Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH. (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, NOV/DEC 2018
SUBJECT: PROGRAMME ELECTIVE 1-COASTAL ENGINEERING [CIE-4020]
REVISED CREDIT SYSTEM
(26 /11 /2018)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL questions.
- Missing data may be suitably assumed.

1A.	List and explain the classification of ocean waves based on i) method of generation ii)) period of wave.	**(04)**	**CO1**
1B.	What are the kinematic boundary conditions adopted in Airy wave theory? A semidiurnal tidal wave approaching shallow water was observed to have a wave steepness of 0.02 and wave length of 150 m. Find out the wave angular frequency, wave height, wave number and horizontal water particle velocity at z=O	**(06)**	**CO1**
2A.	What is the significance of Keulegan carpenter number? Determine ratio of maximum Drag and inertia force exerted by Airy waves of height 6m and length 91.5m on a 1.2m Diameter pile, extending from the seafloor to above the maximum water elevation. The Water depth is 24.4m. Assume all other data accordingly. T=10 sec	**(05)**	**CO1**
2B.	Explain any three types of wave breakers.	**(03)**	**CO2**
2C.	Define i) wave shoaling ii) littoral drift	**(02)**	**CO2**
3A.	What are the goals and purposes of integrated coastal zone management?	**(04)**	**CO3**
3B.	What are the new technologies in shore protection? Explain any two.	**(03)**	**CO4**
3C.	What are the design principles of Groins?	**(03)**	**CO4**
4A.	What is the difference between wet dock and dry dock? List the loading and unloading facilities to be provided in a port.	**(02)**	**CO5**
4B.	Draw a typical diagram of an artificial harbour and mention the functions of each.	**(04)**	**CO5**
4C.	List and explain the design considerations of dock walls.	**(04)**	**CO5**
5A.	Design a two layered rubble mound breakwater in a water depth of 10m with slope of 1 in 1.5. The observed significant wave height was 2.5m. Take stability coefficient as 2. Also draw the designed cross section.	**(05)**	**CO5**
5B.	Define dolphins. Explain the classification of dolphins.	**(03)**	**CO5**
5C.	State the functions of i) buoys ii) transit sheds	**(02)**	**CO5**