# EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2008

### CE 04 804 (D) – COASTAL ENGINEERING AND MARINE STRUCTURES

#### (2004 Admissions)

Time : Three Hours                       Maximum : 100 Marks

*Answer **all** questions.*

## Part A

1. Explain the man ocean interaction.

2. How do you explain ocean as a source of food and means of communication?

3. Write a brief note on Cnoidal wave theory.

4. How do you determine the surface wind velocity of the ocean wave?

5. Explain the Diffraction of waves around breakwaters.

6. What are the Tsunami warning systems? Explain the principle involved in the Tsunami warning system.

7. What is beach nourishment? Explain the various techniques of beach nourishment.

8. Write a brief note on shoreline features with a neat sketch.

$(8 \times 5 = 40$ marks)

## Part B

1. (a) If a pressure sensing instrument is setup at 4 m below SWL in a water depth of 20 m, determine the phase distribution of pressure head this instrument would record. Plot this pressure head against phase and compare this result to the phase variation of hydrostatic pressure. The wave height is 2 m and period is 10 sec and $\gamma = 1024$ kg/m³.

(15 marks)

*Or*

(b) (i) Explain the various ecological factors that affect Ocean.

(ii) Explain the importance of Integrated Coastal Zone Management in India

$(8 + 7 = 15$ marks)

2. (a) (i) Discuss briefly the salient points of Stoke's non-linear theory in detail with various wave dimensions.

(ii) Write a brief note on the features of Linear Airy theory.

*Or*

(b) (i) What is meant by wave forecasting? Discuss briefly the various methods of wave forecasting.

(ii) Enumerate the most important aspects of Solitary wave theory in comparison with linear wave theory.

$(8 + 7 = 15$ marks)

Turn ov

(i)   Briefly explain the procedure for finding the wave force on vertical wall due to non-breaking waves and broken waves.

(ii)   Explain briefly concept of refraction of ocean waves.

Or

(b)   (i)   Explain the concept of finding the wave force using Morison equation in Vertical cylinder.

(ii)   Write a brief note on reflection of ocean waves.

(10 + 5 = 15 marks)

4.   (a)   (i)   With a neat sketch, write a brief note on various types of Sea walls and Groins.

(ii)   Compare and contrast long term and short term shore changes.

(10 + 5 = 15 marks)

Or

(b)   (i)   What is meant by littoral drift? What is the impact of littoral drift on stability of shores? Explain the beach profile modification due to beach wave characteristics.

(ii)   Explain the classification of breakwaters with a neat sketch.

(9 + 6 = 15 marks)

[4 × 15 = 60 marks]