

**INDIAN MARITIME UNIVERSITY**

(A Central University Government of India)

**B.Sc (Nautical Science)**

**Semester: VI**

**Naval Architecture Paper - II**

Subject Code: UG 21 T4602

Time: 3 hours

Max.Marks:70

Date:03.06.2022

Pass Marks:35

**Note: 1. Question No. 1 and 2 are compulsory.**

**2. Answer any 5 questions from the remaining 7 questions (each of 10 marks).**

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**Part A – Multi Choice Questions**

Q.1 Select the correct option (10 x 1 =10 marks)

(i) Certain controlling factors such as length, beam, horsepower, and deadweight would not be expected to change upon completion \_\_\_\_\_.

- A. Preliminary design
- B. Contract design
- C. Detail design
- D. Temporary design

(ii) The \_\_\_\_\_ shows the shape of the waterplane at different waterlines.

- A. Sheer plan
- B. Half breadth plan
- C. Body Plan
- D. Shell expansion plan

(iii) The Boiling Point of LNG is  $-163^{\circ}\text{C}$ . The ductility of metal is lost at this temperature and it becomes \_\_\_\_\_.

- A. tough
- B. brittle
- C. malleable
- D. plastic

(iv) The passenger ship subdivision load lines are issued by\_\_\_\_\_.

- A. Flag State administration
- B. Classification Society
- C. Recognised organisation
- D. Load Line authority

(v) The weight of anodes required to protect a given area of the ship's hull does not depend on\_\_\_\_\_.

- A. Current and Area
- B. Constant of the material
- C. Duration
- D. Nature of ship

(vi) Enhanced survey program\_\_\_\_\_.

- A. cannot be integrated with annual, intermediate and renewal surveys
- B. can be integrated with annual, intermediate and renewal surveys
- C. can be integrated with only docking surveys
- D. can be integrated with only renewal surveys.

(vii) Disadvantage of prefabrication is.

- A. It takes more time
- B. It can be used for outsourcing
- C. Tolerance for inaccuracy is less
- D. It is not economic

(viii) Substantial corrosion is an extent of corrosion where the wastage is in \_\_\_\_\_.

- A. excess of 15% of allowable corrosion margins
- B. excess of 25% of allowable corrosion margins
- C. excess of 50% of allowable corrosion margins
- D. excess of 75% of allowable corrosion margins

(ix) Guard rails fitted on superstructure and freeboard decks shall have at least three courses. The opening below the lowest course of the guard rails shall

- A. not exceed 380 mm
- B. not exceed 320 mm
- C. not exceed 230 mm
- D. not exceed 280 mm

(x) The Uniform Average Permeability of a machinery space is given by \_\_\_\_\_.

- A.  $95 + 10(a - c)/v$
- B.  $63 + (35a/v)$
- C.  $85 + 10(a - c)/v$
- D.  $65 + (35a/v)$

**Part B – 5 Short Questions (05 X 02 Marks)**

Q.2 Answer the following in about 50 words:

- i. List any 4 documents prepared during contract design
- ii. Uniform corrosion
- iii. Type B ship
- iv. Superstructure
- v. Margin line

**Part C – 7 Long Questions-Answer Any 5 (05 X 10 Marks)**

- Q3. (i) Explain any 2 common principles governing the ship design? (5 marks)  
(ii) What are the points to be considered during ship design to take care of the Stability aspects. (5 marks)
- Q4. (i) List any 5 advantages of prefabrication. (5 marks)  
(ii) Explain the use of computers in shipbuilding. (5 marks)
- Q5. (i) What are the functions of Classification Societies? (5 marks)  
(ii) Sketch and label a membrane tank. (5 marks)
- Q6. (i) List the measures taken to minimize crevice corrosion. (5 marks)  
(ii) Sketch and describe Impressed Current System. (5 marks)
- Q.7. (i) Describe how Gross Tonnage is calculated. (5 marks)  
(ii) Explain Enclosed Spaces as per International Tonnage Convention. (5 marks)
- Q8. (i) Explain load line requirements for air pipes. (5 marks)  
(ii) Describe passenger ship subdivision load-lines. (5 marks)
- Q.9. (i) Describe the factor of subdivision. (5 marks)  
(ii) Describe how the Criterion of Service Numeral (Cs) is calculated. (5 marks)