ecological impacts of their extraction. Discuss in light of the newfound lithium reserves in Northern India. (15 marks, 250 words)

किसी देश की खनिज संपदा के आर्थिक और रणनीतिक महत्व को उनके निष्कर्षण से जुड़े सामाजिक-पारिस्थितिक प्रभावों से अलग करके नहीं देखा जा सकता है। उत्तरी भारत में खोजे गए नवीनतम लिथियम भंडार के प्रकाश में चर्चा कीजिए। (15 अंक, 250 शब्द)

Mineral wealth of a nation has been associated with multi-farious consequences, right from the times of Imperialism.



However, the socio-ecological impacts of the mineral wealth also needs attention

Positive aspects:

- ① Social development: Recent discovery of lithium reserves ⁱⁿ North India can help in attracting industrial investment & employment generation away from cities
- ② Rare-earth minerals are crucial for battery technology which can save ecological impact. Ex: usage of e-vehicles.

Negative impacts:

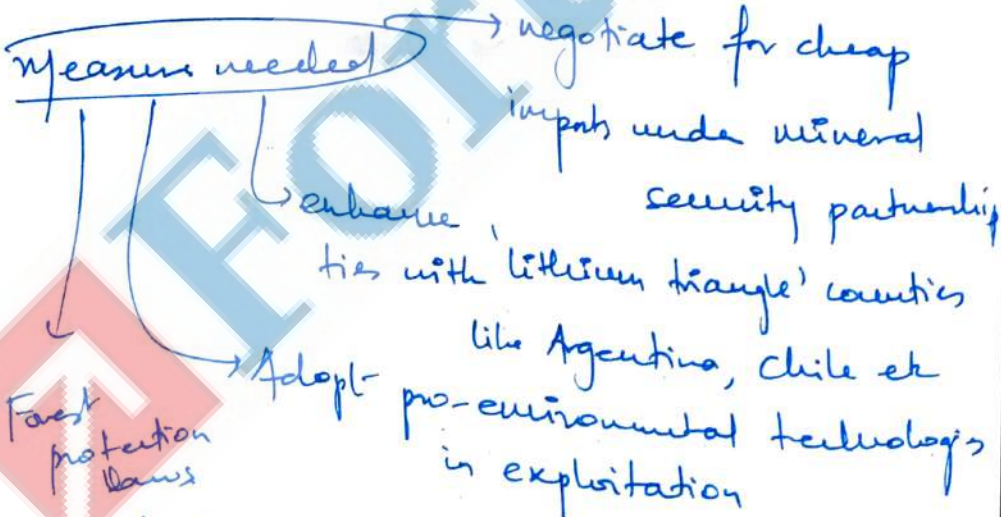
- ① Resource curse: Recent discovery of lithium in states like Bihar, Rajasthan, Madhya Pradesh etc is feared to incite 'resource curse' similar to narcolite region
- ② Invasive technology: Using harmful technology like fracking to exploit the mineral ores lead to destabilisation of earth material
- ③ Seismic region: Exploitation near

Himalayan states can increase vulnerability to landslide. (Zone II states)

④ Groundwater pollution: Lack of protective exploitation technologies can lead to lithium pollution in drinking water sources.

⑤ Deforestation may accelerate in the race to tap lithium reserves in forested regions

⑥ Limited Lithium reserves can put undue pressure on domestic land resources.



Lithium would help us in achieving goals of National Battery Storage mission & accelerating e-vehicle adoption.

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Q.15) Examine the reasons behind generation of regional sentiments? Do you agree that regional sentiments and cultural assertiveness may lead to the issue of separatism? (15 marks, 250 words)

क्षेत्रीय भावनाओं के उत्पन्न होने के पीछे के कारणों का परीक्षण कीजिए। क्या आप इस बात से सहमत हैं कि क्षेत्रीय भावनाएँ और सांस्कृतिक मुखरता अलगाववाद के मुद्दे को जन्म दे सकती है? (15 अंक, 250 शब्द)

Regional sentiments arise due to a strong affinity to one's regional identity which would be sub-national. In a 'cultural melting point' like India, regionalism is a foregone conclusion.

Reasons behind generation of regional sentiments:

1) Psychological: Having a regional sentiment leads to group identity.
Ex: Identifying as Kannadiga, Tamilian with pride.

2) Differential development: Unequitable development can increase relative deprivation. Ex: Demand behind Telengana.

3) Preservation of culture: Fears of cultural

overtake can fuel regionalism.

