COCHIN SHIPYARD LIMITED
(A Govt. of India Enterprise)
KOCHI -15

PHASE - I
OBJECTIVE TYPE TEST FOR THE POST OF
EXECUTIVE TRAINEE (NAVAL ARCHITECTURE) FOR CSL

29 December 2025

DURATION OF THE TEST : 60 Minutes
MAXIMUM MARKS : 60 Marks

DO NOT OPEN THIS QUESTION PAPER-CUM-ANSWER BOOKLET UNTIL ASKED TO DO SO

GENERAL INSTRUCTIONS

1. **ANSWER ALL QUESTIONS**. There shall be no negative marks.
2. **Answers are to be marked using ✓ mark against the most appropriate option among the options provided in the Question Booklet using BALL POINT PEN**.
3. Rough work, if any, is to be done on space provided in the Question Booklet only. No separate sheet will be provided for rough work.
4. **Calculators, Mobile, Electronic items etc., are not permitted inside the examination hall.**
5. Candidates seeking, receiving and /or giving assistance during the test will be disqualified.
6. The right to exclude any question (s) from final evaluation rests with CSL.
7. Do not seek any clarification on any item in the Question Booklet. Use your judgment.

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Please fill in the following details using ball point pen.

Name of Candidate	
Registration No.	
Name of Post	
Signature of candidate	
Signature of invigilator	

THIS QUESTION PAPER-CUM-ANSWER BOOKLET SHOULD BE HANDED OVER TO THE INVIGILATOR ON COMPLETION OF THE TEST

PHASE - I

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PART A

1. What is the name of India's first defence electric vehicle developed by Pravaig Dynamics?

   a) VEER

   b) VAJRA

   c) AGNI

   d) RAKSHAK

2. Where is the tri service exercise 'poorvi prachand prahar' being conducted?

   a) Assam

   b) Arunachal Pradesh

   c) Manipur

   d) West Bengal

3. What is modelled after Bodhi Dharma a 5th – 6th century Indian monk from Kanchipuram revered as the founder of Zen Buddhism in China and Japan? This was gifted to the honorable prime minister during his official visit to Japan (August 29-30) by the chief priest of Shorinzan temple in Taka Saki.

   a) Kakeshi Dolls

   b) Daruma Dolls

   c) Gosho Dolls

   d) Bunraku

4. Which institution has launched the "Scheme for Facilitating Accelerated Payout of Inoperative Accounts and Unclaimed Deposits?

    a) Securities and Exchange Board of India (SEBI)

    b) Reserve Bank of India (RBI)

    c) Insurance Regulatory and Development Authority of India (IRDAI)

    d) Ministry of Finance (MoF)

5. With which Country has India approved the 69 Km long Kokrajhar-Gelephu rail line, a cross border Special Railway Project?

    a) Bhutan

    b) Nepal

    c) Myanmar

    d) Bangladesh

6. Choose the appropriate synonym for given word FUMBLING.

    a) Clever

    b) Cunning

    c) Awkward

    d) Graceful

7. Choose the appropriate option to fill in the blanks.

    By the time I arrived they _____dinner.

    a) have had

    b) had had

    c) have been having

    d) had been having

8. Choose the best substitute for the highlighted phrase in the given sentence.

   We have bought a new machine for our mother to help her in household chores, the machine **<u>can easily be carried anywhere</u>**.

   a) Potable
   b) Relatable
   c) Cartable
   d) Portable

9. Choose the option which is similar to the relation:-

   Room:House

   a) Bedroom:Kitchen
   b) Cabin:Ship
   c) Chair:Room
   d) Sitting Room:Drawing Room

10. Choose the appropriate option to fill in the blanks.

    Despite the _____ incident, the role of the Indian peacekeepers has been lauded.

    a) Brisk
    b) Untoward
    c) Falling Out
    d) Smug

11. The difference between a two digit number and the number obtained by interchanging the positions of its digits is 36. What is the difference between the two digits of that number?

    a) 3

    b) 4

    c) 5

    d) 9

12. If the circumference of a circle is increased by 50%, then its area will be increased by .....

    a) 50%

    b) 100%

    c) 125%

    d) 225%

13. Raju & Tom together can do a work in 10 days. Tom & Appu together can do it in 12 days. Appu & Raju together can do it in 15 days. In how many days will they finish it if all the three work together?

    a) 8 days

    b) 4 days

    c) 4.5 days

    d) 9.5 days

14. The average age of 36 students in a group is 14 years. When teacher's age is included to it, the average increases by one. What is the teachers age in years?

a) 36

b) 51

c) 31

d) None of the above

15. The cost of a machine is Rs.9000. If the cost decline is 10% of the cost at the beginning of each year, then what will be the cost of the machine three years later?

