

BRACT'S
Vishwakarma Institute of Information Technology, Pune

M.E(WREE)-SEM II

Subject: Elective II(Mechanics of waves, Human rights and Industrial safety)

Max marks: 50.

Date:

Note: Use of wave Mechanics charts is allowed

Solve any two questions from Q.1 to Q.3

Solve any two questions from Q.4 to Q.6

Q.7 is compulsory and solve any one question from Q.8 and Q.9

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| Q.1 | a) | Obtain expression for pressure below sea surface | 3 |
| | b) | What are assumptions for linear wave theory? Explain the boundary conditions used while derive equation for potential function | 3 |
| | c) | For a wave of 3 m height and 10 sec period obtain maximum horizontal and vertical displacement of water particle with mean position at (i) Still water level (ii) Sea bed. Depth of sea bed, $d = 12$ m | 4 |
| Q.2 | a) | Derive expression for group velocity of waves | 3 |
| | b) | A wave with a period 10 seconds is propagated shoreward over a uniformly sloping shelf from a depth of 300m to 3m. Find individual wave velocity (C) and wavelength (L) corresponding to 300 m and 3 m. | 4 |
| | c) | What is wave reflection? Give equation of resultant wave profile. State variation of reflection with structure characteristics and wave properties. | 3 |
| Q.3 | a) | What is wave breaking? Discuss various ways of wave breaking. | 4 |
| | b) | What is diffraction? Explain with neat sketch. What are the causes and effects of diffraction? | 3 |
| | c) | Define wave shoaling, wave refraction | 3 |
| Q.4 | a) | Explain the objectives of human rights | 3 |
| | b) | Explain the impact of duties discharged towards society | 3 |
| | c) | Explain any four articles stated in United National council | 4 |
| Q.5 | a) | Write a note on " Role of non-government organizations in promotion of human rights" | 3 |
| | b) | Explain the Right to Information Act | 3 |
| | c) | Write a note on " Prisons and human rights" | 4 |
| Q.6 | a) | Write a note on " Initiative by Government of India for right to education" | 3 |
| | b) | What do you understand by Freedom of Expression | 3 |
| | c) | Give an account of any two human rights violations you must have heard of. | 4 |
| Q.7 | a) | 100 Person were working on site, suddenly accident get occurred 10 person injured, 5 person died. What is the probability and reliability of injury and death. Also determine cost to be paid by the contractor on injury and death. Let's assume death cost Rs. 1 Lac/person and injury cost Rs. 50,000/- per person. | 4 |

OR

For a machine shop having area 10x8 meter square. There is need of lighting arrangement. Provide the necessary lighting arrangement by assuming standard rating of luminous rate also provide lighting system at equal distance. Draw figure.

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| Q.8 | a) | What are different type of personal protective devices used for safety | 3 |
| | b) | Explain role of Safety Engineer in industry | 3 |
| Q.9 | a) | Explain concept of safety education and training with example. | 3 |
| | b) | How to prevent accident in different industry by safety measures. | 3 |