PHASE I (PART I)

OBJECTIVE TYPE TEST FOR THE POST OF
JUNIOR TECHNICAL ASSISTANT (MECHANICAL) FOR CANSRU

I. GENERAL KNOWLEDGE

1. Which country won the FIFA World Cup in 2022?
   a) Germany

   b) Brazil

   c) Argentina

   d) France

2. Which of the following is not a Scandinavian country?
   a) Denmark

   b) Norway

   c) Sweden

   d) England

3. Which type of rock is formed by the cooling and solidification of magma?

   a) Sedimentary

   b) Igneous

   c) Metamorphic

   d) Fossilized

4. What is the primary greenhouse gas responsible for climate change?

   a) Methane

   b) Carbon dioxide

   c) Nitrous oxide

   d) Water vapor

5. Which country hosted the Summer Olympics in 2024?

    a) Tokyo

    b) Paris

    c) Los Angeles

    d) Beijing

II. REASONING

6. In a certain code, if "COLD" is coded as "DPME", how is "WARM" coded?

    a) XBSN

    b) XBRN

    c) XZQN

    d) XARN

7. What comes next in the series: 2, 5, 10, 17, 26, ...?

    a) 40

    b) 37

    c) 32

    d) 39

8. If South-East becomes North, North-East becomes West and so on. What will West become?

    a) North-East

    b) North-West

    c) South-East

    d) South-West

9. Pointing to a man, a woman said, “His mother is the only daughter of my mother.” How is the woman related to the man?

    a) Aunt

    b) Mother

    c) Sister

d) Grandmother

10. Book is to Reading as Fork is to:

a) Drawing

b) Writing

c) Stirring

d) Eating

III. QUANTITATIVE APTITUDE

11. A man buys a watch for ₹500 and sells it for ₹600. What is the profit percentage?

a) 10%

b) 15%

c) 20%

d) 25%

12. A can do a job in 10 days, B in 15 days. How long will they take to do it together?

a) 6 days

b) 5 days

c) 8 days

d) 12 days

13. What is the simple interest on ₹1000 at 5% per annum for 3 years?

a) ₹100

b) ₹120

c) ₹150

d) ₹160

14. The average of 5 numbers is 20. What is their total sum?

a) 50

b) 100

c) 120

d) 100

15. A car travels 150 km in 3 hours. What is its average speed?

a) 40 km/h

b) 45 km/h

c) 50 km/h

d) 60 km/h

IV. GENERAL ENGLISH

16. They _____ her and trusted her for years

a) know

b) had known

c) knew

d) known

17. French people love cooking, _____ the English don't seem very interested.

a) when

b) whenever

c) where

d) whereas

18. "Have you been" more careful, the accident could have been averted.

a) If you have been

b) Had you been

c) Have you been

d) No correction is required

19. Choose the alternative which best expresses the meaning of the Idiom/Phrase.
TO SMELL A RAT

a) to be suspicious

b) to chase a rat

c) to see a rat

d) to smell foul

20. Choose the correct Antonyms given and indicate your choice for the correct answer.
FASCINATING

a) Clever

b) Uniform

c) Charming

d) Boring

V. SUBJECT BASED

21. The Ratio of linear Stress to linear Strain is known as

a) Modulus of Elasticity

b) Modulus of Rigidity

c) Poisson's Ratio

d) Bulk Modulus

22. CPM in Project Management stands for

a) Common Project Method

b) Common Path Method

c) Critical Project Method

d) Critical Path Method

23. Maximum efficiency of Power Transmission through a pipe is

a) 50%

b) 66.67%

c) 75%

d) 100%

24. Which one of the following casting processes produces the product with a better surface finish:

a) Sand Casting

b) Hot Die Casting

c) Investment Casting

d) Cold Die Casting

25. A four stroke Deisel Engine does not have

a) Cooling System

b) Ignition Coil

c) Cam shaft

d) Piston Rings

26. The property of a liquid which offers resistance to the movement of one layer of liquid over another adjacent of liquid, is called

a) surface tension

b) viscosity

c) capillarity

d) compressibility

27. If the value of n=0 in the equation $pv^n = C$, then the process is called

a) constant volume process

b) constant pressure process

c) adiabatic process

d) isothermal process

28. The angle between the tool face and the plane parallel to the base of the cutting tool is called

a) Rake Angle

b) Lip Angle

c) Cutting Angle

d) Shear Angle

29. The unit of strain is

a) mm

b) N/mm

c) N-mm

d) no unit

30. Which of the following is point function

a) Heat

b) Work

c) Temperature

d) None of the above

31. Which equation describes the conservation of mass in fluid flow

a) Bernoulli's equation

b) Euler's equation

c) Continuity equation

d) Navier-Stokes equation

32. Which parameter determines the rate of convective heat transfer between a solid surface and a fluid

a) Thermal conductivity of the fluid

b) Temperature difference between the solid and the fluid

c) Surface area of the solid

d) Viscosity of the fluid

33. What is the purpose of a heat exchanger in a thermal system?

a) To generate heat

b) To transfer heat between two fluids

c) To store heat energy

d) To regulate the temperature of a fluid

34. Which cycle is commonly used in gas power plants?

a) Rankine cycle

b) Stirling cycle

c) Otto cycle

d) Brayton cycle

35. What is the purpose of a governor in a steam engine?

a) To regulate the steam flow rate

b) To control the fuel-to-air ratio

c) To maintain a constant engine speed

d) To increase the compression ratio

36. Bernoulli's theorem deals with the law of conservation of:

a) Mass

b) Momentum

c)Energy

d) None

37. Which of the following energy conversion device is an example of chemical energy to Electrical Energy

a) Fuel Cell

b) Dynamo

c) Heat Exchanger

d) Solar Cell

38. In a Refrigeration System, why are expansion devices located closer to the evaporator:

a) To maximize the heat gain

b) To avoid the flow of Refrigerant

c) To ease the flow of Refrigerant

d) To minimize the heat gain

39. How is the flux supplied in the submerged arc welding process

a) Through an electrode holder

b) Applied at the work piece at the beginning of the welding

c) Using flux feed tube.