a) Rs. 6561

b) Rs. 6300

c) Rs. 6501

d) Rs. 6462

16. Which two signs need to be interchanged to make the equation 24 - 8 ÷ 4 + 5 × 3= 14 correct?

a) ÷ and ×

b) × and –

c) + and ÷

d) ÷ and -

17. A man is facing West. He turns 90 degree to his right and then another 180 degree. Which direction is he facing now?

a) East

b) North

c) South

d) West

18. Pointing to a boy in the photograph, Monika said, “His sister is the only daughter of my father”. How is the boy related to Monika’s father?

a) Nephew

b) Son in law

c) Son

d) Brother

19. Find out the word that cannot be formed using the letters of the given word: CORRIGENDUM

a) GENDER

b) DANGER

c) MURDER

d) ERROR

20. If Lead is Stick, Stick is Nib, Nib is Needle, Needle is Rope, Rope is Thread - what will be fitted in a pen to write with it?

a) Stick

b) Lead

c) Needle

d) Nib

PART B

21. Trim is the difference between ……

a) Port and starboard draft

b) Bow and stern draft

c) Actual and design draft

d) Summer and winter draft

22. Pitching occurs about which axis?

a) Longitudinal

b) Vertical

c) Transverse

d) Centerline

23. The total resistance R_T of a ship moving in calm water is mainly composed of which two principal components?

a) Frictional and wave-making resistance

b) Air and eddy-making resistance

c) Corrosion and grounding resistance

d) Added mass and slamming resistance

24. Cargo loading affects .....

a) GM

b) Density

c) L/B

d) RFR

25. Propeller slip is the difference between .....

a) Pitch & diameter

b) Theoretical & actual advance

c) Thrust & torque

d) Speed & power

26. Stability at large angles is analyzed by .....

a) Cross curves

b) Hydrostatics

c) Bonjean curves

d) Lines plan

27. Deterministic damage stability is based on .....

a) Probabilities

b) Worst-case scenario

c) Intact GM

d) Deadweight

28. Dynamic stability is area under .....

a) GZ curve

b) Righting arm

c) KG curve

d) Trim curve

29. Slender body theory is used for

a) Full form ships

b) Planing craft

c) Fine hulls

d) Barges

30. For a ship in calm water, what is the typical effect of a very large metacentric height (GM) on rolling behaviour?

    a) Long, slow and comfortable roll

    b) Short, quick and uncomfortable roll

    c) No rolling in waves

    d) Capsizing at small heel angles

31. A ship of displacement 8000 tonnes has a TPC of 16 tonnes. Approximately how much will the mean draft change if 40 tonnes of fuel are consumed at sea (no trim change)?

    a) 0.025 cm

    b) 0.025 m

    c) 0.25 cm

    d) 0.25 m

32. A vessel has KM = 9.0 m and KG = 7.8 m. Which of the following best describes the initial transverse stability condition?

    a) GM = -1.2 m, ship is unstable

    b) GM = 1.2 m, ship is stable

    c) GM = -1.2 m, ship is stable

    d) GM = 1.2 m, ship is unstable

33. A box-shaped barge 60 m long and 15 m wide floats at 4.0 m draft in seawater ($\rho \approx 1.025\ t/m^3$). The vessel is carrying a deadweight of approx. 2000 t. What is the approximate lightship weight of the barge?

a) 3600 t

b) 3690 t

c) 1690 t

d) 1600 t

34. A 1:25 scale model of a ship is tested in a towing tank at 2 m/s. Neglecting viscous effects and assuming Froude similarity, what is approximately the corresponding ship speed?

a) 5 kn

b) 10 kn

c) 20 kn

d) 25 kn

35. When a ship heels slightly to starboard, how do the centre of gravity (G) and centre of buoyancy (B) move with respect to space?

a) Both G and B remain fixed in space

b) Both G and B shift towards the starboard side

c) G shifts towards starboard, while B remains fixed in space

d) G remains fixed in space, while B shifts towards the starboard side

36. A beam is fixed at both ends and carries a uniformly distributed load over its entire span.

Which of the following statements are correct?

1. The bending moment diagram is parabolic along the span
2. The maximum bending moment in magnitude occurs at midspan
3. The shear force diagram varies linearly from one support to the other
4. Shear force is zero at midspan

a) 1, 2 and 3 only

b) 1, 3 and 4 only

c) 2, 3 and 4 only

d) 1, 2, 3 and 4

37. A rectangular ballast tank has internal dimensions 10 m (length) × 8 m (breadth) × 4 m (height). If the tank floods completely and structural permeability is taken as 0.9, what is the effective flooded volume?

a) 288 m^3

b) 320 m^3

c) 360 m^3

d) 384 m^3

38. A cargo ship initially has a roll period of 12 s. After cargo is rearranged, the roll period reduces to 9 s. Which statement is most reasonable?

a) GM has increased, roll accelerations are higher, and comfort has worsened

b) GM has decreased, roll accelerations are lower, and comfort has improved

c) GM has increased, but roll accelerations are lower and comfort has improved

d) GM has decreased, but roll accelerations are higher and comfort has worsened

39. In a turning circle manoeuvre, the “advance” of a ship is defined as

a) The maximum lateral distance of the ship’s track from the original course line

b) The distance travelled along the original course line until heading has changed by 90°

c) The distance required to bring the ship from full ahead to zero speed after a full-astern order

d) The minimum radius of the steady turning circle, measured perpendicular to the ship’s track.

