Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: COASTAL ENGINEERING [CIE 326] - Program Elective II

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data may be suitable assumed.

1A. Define waves and briefly explain its classification . **4**

1B. What are wave theories and how are they classified? Also sketch a regular wave profile with wave parameters. **3**

1C. Determine the wave period and celerity for a wave having a length of 125 m in 20 m depth of water using Airy's wave theory. **3**

2A. List the uses of beach profile. Write a note how beach processes effect sediment transport. **4**

2B. Explain wave energy and wave power along with the expression. **3**

2C. Calculate the maximum wave force on a pile of diameter 1.5 m on a water depth of 30 m. The wave height at the site is 12 m with wave length of 130 m. Assume $C_d = 1$, $C_M = 2$ and density of water as 1030 kg/m^3. **3**

3A. What are the conditions for wave breaking? Explain spilling and plunging breakers. **6**

3B. What are the factors responsible for wave deformation? Explain the phenomenon of wave reflection and wave diffraction. **4**

4A. List out the natural and manmade causes for coastal erosion. **4**

4B. Design a seawall with rip rap revetment for a location pertaining following conditions **6**

Design wave height	=	3 m
Storm surge	=	1.5 m
Maximum tidal level (above CD)	=	1 m
Water depth at the toe of the structure	=	-3 m (from CD)
Wave runup	=	2.5 m
Seaward slope	=	1: 1.5
Type of material	=	quarried stone

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5A.	Write a short note on :- i) Slipways ii) Bulkheads iii) Mangroves	**6**
5B.	What are the disadvantages of Artificial beach nourishment?	**2**
5C.	What are the requirements of a good harbour.	**2**
6A.	What is a berthing structure? With the help of neat diagram explain various types of berthing structures.	**4**
6B.	Explain the steps involved in the design of rubble mound breakwater.	**4**
6C.	What are the advantages of composite breakwaters?	**2**