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Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



VI SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY/JUNE 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.

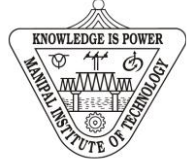
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|------------|--|----------|
| 1A. | Explain in detail on the constituents of dynamic ocean environment. | 4 |
| 1B. | For a 5 m high wave with $T = 10$ sec, determine maximum water particle velocities and accelerations for a water depth of 75 m. Also find the wave celerity. | 6 |
| 2A. | Write a short note on various equipment used for the measurement of waves. | 4 |
| 2B. | Obtain dispersion relation using equation of velocity potential. | 4 |
| 2C. | List the assumptions made while deriving the expression for wave force on a vertical member. | 2 |
| 3A. | What is wave deformation? With neat sketches describe any three forms of wave deformation. | 4 |
| 3B. | Define a beach and explain beach profile with a help of a neat diagram. | 4 |
| 3C. | Explain the phenomenon of longshore ocean currents and rip currents formation. | 2 |
| 4A. | What is coastal erosion? Briefly explain man made causes responsible for erosion. | 4 |
| 4B. | List out the merits and demerits of seawalls as a coastal protection work.
Write the steps adopted for the design of permeable seawall. | 6 |
| 5A. | Define a harbour and briefly explain its classification. | 6 |
| 5B. | Write a short note on i) Coastal pollution
ii) Dredging | 4 |

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- 6A.** What are the factors considered for finding the dimensions of berthing structures? **2**
- 6B.** With a neat sketch differentiate between graving and floating dry dock. **3**
- 6C.** Design a breakwater at a location with following details **5**
- Mean water depth – 5 m
 - Tidal correction – 1.5 m
 - Armour unit – Quarry stone (Stability coefficient- 1.2,
Layer coefficient-1.02, unit weight – 2650 kg/m^3)
 - Slope – 1:1.5
 - Unit weight of sea water – 1030 kg/m^3 .