NRL GET

Previous Year Paper
Mechanical 23 Sept 2021 (Shift 2)

NUMALIGARH REFINERY LIMITED

A GOVERNMENT OF INDIA ENTERPRISE

Participant ID	
Participant Name	
Test Center Name	
Test Date	23/09/2021
Test Time	3:00 PM - 4:30 PM
Subject	GET-Mechanical
Marks Obtained	

Section : GET-Mechanical

Q.1 **The lowest frequency of the transverse vibration is called _____.**

Ans

✗ 1. underdamped frequency

✗ 2. natural frequency

✓ 3. fundamental frequency

✗ 4. damped frequency

Question Type : **MCQ**
Question ID : **308920923**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.2 **One of the reasons for the occurrence of natural convection is:**

Ans
- ✔ 1. the density change of fluid
- ✘ 2. the velocity and density change of fluid
- ✘ 3. the molecular structure changes of a fluid
- ✘ 4. the velocity change of fluid

Question Type : **MCQ**
Question ID : **308920948**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.3 **Which of the following is NOT true about mechanical comparators?**

Ans
- ✘ 1. They are compact.
- ✔ 2. They are difficult to handle.
- ✘ 3. They have a limited scale.
- ✘ 4. They are low cost.

Question Type : **MCQ**
Question ID : **308920965**
Status : **Answered**
Chosen Option : **4**
Marks : **0**

Q.4

The given fringe pattern indicates that the work piece under observation has a _____.

Ans
✗ 1. None of the given options
✗ 2. curved surface
✗ 3. horizontal surface
✓ 4. tapered surface

Question Type : MCQ
Question ID : 308920966
Status : Answered
Chosen Option : 3
Marks : 0

Q.5 Which of the following statements is TRUE for conical and single plate clutches, both having the same internal and external diameter and co-efficient of friction?

Ans
✓ 1. The torque transmission capacity of the conical clutch is higher.
✗ 2. The torque transmission capacity of either can be higher or lower.
✗ 3. The torque transmission capacity of the conical clutch is lower.
✗ 4. The torque transmission capacity of both is the same.

Question Type : MCQ
Question ID : 308920973
Status : Answered
Chosen Option : 1
Marks : 1

Q.6 **Liquid and gases transfer heat mainly due to:**

Ans
✗ 1. both conduction and radiation

✗ 2. radiation

✓ 3. convection

✗ 4. conduction

Question Type : **MCQ**
Question ID : **308920940**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.7 **Which of the following is the expression for work done by a curved plate when the plate is moving in the direction of jet?**

Ans
✓ 1. $\rho a (v-u)^2 u (1+\cos\theta)$

✗ 2. $\rho a (v-u)^2 u (\cos\theta)$

✗ 3. $\rho a (v-u) u (1+\cos\theta)$

✗ 4. $\rho a (v-u)^2 u (1+\cos 2\theta)$

Question Type : **MCQ**
Question ID : **308920929**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.8 Which of the following is more than one in a multistage centrifugal pump?

Ans
✗ 1. Turbines
✗ 2. Magnetic pumps
✓ 3. Impellers
✗ 4. Pumps

Question Type : MCQ
Question ID : 308920937
Status : Answered
Chosen Option : 4
Marks : 0

Q.9 Which of the following are typical problems related to centrifugal pumps?

1. No or low flow, 2. No or low pressure, 3. Excessive power consumption, 4. Excessive noise or vibration, 5. Seal leakage

Ans
✗ 1. 1, 2, 4, 5
✗ 2. 1, 2, 3, 4
✓ 3. 1, 2, 3, 4, 5
✗ 4. 2, 3, 4, 5

Question Type : MCQ
Question ID : 308920939
Status : Answered
Chosen Option : 4
Marks : 0

Q.10 The most popular material used for runner blades is _____.

Ans
✗ 1. steel
✗ 2. cast iron
✓ 3. cast steel
✗ 4. wrought iron

Question Type : MCQ
Question ID : 308920931
Status : Answered
Chosen Option : 2
Marks : 0

Q.11 The provision of fins on a heat transfer surface can be made more effective by having _____ number of _____ fins.

Ans
✗ 1. less; thin
✗ 2. large; thick
✗ 3. less; thick
✓ 4. large; thin

Question Type : MCQ
Question ID : 308920944
Status : Answered
Chosen Option : 4
Marks : 1

Q.12 The term 'thermodynamics' was first used in 1849 by:

Ans
✗ 1. Rudolph Clausius
✓ 2. Lord Kelvin
✗ 3. Sadi Carnot
✗ 4. William Rankine

Question Type : MCQ
Question ID : 308920949
Status : Answered
Chosen Option : 2
Marks : 1

Q.13 The properties that are independent of the mass in the system are called:

Ans
✗ 1. extensive properties
✗ 2. complex properties
✗ 3. intense properties
✓ 4. intensive properties

Question Type : MCQ
Question ID : 308920955
Status : Answered
Chosen Option : 4
Marks : 1

Q.14 Which of the following are the examples of reaction turbines?