Ex: Fear of Kukis that Meiteis may occupy the Hill tracts of Manipur.

④ Regional politics: political parties may promote nativism & son-of-soil strategy.

Ex: Dravidian movement, Shiv Sena

⑤ Fear of threat to their independence & need for political autonomy. Ex: Bodoland movement.

Regional sentiments are hamsters if it is within the realms of law & taking pride in local culture. However, it takes subversive line if it become separatism.

I agree that cultural animosities can trayfon to separatism because:

① Demand for separate country: Cultural alienation promotes secessionism as in the

Case of Greater Nagalim.

② Lack of Assimilation: Cultural awareness combined with ghettoisation can lead to separation.

③ It promotes the need for 'local rules' & avoid 'outsiders'. Ex: Demand of sixth schedule status in Ladakh.

④ It promotes violence & terrorism in pursuit of separation. Ex: Khalistan movement.

However, cultural awareness alone is not sufficient for separation. Radical ideology led by extremist, anti-constitutional leadership leads to violence-fuelled separation.

Ex: Sub-national identity of many tribes like Gonds exist without separatist tendencies.

In a democracy like India, balancing cultural diversity & territorial integrity is a daunting task, which India has done successfully.

Feedback

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Q.16) Explain the mechanism and occurrence of earthquake. With the help of map given below, throw light upon the vulnerability of regions affected by earthquake and earthquake related disasters. (15 marks, 250 words)

भूकंप की क्रियाविधि और घटना को समझाइए। नीचे दिए गए मानचित्र की सहायता से भूकंप और भूकंप संबंधी आपदाओं से प्रभावित क्षेत्रों की संवेदनशीलता पर प्रकाश डालिए। (15 अंक, 250 शब्द)

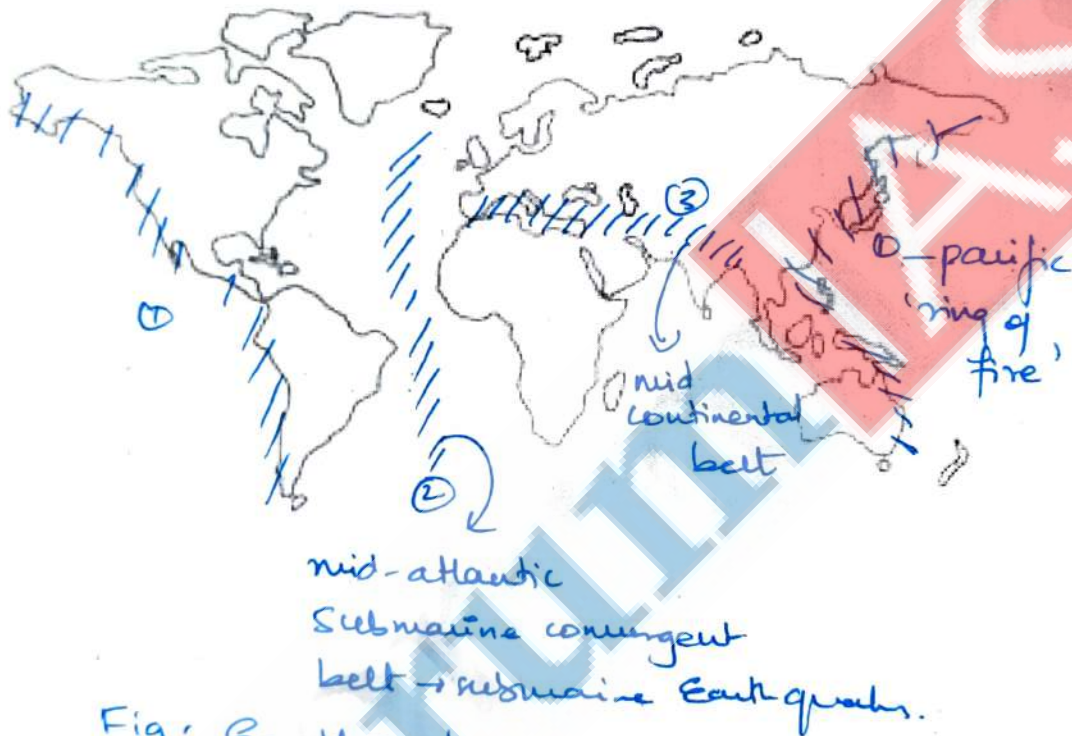
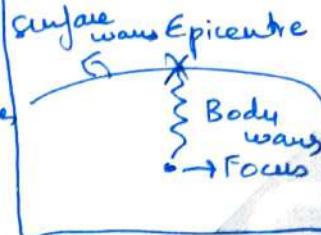


Fig: Earthquake prone regions.

