1053.A

Reg.No.

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2009

CE.04.804 D – Coastal Engineering and Marine Structures
(Answer all questions)

Time: Three hours **Maximum: 100 marks**

Part A

8x5=40

I 1) Describe in detail about the various effects of ocean on ecology and climate.

2) List the assumptions made in the Small amplitude wave theory and also write the boundary conditions for deriving Velocity potential for small amplitude wave propagation.

3) Write in detail about the significance of mass transport velocity in wave propagation.

4) What is a fetch? Enumerate in detail about fetch determination.

5) Draw the diffraction patterns of semi infinite breakwater and explain.

6) How are Tsunamis generated and propagated?

7) Write a note on shore erosion in Kerala.

8) Write short notes on tetra pod, tri bar and mud banks

Part B

4 x 15 = 60

II a) Consider a particle initially 5m below the SWL and 20 m above the sea bed. After the wave motion is established, what is the size and character of the orbit of the particle? Repeat the calculations for the particle at the surface and the other at the sea bed. L=33m and a=2 m.

(or)

b) Classify the Ocean waves and derive an expression for Wave energy for a small amplitude wave.

III a) i) Describe briefly about wave forecasting.

ii) Enumerate the salient points of Stoke's theory.

(or)

b) The following wave heights were recorded.

Height (m)	0 - 2	2-4	4-6	6-8	8-10
No. of waves observed	5600	7200	1920	960	320

Plot the wave height histogram along with theoretical Rayleigh distribution?

IV a) A Single Point Mooring buoy (SPM) 3m in diameter is anchored in 120m water depth. The SPM has a draft of 15m. If the significant wave height is 2.5m and the period is 12sec, Calculate the maximum wave force acting on the buoy.

(or)

b) Smooth faced vertical wall (K_r =1). Wave height at the structure if the structure were not there. H_i = 1.5m, depth at the structure, d=3m, T= 6 sec. Find the non breaking wave forces and Moment against vertical wall resulting from the given wave conditions.

V a) i) What are coastal defense structures? Explain the different types with neat sketches. (15)

(or)

b) i) Describe briefly about Shore line processes and write in detail about beach characteristics. (15)