40. The primary purpose of bilge keels fitted to a cargo vessel is to

a) Increase directional stability

b) Reduce roll amplitude by adding damping

c) Reduce pitching in head seas

d) Reduce wave-making resistance

41. Which of the following loading conditions is most likely to produce largest hogging still water bending moments among the given options for a bulk carrier?

a) Holds at both ends full, middle holds empty

b) All holds uniformly loaded

c) Middle holds full, holds at ends empty

d) All holds empty

42. A naval corvette, having length overall 110 m, length between perpendiculars 100 m, breadth 16 m, and draft 5 m. At this draft, it displaces 4100 t in sea water. What is the approximate block coefficient of the vessel at this draft?

a) 0.45

b) 0.47

c) 0.5

d) 0.51

43. Which of the following best describes the metacentre (M) of a surface ship for small angles of heel?

a) The intersection of the vertical through the ship's centre of gravity with the vertical through the heeled centre of buoyancy

b) The intersection of the vertical through the original centre of buoyancy with the vertical through the centre of buoyancy at a small heel angle

c) The intersection of the vertical through the ship's centre of gravity with the vertical through the heeled centre of floatation

d) The intersection of the vertical through the ship's centre of gravity with the vertical through the heeled centre of buoyancy

44. Which material property is most critical when selecting steel grade for low-temperature services?

a) Yield strength

b) Elastic modulus

c) Impact toughness

d) Tensile strength

45. Propeller cavitation is most likely when …….

a) Cavitation number is low

b) Thrust loading is low

c) Advance coefficient is high

d) Speed decreases

46. Plate buckling strength primarily depends on ……

a) Plate slenderness ratio and boundary conditions

b) Welding heat-affected zone properties

c) Residual stresses from fabrication

d) Hull girder section modulus

47. Holtrop form factor (1+k) represents…….

a) Propeller slip

b) Wave drag

c) Viscous pressure resistance

d) Block coefficient

48. In intact stability, the range of stability is defined as ……

a) Angle at max GZ

b) Angle of deck immersion

c) Angle between 0° and the angle of vanishing stability

d) Angle of downflooding

49. Max shear stress in a rectangular beam occurs at .....

a) Extreme fibers

b) Neutral axis

c) Mid-depth surface

d) Ends

50. Added resistance in waves occurs because

a) Friction decreases

b) Pressure asymmetry increases

c) Lift forces increase

d) Wave phase inversion

51. Ship squat increases with

a) Speed^2

b) Beam

c) GM

d) Propeller pitch

52. Euler buckling applies mainly to .....

a) Hull plates

b) Longitudinal stiffeners

c) Bottom floors

d) Bulkheads

53. In seakeeping, RAO > 1 indicates

a) Amplified motion

b) Damped motion

c) No response

d) Pure resonance

54. Dynamic pressure increases with

a) V^2

b) 1/V

c) √V

d) Fn

55. In dry docking, keel block load depends on

a) Displacement only

b) Weight distribution

c) Stability

d) Trim only

56. During slipway docking, the initial hull reaction is concentrated mostly at the keel because

a) The keel is the structurally weakest longitudinal member

b) The keel is aligned with the vessel's center of gravity

c) Keel blocks are designed to carry the main longitudinal load path

d) Bilge blocks provide the same reaction as keel blocks

57. The shear flow (q) distribution in a ship's hull girder cross-section is fundamentally determined by

a) The vertical shear force and the first moment of area about the neutral axis

b) The bending moment and the section modulus of the hull

c) The ship's trim angle and the longitudinal center of flotation

d) The metacentric height and the angle of heel

58. Bernoulli's equation is valid when

a) Flow is rotational

b) Viscous effects dominate

c) Flow is inviscid along a streamline

d) Density varies

59. Wetted surface area increases with

a) Higher CB

b) Lower draft

c) Smaller beam

d) Lower L/D

60. Hull torsional weakness most directly leads to

a) Excessive shear stress in side shells and decks

b) Distortion of hatch openings and deck alignment

c) Racking deformation of transverse sections

d) Cracking at corners of large openings under oblique seas

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