Disaster Management

DAILY PRACTICE 27/11/2026 · UPSC CSE · Disaster Management

Q1.

A powerful coastal storm brings heavy rainfall, strong winds and seawater inundation to a densely populated coastal region. Which of the following best explains the phenomenon of compound flooding?

A. Flooding caused exclusively by the overflow of a river following prolonged rainfall.

B. Flooding resulting from the simultaneous or interacting effects of multiple flood drivers, such as heavy rainfall, storm surge and river discharge.

C. Flooding caused only by the failure of coastal embankments during high tides.

D. Flooding resulting from the gradual rise in groundwater levels without any surface-water contribution.

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Correct answer: Option B — Flooding resulting from the simultaneous or interacting effects of multiple flood drivers, such as heavy rainfall, storm surge and river discharge.

Explanation

Correct Answer: (b) — Flooding resulting from the simultaneous or interacting effects of multiple flood drivers.

1. **Compound flooding:** It occurs when multiple flood-generating factors interact, increasing the extent or severity of inundation.
2. **Storm surge:** Strong winds and atmospheric pressure changes associated with storms can push seawater towards the coast.
3. **Heavy rainfall:** Intense precipitation can overwhelm urban drainage systems and increase river discharge.
4. **Interaction of hazards:** High coastal water levels can obstruct river drainage, worsening inland flooding.

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Q2.

A powerful coastal storm brings intense rainfall, strong winds, storm surges and widespread power outages. Which of the following combinations correctly identifies the major hazards associated with such an event?

1. Storm surge — Abnormal rise of seawater above the predicted astronomical tide.
2. Coastal flooding — Inundation of low-lying coastal areas due to high water levels and wave action.
3. Compound flooding — Occurrence of coastal flooding and river or rainfall-induced flooding simultaneously.
4. Storm tide — Combined effect of astronomical tide and storm surge.

Select the correct answer using the code given below:

A. 1 and 2 only

B. 1, 2 and 3 only

C. 2, 3 and 4 only

D. 1, 2, 3 and 4

Correct answer: Option D — 1, 2, 3 and 4

Explanation

Correct Answer: (d) — All four statements are correct.

1. **Storm surge:** It is an abnormal rise in seawater level caused primarily by storm-related atmospheric pressure and winds.
2. **Coastal flooding:** It occurs when seawater inundates coastal land, often due to storm surges, high tides and waves.
3. **Compound flooding:** It results when multiple flooding mechanisms, such as heavy rainfall, river discharge and coastal water levels, interact.
4. **Storm tide:** It represents the combined water level produced by astronomical tide and storm surge.

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Q3.

Consider the following sequence of events in the context of a rainfall-triggered disaster at an unauthorised mining site:

1. Heavy rainfall causes the river to overflow.
2. Floodwater and slope instability affect the mining area.
3. A landslide or mine collapse occurs.
4. Underground workers become trapped due to inundation and debris.

Which of the following is the most appropriate interpretation of this sequence?

A. It represents a cascading disaster involving hydrological and geological hazards.

B. It represents a purely tectonic disaster unrelated to weather conditions.

C. It represents a technological disaster caused exclusively by underground explosions.

D. It represents a meteorological drought followed by groundwater depletion.

Correct answer: Option A — It represents a cascading disaster involving hydrological and geological hazards.

Explanation

Correct Answer: (a) — A cascading disaster involving hydrological and geological hazards.

1. Intense rainfall can cause river flooding and saturation of soil.
2. Saturated slopes may lose stability, increasing the likelihood of landslides.
3. Flooding and slope failure can damage underground mine structures and trap workers.
4. Unregulated mining, inadequate drainage and weak safety systems increase human exposure and vulnerability.

Such events demonstrate how multiple hazards can interact to produce a disaster.

Q4.

With reference to landslides in the Himalayan region, consider the following statements:

1. Slope instability can be triggered by intense rainfall, earthquakes and human activities such as road cutting.
2. Unscientific drainage management can increase landslide susceptibility by allowing water to infiltrate and weaken slopes.
3. Every region classified as landslide-prone experiences landslides with the same frequency and intensity.
4. Early-warning systems, slope stabilisation and hazard zonation can help reduce landslide-related risks.