Ans
✗ 1. Propeller, Pelton and Francis
✓ 2. Propeller, Francis and Kaplan
✗ 3. Pelton, Kaplan and Francis
✗ 4. Propeller, Kaplan and Pelton

Question Type : MCQ
Question ID : 308920930
Status : Answered
Chosen Option : 2
Marks : 1

Q.15 The radius of gyration of a uniform rod of length L and total mass of the rod M about an axis normal to it at its centroid is:

Ans
✗ 1. $\frac{L}{6}$
✗ 2. $\frac{L}{3\sqrt{2}}$
✗ 3. $\frac{L}{\sqrt{6}}$
✓ 4. $\frac{L}{2\sqrt{3}}$

Question Type : MCQ
Question ID : 308920906
Status : Answered
Chosen Option : 4
Marks : 1

Q.16 In a Mohr's circle, the maximum shear stress is:

Ans
✗ 1. the diameter of the Mohr's circle

✗ 2. greater than the radius of the Mohr's circle

✗ 3. the maximum distance of the Mohr's circle from the origin

✓ 4. the radius of the Mohr's circle

Question Type : MCQ
Question ID : 308920919
Status : Answered
Chosen Option : 4
Marks : 1

Q.17 For the longitudinal vibration, the restoring force or restoring couple is proportional to:

Ans
✗ 1. velocity

✗ 2. acceleration

✗ 3. rate of change of acceleration

✓ 4. displacement

Question Type : MCQ
Question ID : 308920921
Status : Answered
Chosen Option : 4
Marks : 1

Q.18 A particular tool, while machining at 30 m/min and 60 m/min was found to have a tool life of 80 mins and 8 mins, respectively. Determine the tool life equation.

Ans
✗ 1. $VT^{3.33} = C$
✓ 2. $VT^{0.3} = C$
✗ 3. $VT^{5} = C$
✗ 4. $VT^{0.5} = C$

Question Type : MCQ
Question ID : 308920960
Status : Answered
Chosen Option : 2
Marks : 1

Q.19 Which of the following is TRUE?

Ans
✗ 1. Heat flow = thermal potential difference × thermal resistance
✗ 2. Heat flow = thermal resistance / thermal potential difference
✗ 3. Heat flow = thermal potential difference + thermal resistance
✓ 4. Heat flow = thermal potential difference / thermal resistance

Question Type : MCQ
Question ID : 308920943
Status : Answered
Chosen Option : 4
Marks : 1

Q.20 **The part program entered into CNC can be utilised:**

Ans
✗ 1. None of the given options

✗ 2. multiple times, but should be modified every time

✓ 3. multiple times

✗ 4. only once

Question Type : **MCQ**
Question ID : **308920962**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.21 **For the frame to be deficient, the relation between joints and members will be:**

Ans
✗ 1. $m > 2j - 3$

✗ 2. $2j = m + 3$

✗ 3. $2j = m - 3$

✓ 4. $m < 2j - 3$

Question Type : **MCQ**
Question ID : **308920912**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.22 **Shearing force is applied to a beam of rectangular section. The ratio of maximum and average shear stress is:**

Ans
- ✗ 1. 1.75
- ✗ 2. 1.25
- ✗ 3. 2
- ✓ 4. 1.5

Question Type : **MCQ**
Question ID : **308920918**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.23 A cantilever beam has the Cross - section of an isosceles triangle (each side is 2 m). The beam is subject to 6 m N-m of bending moment. The moment of inertia of the section is $\frac{1}{18}$ m^4. Find the maximum bending stress in MPa.

Ans
- ✗ 1. $\frac{1}{36}$
- ✓ 2. 72
- ✗ 3. 36
- ✗ 4. $\frac{1}{72}$

Question Type : **MCQ**
Question ID : **308920901**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.24 The boundary of a system:

Ans
✗ 1. is always movable
✓ 2. can be fixed or movable
✗ 3. is always fixed
✗ 4. is neither fixed nor movable

Question Type : MCQ
Question ID : 308920952
Status : Answered
Chosen Option : 2
Marks : 1

Q.25 All sections of a beam have the same value of _____ in a beam of uniform strength.