Earthquakes refer to the sudden release of compressional stress from the tectonic plates along faults. With over 1,00,000 earthquakes occurring every year (many minor one) they are an important geomorphological phenomenon.

Mechanism:

① An underlying fault experiences release of pressure, at a tectonic point called Focus.



② Body waves (p-waves & s-waves) travel at different speeds, ^{via} ~~at~~ different media to reach epicentre.

③ Surface waves (Love & Rayleigh) cause the visible impact on ground such as
 ↳ liquefaction, heaving & breaking of grounds
 ↳ landslide, floods
 ↳ building destruction etc.

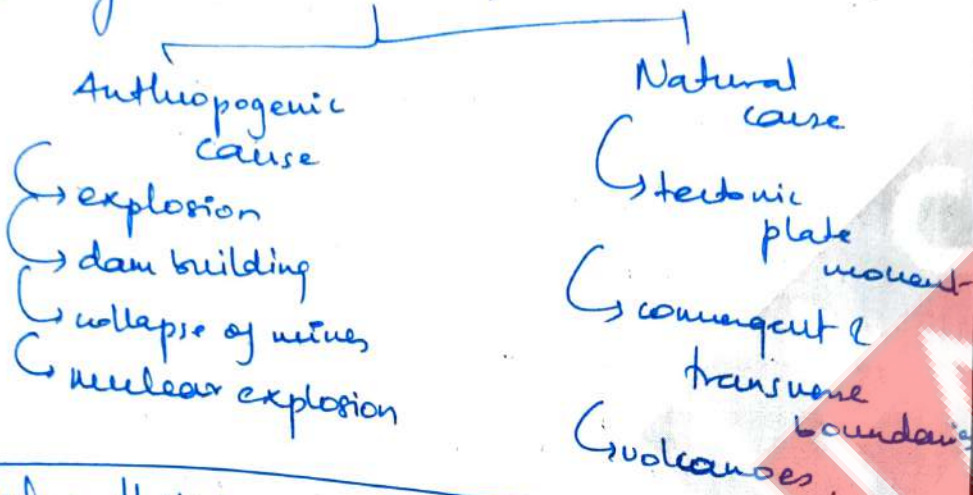
④ The breaking of ground is visible via cracks

⑤ Earthquake can vary along Intensity (~~or~~ Mercalli scale) and magnitude (Richter scale)

Occurrence:

① EQs occur when sufficient pressure builds up in tectonic faultlines

② They occur due to,



Vulnerability of earth regions:

- ① Pacific ring of fire: Occurring at the convergence of pacific plate & Indo-Australian plate (west) & N. American plate (east) due to subduction zones (80% of EQs here)
- ② mid-continental: Due to convergence of Indo Australian & Eurasian plate. Ex: Recent Delhi EQs
- ③ Submarine earthquakes: along mid-atlantic ridge belt.
This leads to related disasters like landslide, flood, lake outbursts etc.
While prevention is tough, effective mitigation of EQs is needed

Feedback
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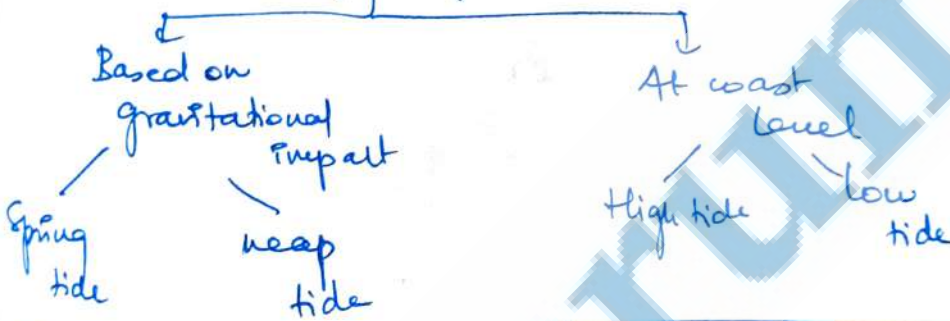
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Q17) Enumerating different types of tides highlight their significance. Also, explain how tides are different from waves. (15 marks, 250 words)

भिन्न प्रकार के ज्वारों की गणना उनके महत्व को उजागर करती है। यह भी समझाइए कि ज्वार-भाटा तरंगों से किस प्रकार भिन्न होते हैं। (15 अंक, 250 शब्द)

Tides and waves are different oceanographic kinetic phenomena. Tides refer to the changes in sea level due to the gravitational force effects of the sun and the moon.