Which of the statements given above are correct?

A. 1, 2 and 3 only

B. 1, 2 and 4 only

C. 1 and 3 only

D. 1, 2, 3 and 4

Correct answer: Option B — 1, 2 and 4 only

Explanation

Correct Answer: (b) — 1, 2 and 4 only

Statement 1 is correct: Heavy rainfall, seismic activity, slope modification and deforestation can destabilise hill slopes.

Statement 2 is correct: Poor drainage increases water infiltration and pore-water pressure, reducing the shear strength of slope materials.

Statement 3 is incorrect: Landslide susceptibility indicates the likelihood of occurrence based on terrain conditions; actual frequency and intensity vary with local geology, rainfall and other triggers.

Statement 4 is correct: Hazard mapping, monitoring, early warnings, slope engineering and effective drainage help reduce exposure and vulnerability.

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Q5.

With reference to disaster management in India, consider the following statements about the National Disaster Management Authority (NDMA):

1. The Prime Minister of India is the Chairperson of the NDMA.
2. The NDMA is a statutory body established under the Disaster Management Act, 2005.
3. State Disaster Management Authorities are chaired by the respective Chief Ministers.

Which of the statements given above are correct?

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A. 1 and 2 only

B. 2 and 3 only

C. 1 and 3 only

D. 1, 2 and 3

Correct answer: Option D — 1, 2 and 3

Explanation

Correct Answer: (d) — 1, 2 and 3.

1. Statement 1 is correct: The Prime Minister is the ex-officio Chairperson of the NDMA.
2. Statement 2 is correct: NDMA is a statutory body constituted under the Disaster Management Act, 2005.
3. Statement 3 is correct: The Chief Minister chairs the State Disaster Management Authority under the Act.

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Q6.

With reference to road safety and highway infrastructure in India, consider the following statements:

1. An accident black spot is a road stretch or location identified on the basis of a high incidence of road accidents.
2. Detailed Project Reports (DPRs) assess technical, financial and environmental aspects of proposed infrastructure projects.
3. The Motor Vehicles Act, 1988, provides for the identification and rectification of road engineering deficiencies through road safety audits.
4. The principle of forgiving roads seeks to minimise the severity of crashes caused by human errors through safer road design.

Which of the statements given above are correct?

A. 1 and 2 only

B. 1, 2 and 4 only

C. 2, 3 and 4 only

D. 1, 2, 3 and 4

Correct answer: Option B — 1, 2 and 4 only

Explanation

Explanation:

Correct Answer: (b) — 1, 2 and 4 only

1. **Statement 1 is correct:** Accident black spots are identified using accident data and are prioritised for engineering interventions.
2. **Statement 2 is correct:** DPRs provide the technical and financial foundation for project planning, including feasibility and relevant environmental assessments.
3. **Statement 3 is incorrect:** Road safety audits are an important engineering and administrative practice, but the Motor Vehicles Act does not specifically establish them as a statutory mechanism for identifying and rectifying engineering deficiencies.
4. **Statement 4 is correct:** Forgiving road design aims to reduce the consequences of inevitable human errors through safer roadsides, barriers, junctions and road geometry.

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Q7.

With reference to tropical cyclones affecting the Indian coastline, consider the following pairs:

Cyclone-related term	Description
1. Eye	Region of relatively calm winds near the centre
2. Storm surge	Abnormal rise in sea level associated with a cyclone
3. Landfall	Movement of a cyclone's centre across the coastline
4. Coriolis force	Responsible for the formation of ocean tides

How many of the pairs given above are correctly matched?

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A. Only one

B. Only two

C. Only three

D. All four

Correct answer: Option C — Only three

Explanation

Correct Answer: (c) — Only three

1. **Pair 1 is correct:** The eye is the relatively calm central region of a mature tropical cyclone.
2. **Pair 2 is correct:** Storm surge is an abnormal rise in coastal water levels caused mainly by strong cyclone winds and atmospheric pressure changes.
3. **Pair 3 is correct:** Landfall occurs when the centre of a tropical cyclone crosses a coastline.

