SAMPLE QUESTIONS: OCEANOGRAPHY

Marks indicated in the margin are only indicative.

1. Classify the major structural [or relief] features of the ocean basin. Select any one of them and explain its origin using Plate Tectonics. 7+5½
2. How did the ocean basins originate? What evidences can be found in the sea floor to support your explanation? 5½+7
3. Classify the major relief features of Indian ocean. Explain the distribution of these features using Plate Tectonics. 5½+7
4. Attempt a classification of marine resources. How is the global warming expected to affect them?
5. What is CRZ? Explain how the boundaries of CRZ are demarcated along open coasts and tidal creeks / inlets. Enlist the coastal constructions / developments that are exempted from the purview of CRZ. 6+4+2½
6. How is EEZ defined? Explain the implications of EEZ in geopolitics and marine resource utilization / global economy with suitable examples. 2½ +10
7. What are the rights that a nation can enforce in its EEZ? State the nature of recent international disputes over territorial jurisdiction in South China Sea and Bay of Bengal. 2½+5+5
8. Classify the factors that cause short-term and long-term sea level changes. What are the characteristics of the Holocene sea level curve? 8+4½
9. How did the Holocene change in sea level affect coastline evolution of large deltas? Comment on the relationship between the trend of sea level during the last few decades and man-induced global warming. 7½+5
10. What major factors cause long-term and short-term sea level change? Describe the major markers / evidences of former sea levels. 5+7½
11. How is the Rule of Constant Proportions used for determining salinity of seawater? Discuss the major controlling factors of salinity and temperature of water masses with examples. 4+8½
12. What is the source of salt in seawater? How do temperature changes occur in oceans? Explain how T-S Diagrams can be used to define water masses. 3+5+4½
13. Explain the formation of Ekman spiral. How far can it be linked to ocean currents.? Attempt a classification of ocean currents and use any one [or two] example[s] to show how they act as major conduits of global heat transfer. 3+5½+4
14. Explain the formation of tides in oceans. Why do tidal ranges and periods vary spatially? How do tides influence navigation? 5+5½+2
15. Enlist the major forms of air-sea interactions. Discuss the nature of coupling between these two systems in tropical cyclones (or in global heat transfer or in hydrological cycle).

16. State the principal ways of classifying marine sediments. Explain the origin of any two types of them. Comment on the commercial importance of marine sediments 5+4½+3

17. What are the different types of oozes? What do you understand by $CaCO_3$ Compensation Depth? Explain the formation and economic importance of any two oceanic hydrogenous materials. 4+2+6½

18. What are coral reefs? How do they evolve? Explain the significance of corals. 2+7½+3

19. Explain the role of zooxanthelleae in sustaining coral reefs. What is Darwin's paradox? Evaluate the major natural and anthropogenic threats to corals with special reference to sea level rise. 3+3+6½

20. What are the prerequisites of successful implementation of integrated water resource management at the river basin level? Why is the significance of taking such initiative? 7½+5

21. Describe the major components of integrated river basin management. What is the importance of taking up micro-watershed planning? 7½+5

22. What are the major upstream and downstream consequences of impounding rivers (or large rivers)? / Discuss the various physical and societal issues related to river impoundment with suitable examples. 7+5½

Tips: Take mock exams—each question should be completed within 28 minutes. Be brief and to-the-point. Clearly underline subheadings. Use sketches & diagrams wherever possible. *Important*: Also check questions set in all past Module-6 (since 2007) / Module-207 papers available at the departmental library.