Types of tide



Significance of types:

① Spring tide: occurs due to combined g-force of sun & moon
 It is significant because
 → helps in carrying nutrients
 → retreat of water helps

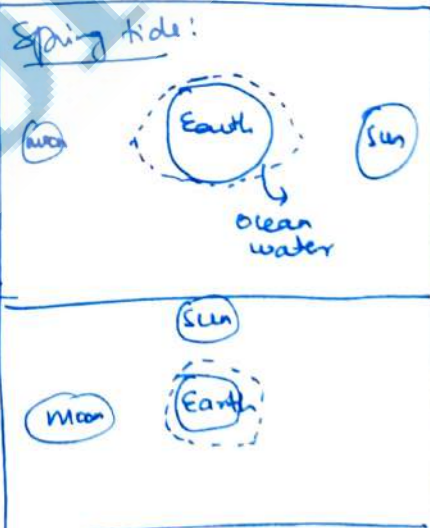


Fig: Spring & neap tide.

→ fishermen

→ Associated with high tidal action.

② Neap tide: Occurs due to counteracting effect of sun & moon's g-force, occurring twice in a lunar revolution (14 days).

③ High tide: Refers to the maximal limit of sea water foray in the coast. Significant due to → role in fisheries augmentation

→ Tidal energy could be used to tap electricity

→ Brings nutrients on-shore

→ Helps fishermen navigation.

④ Low tide: Refers to the minimal limit in the farthest region from coast when seawater comes during troughs of spring tide.

→ Helps in identifying CRZ

→ identifying coastal belt & erosion vulnerability.

WAVES

- Refer to the surface movement of water (circular) due to wind movement
- Driven by terrestrial winds
- non-cyclical
- cannot be usefully tapped into electricity
- Local phenomenon
- Mechanical in nature

TIDES

- Refer to change in sea level.
- Driven by ~~the~~ ^{solar & lunar} forces
- can be cyclical & periodic
- more useful for electricity generation
- Global phenomenon
- Gravitational in nature.

Utilising the potential of tidal energy, reducing erosion due to wave action are some areas that need urgent policy attention for these oceanographic phenomena.

Feedback

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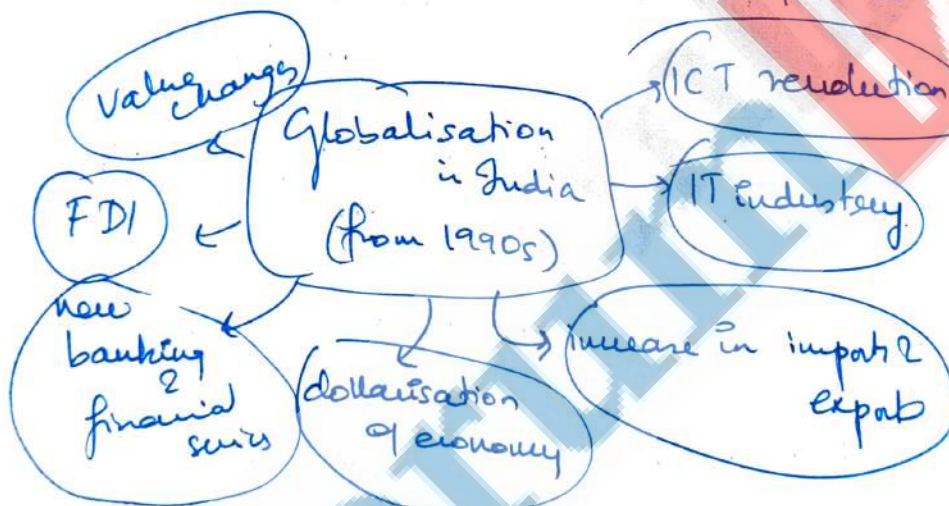


Q.18) With special reference to India, elucidate how globalisation—a multifaceted phenomenon—has had positive socio-economic outcomes on one hand and widened the gaps between the haves and have nots on the other? (15 marks, 250 words)

भारत के विशेष संदर्भ में यह स्पष्ट कीजिए कि कैसे वैश्वीकरण — एक बहुआयामी घटना — के एक तरफ सकारात्मक सामाजिक-आर्थिक परिणाम हुए हैं और दूसरी तरफ अमीर और गरीब के बीच की खाई को चौड़ा किया है?