4. **Pair 4 is incorrect:** The Coriolis force influences the rotation and movement of cyclones. Ocean tides are primarily generated by the gravitational forces of the Moon and Sun.

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Q8.

With reference to Humanitarian Assistance and Disaster Relief (HADR) operations, consider the following statements:

1. Military air forces can play a critical role in HADR through strategic airlift, medical evacuation and supply delivery.
2. The Sendai Framework for Disaster Risk Reduction (2015–2030) is a legally binding international treaty.
3. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) facilitates coordination among humanitarian actors during emergencies.
4. HADR cooperation between countries can improve interoperability and strengthen regional disaster-response capabilities.

Which of the statements given above are correct?

A. 1 and 2 only

B. 1, 3 and 4 only

C. 2 and 3 only

D. 1, 2, 3 and 4

Correct answer: Option B — 1, 3 and 4 only

Explanation

Correct Answer: (b) — Statements 1, 3 and 4 are correct.

1. **Statement 1 is correct:** Air forces provide rapid transportation of relief materials, evacuation of affected populations and medical support.
2. **Statement 2 is incorrect:** The Sendai Framework is a voluntary, non-binding international framework adopted in 2015.
3. **Statement 3 is correct:** OCHA coordinates international humanitarian response and facilitates cooperation among relief agencies.
4. **Statement 4 is correct:** Joint HADR exercises improve operational compatibility, communication and coordinated emergency response.

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Q9.

With reference to railway safety and disaster management in India, consider the following statements:

1. The Commissioner of Railway Safety functions under the administrative control of the Ministry of Civil Aviation rather than the Ministry of Railways.
2. The Research Designs and Standards Organisation (RDSO) is responsible for investigating every railway accident and determining criminal liability.
3. The National Disaster Management Authority (NDMA) provides the national policy framework for disaster management, including coordination and preparedness.
4. The Kavach system is an indigenously developed automatic train protection system designed to enhance railway safety by preventing collisions under specified conditions.

Which of the statements given above is/are correct?

A. 1 and 2 only

B. 1, 3 and 4 only

C. 2 and 3 only

D. 1, 2, 3 and 4

Correct answer: Option B — 1, 3 and 4 only

Explanation

Correct Answer: (b) — Statements 1, 3 and 4 are correct.

1. **Statement 1 is correct:** The Commissioner of Railway Safety operates under the Ministry of Civil Aviation to maintain independence from railway operations.
2. **Statement 2 is incorrect:** RDSO is the technical research and standards organisation of Indian Railways; statutory accident inquiries are conducted by designated railway authorities and the Commissioner of Railway Safety, as applicable.
3. **Statement 3 is correct:** NDMA lays down policies and guidelines for effective disaster management across India.
4. **Statement 4 is correct:** Kavach is an indigenous automatic train protection system intended to reduce collision risks and improve operational safety.

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Q10.

With reference to international disaster risk reduction and climate finance mechanisms, consider the following statements:

1. The Sendai Framework for Disaster Risk Reduction (2015–2030) emphasises understanding disaster risk, strengthening disaster risk governance and investing in resilience.
2. The UNFCCC Loss and Damage framework addresses climate-related impacts that go beyond the limits of adaptation.
3. Climate adaptation finance and disaster relief funding are conceptually identical, as both are intended exclusively for post-disaster reconstruction.
4. The principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) recognises differences in national responsibilities and capacities in addressing climate change.

Which of the statements given above is/are correct?

A. 1 and 2 only

B. 1, 2 and 4 only

C. 2 and 3 only

D. 1, 3 and 4 only

Correct answer: Option B — 1, 2 and 4 only

Explanation

Correct Answer: (b) — Statements 1, 2 and 4 are correct.

1. **Statement 1 is correct:** The Sendai Framework provides four priorities for disaster risk reduction, including governance and investment in resilience.
2. **Statement 2 is correct:** Loss and Damage addresses climate impacts that cannot be fully avoided through mitigation and adaptation.
3. **Statement 3 is incorrect:** Adaptation finance supports preparedness and resilience, whereas disaster relief primarily addresses immediate humanitarian needs after disasters.
4. **Statement 4 is correct:** CBDR-RC recognises varying historical responsibilities and national capacities in climate action.

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