d) Coated on the electrode

40. Which kind of corrosions difficult to monitor and is very dangerous for metals:

a) Stress Corrosion

b) Pitting Corrosion

c) Galvanic Corrosion

d) Crevice Corrosion

41. The specific gravity of water is taken as

a) 0.001

b) 0.01

c) 0.1

d) 1

42. The first law of thermodynamics deals with

a) Conservation of Heat

b) Conservation of mass

c) Conservation of momentum

d) Conservation of energy

43. In a refrigeration cycle, heat is rejected by the refrigerant in a

a) expansion valve

b) Compressor

c) Condenser

d) evaporator

44. A cylindrical bar of L meters deforms by 1 cm. The strain in bar is

a) I/L

b) 0.1 I/L

c) 100 I/L

d) 0.01 I/L

45. Rotary compressors are used for delivering

a) small quantities of air at high pressures

b) large quantities of air at low pressures

c) small quantities of air at low pressures

d) large quantities of air at high pressures

46. Which of the quantity consists of unit as kg m/sec?

a) Speed

b) Momentum

c) Acceleration

d) Impulse

47. During the throttling process, the enthalpy

a) increases

b) decreases

c) remains same

d) may increase or decrease

48. Which type of linkage is used to convert rotary motion to reciprocating motion?

a) Crank and slotted lever mechanism

b) Whitworth quick return mechanism

c) Watt's straight-line mechanism

d) Peaucellier-Lipkin linkage

49. What is the natural frequency of a vibrating system?

a) The frequency at which the system vibrates with the highest amplitude

b) The frequency at which the system oscillates back and forth

c) The frequency at which the system is most stable

d) The frequency at which the system experiences resonance

50. Which parameter determines the stiffness of a spring in a mechanical system?

a) Damping coefficient

b) Natural frequency

c) Young's modulus

d) Spring constant

51. Which law states that the rate of change of momentum of a body is equal to the force acting on it?

a) Newton's first law

b) Newton's second law

c) Newton's third law

d) Newton's law of gravitation

52. What is the purpose of a nozzle in a gas turbine engine?

a) To control the fuel-to-air ratio

b) To compress the incoming air

c) To increase the thrust by accelerating the exhaust gases

d) To regulate the steam flow rate

53. What is the efficiency of a Carnot heat engine operating between two temperatures, T1 and T2?

a) T1 / (T1 + T2)

b) (T1 - T2) / T1

c) (T1 - T2) / T2

d) 1 - (T2 / T1)

54. Gnatt charts are used for

a) Machine Utilization

b) Inventory Control

c) Production schedule

d) None of the Above

55. Which of the following is NOT a typical advantage of using an interference fit in a shaft and hole assembly:

a) Uniform stress distribution at the joint

b) Ease of disassembly for maintenance

c) Prevention of relative motion between parts

d) Increased load bearing capacity

56. Bin Cards are used for:

a) Machine Loading

b) Stores

c) Accounts

d) None Of the above

57. The Welding process in which heat is produced for welding by means of Chemical Reaction is known as:

a) Gas Welding

b) Forge Welding

c) Resistance Welding

d) Thermit Welding

58. The Modulus of Elasticity in S.I unit is expressed as:

a) N/M

b) N/M2

c) Nm/S

d) None of The Above

59. In a psychometric chart what does a vertical downward line represents:

a) Sensible cooling Process

b) Adiabatic saturation Process

c) Humidification Process

d) Dehumidification Process

60. Which of the following is a positive Displacement Pump:

a) Jet Pump

b) Centrifugal Pump

c) Propeller Pump

d) Reciprocating Pump

61. Which of the following processes induce more stress in the metal?

a) Hot Rolling

b) Turning

c) Swaging

d) Forging

62. The ratio of lateral strain to linear strain, within the elastic limit of a material, is known as:

a) Stress Ratio

b) Strain Ratio

c) Poisson Ratio

d) Volume Ratio

63. Which of the following is true for a closed system?

a) Mass entering the system is equal to mass leaving through the system

b) Mass does not enter or leave the system

c) Mass entering can be more or less than the mass leaving

d) None of the mentioned

64. The property of a material which enables it to be drawn into wires with the application of a tensile force is called.

a) plasticity

b) elasticity

c) ductility

d) malleability

65. An object with a mass of 22 kg moving with a velocity of 5 m/s possesses kinetic energy of:

a) 275 J

b) 55 J

c) 110 J

d) 1110 J

66. What is the purpose of a camshaft in an automobile engine?

a) To control the fuel injection timing

b) To convert reciprocating motion into rotational motion

c) To open and close the engine valves

d) To provide lubrication for engine components

67. What is the function of a condenser in a power plant?

a) To convert heat energy into mechanical work

b) To increase the pressure of the working fluid

c) To remove heat from the working fluid

d) To regulate the steam flow rate

68. What is the principle of conservation of momentum?

a) Momentum is always conserved in an isolated system

b) Momentum is always conserved in an open system

c) Momentum is always conserved in a closed system

d) Momentum is always conserved in a reversible system

69. Which type of gearing is used to transmit power between parallel shafts?

a) Spur gears

b) Helical gears

c) Bevel gears

d) Worm gears

70. What is the purpose of a nozzle in a jet engine?

a) To control the fuel injection timing

b) To compress the incoming air

c) To increase the thrust by accelerating the exhaust gases

d) To regulate the steam flow rate

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