(15 अंक, 250 शब्द)

Globalisation in India refers to the growing interdependence with other economic jurisdictions & free-flow of goods, services, capital & people.



The multifacetedness of globalisation comes from its far reaching impact on all sectors (primary, secondary, tertiary) & across regions & classes in India.

Positive socio-economic consequences:

① Reduction in poverty: UN estimates that

fastest reduction in poverty of India began in the 1990s.

② Growth rate: Economic growth rate touched 8-9%. breaking away from 'Hindu growth rate'

③ Multi-industry impact:

- Technology: Foray of internet, telecom & mobile
- Financial services: Global banking & micro insurance
- Industrial: Higher FDI, Higher supply chain diversification
- Agricultural: Fertiliser imports & Food exports
- WTO & FTA regimes augmented trade

④ Emergence of a new middle class driving consumption-led growth

⑤ Cultural changes: Increased exposure to liberal values, change in food, clothing & music enabled soft power diplomacy.

Widened gaps:

① Increased inequality: After the LPG reforms,

The rich became richer & poor became poorer
Ex: top 1% own 50% of national wealth
(Oxfam)

② Inequitable development: Globalisation had limited reach and was more beneficial to urban, industrialised, non-tribal regions

③ Environmental consequences: Increased consumerism fuelled indiscriminate exploitation, leaving the poor at forefront of climate change
Ex: India ranks 7th in Global climate risk index

④ Cross-sectoral differences: Agriculture gained the least from globalisation (got exposed to price & supply shocks from global trends)

⑤ Inaccessibility of new financial products like mutual funds, sharemarket put the illiterate @ disadvantage.

Globalisation is the norm in the post world-war world. While its positives of greater resource efficiency must be embraced, equitable & environmental-friendly policies also are needed

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Q.19) What makes India one of the most vulnerable regions to climate change? Discuss the role of governments, citizens, and businesses in building climate resilience. (15 marks, 250 words)

क्या चीजें भारत को जलवायु परिवर्तन के लिए सबसे संवेदनशील क्षेत्रों में से एक बनाती हैं? जलवायु नम्यता के निर्माण में सरकारों, नागरिकों और व्यवसायों की भूमिका पर चर्चा कीजिए। (15 अंक, 250 शब्द)

Climate change is the gradual warming of average temperatures globally. Recently, July 2023 was announced as the warmest month ever! faced by humanity. India's vulnerability arises from various factors.

India ranks 7th in the global climate risk index. This is fuelled by the following.

Factors underpinning India's increased vulnerability:

- ① Population: Being the most populous nation, India has 16% of global population.
- ② Coastline: 250 million Indians depend on the 7500 km coastline, which is the first theatre of impact for climate change.

③ Ocean warming: CSE holds that Indian ocean is the warmest ocean & warming ~~fastly~~ faster than other major oceans, increasing probability of EWEs (Extreme Weather ^{events})

④ Poor preparedness: with 50% of Indian population projected to be urbanised by 2050, risk of urban floods, heat waves, etc. is ^{water} extremely high

⑤ Water stress: → India largest user of ground water in world (25%)
 → already reached water stress level
 (per capita availability around 1400 m³)
 → 600 million Indians to be without water by 2030 (NITI Aayog)

⑥ Land stress: → increasing loss of forests to forest fires & deforestation
 → population density & migration pressures.
 Ex: Reverse migration during COVID.

Role of governments:

① Prioritise sustainable development. Reviewing

Forest Conservation Amendment Bill, recent amendment to EIA process to increase exemptions etc to ensure environment-centrality.

② Climate justice: Demand for fund & technology transfer from developed countries

Ex: Modi's call of 100 bn USD contribution

for fulfilling developing countries' INDCs.

③ Focusing on afforestation, incentivising renewable energy to realise pari-pat

- rit goal

Business ① CSR to plant trees

② Adopt circular economy. Ex: Recent coalition of industries under G20

③ Promote green hydrogen, green steel & cement

④ Adopt in-situ renewable energy Ex: GRHA rating.

Citizen: ① Life movement activities

② Opt for public transport

③ plant trees ④ Rainwater harvesting

With Samaj, Sakhar & Bazaar, the robust goal of climate resilience (SDG 13) is possible

Feedback

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Q.20) All deserts are rain deficit, but are formed due to different reasons. Discuss. Also, analyse various adaptations in the flora and fauna to survive the water deficit conditions.

(15 marks, 250 words)

सभी मरुस्थल वर्षा के अभाव वाले हैं, लेकिन इसका निर्माण विभिन्न कारणों से होता है। चर्चा कीजिए। इसके अलावा, जल की आभाव की स्थिति से बचने के लिए वनस्पतियों और जीवों में विभिन्न अनुकूलन का विश्लेषण कीजिए।

(15 अंक, 250 शब्द)

Deserts are formed due to imbalance between precipitation & evaporational loss. They are characterised by inconsistent rainfall, dryness and sparse florae & faunal density.

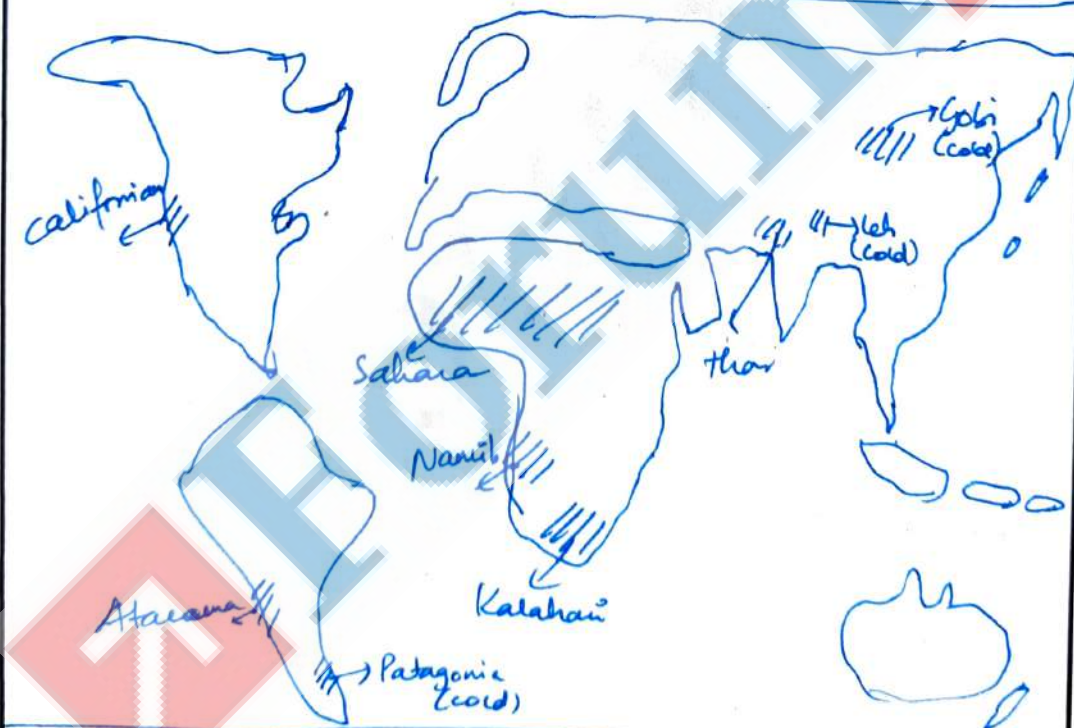


Fig: Famous desert of World

Different reasons of formation:

① Warm deserts: a) Formed due to ~~the~~ ^{location} in western coasts & L/w tropics, characterized by rain deficit.

b) cold currents along western margins reduces moisture availability. Ex: Benguela current & Naamib desert.

c) Rain shadow regions due to hill tracts can divert rain bearing clouds.

Ex: Himalayas & Thar desert.

d) Subsidence of cold air in tropical belts along sub-tropical high (23° N-S).

Ex: California, Saharan desert.

② Cold deserts: These are largely located in eastern margins and in temperate regions.

a) Poor rainfall: Location neither in tropical region nor in boreal region. Ex: Leh desert.

b) Continentality: Distance from sea.

enables poor moisture availability.

Ex: Gobi desert of China

c) High evaporational loss & irregular rainfall/snowfall.

Analysis of adaptations:

Flora: → Adaptation includes thick cuticles

(cactus) to reduce evaporation &

→ water storage within leaves & trunk

→ thorns to ward away water sucking

→ deep roots to expand zone of water availability

Fauna → Hair to prevent heat loss Ex: polar bear

→ small size to reduce surface volume Ex: rodents

→ thick fat deposits on skin.

Using such methods, adaptability is exhibited in deserts

Feedback
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