Ans
✗ 1. moment of inertia
✓ 2. bending stress
✗ 3. strain
✗ 4. bending moment

Question Type : MCQ
Question ID : 308920914
Status : Answered
Chosen Option : 2
Marks : 1

Q.26 The prominent function of centrifugal pumps is to transfer _____ and transport _____.

Ans
✗ 1. speed; energy
✗ 2. pressure; fluid
✓ 3. energy; fluid
✗ 4. temperature; fluid

Question Type : MCQ
Question ID : 308920936
Status : Answered
Chosen Option : 3
Marks : 1

Q.27 In a plane and ground end helical spring, how many coils are inactive?

Ans
✓ 1. 1
✗ 2. 2
✗ 3. 0
✗ 4. 3

Question Type : MCQ
Question ID : 308920969
Status : Answered
Chosen Option : 1
Marks : 1

Q.28 **Which of the following options is NOT an advantage of CNC?**

Ans
- ✔ 1. Improved product strength
- ✘ 2. Improved productivity
- ✘ 3. Safe operation
- ✘ 4. Reduction in scrap rate

Question Type : **MCQ**
Question ID : **308920961**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.29 **Which of the following coordinate systems is useful for the systems which have symmetry about a point?**

Ans
- ✔ 1. Spherical coordinates
- ✘ 2. Cartesian coordinates
- ✘ 3. Cylindrical coordinates
- ✘ 4. Rectangular coordinates

Question Type : **MCQ**
Question ID : **308920942**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.30 **The heat dissipation in bearing is NOT proportional to which of the following?**

Ans
✗ 1. Temperature gradient between bearing surface and surrounding

✗ 2. Heat dissipation constant

✗ 3. Projected area

✓ 4. Co-efficient of friction

Question Type : **MCQ**
Question ID : **308920972**
Status : **Answered**
Chosen Option : **3**
Marks : **0**

Q.31 **A cantilever of length 'L' is carrying a point load 'P' at the free end. What will be the maximum deflection if the flexural rigidity is 'EI'?**

Ans
✗ 1. $PL^3/48EI$

✓ 2. $PL^3/3EI$

✗ 3. $PL^2/3EI$

✗ 4. PL^3/EI

Question Type : **MCQ**
Question ID : **308920920**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.32 What is the maximum load that can be applied to a helical spring if the mean pitch diameter is 25 mm, the cross-section diameter is 2.5 mm, the spring index C is 6.5, and the ultimate shear stress is 100 MPa with a factor of safety of 2?

Ans
- ✗ 1. 19.92 N
- ✓ 2. 9.96 N
- ✗ 3. 12.27 N
- ✗ 4. 24.92 N

Question Type : **MCQ**
Question ID : **308920974**
Status : **Answered**
Chosen Option : **3**
Marks : **0**

Q.33 Which of the following thermodynamic approaches is concerned directly with the structure of matter?

Ans
- ✓ 1. Both Microscopic approach and Statistical thermodynamics
- ✗ 2. Only Statistical thermodynamics
- ✗ 3. Only Microscopic approach
- ✗ 4. Only Classical thermodynamics

Question Type : **MCQ**
Question ID : **308920916**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.34 In the context of gear trains, the contact of portions of tooth profiles that are NOT conjugate are known as:

Ans
✗ 1. contact ratio
✗ 2. undercutting
✗ 3. tolerance
✓ 4. interference

Question Type : MCQ
Question ID : 308920967
Status : Answered
Chosen Option : 4
Marks : 1

Q.35 In centrifugal pumps, priming is done to:

Ans
✗ 1. increase discharge
✗ 2. reduce discharge
✓ 3. remove air from parts of the pump
✗ 4. increase pressure

Question Type : MCQ
Question ID : 308920938
Status : Answered
Chosen Option : 3
Marks : 1

Q.36 **Forecasting is under usually done under:**

Ans
- ✗ 1. control phase
- ✓ 2. planning phase
- ✗ 3. action phase
- ✗ 4. scheduling

Question Type : **MCQ**
Question ID : **308920979**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.37 **When the elements on the surface of the shaft move along the circumference of the shaft, the vibrations are called:**

Ans
- ✗ 1. damped vibrations
- ✗ 2. longitudinal vibrations
- ✗ 3. transverse vibrations
- ✓ 4. torsional vibrations

Question Type : **MCQ**
Question ID : **308920924**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.38 **Suppose an internal combustion engine is chosen as a system. Identify its surrounding from the given options.**

Ans
- ✗ 1. Piston ring
- ✓ 2. Atmospheric air
- ✗ 3. Exhaust emissions
- ✗ 4. Charge in the engine

Question Type : **MCQ**
Question ID : **308920951**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.39 **What will be the characteristic length for a sphere?**

Ans
- ✓ 1. R / 3
- ✗ 2. R / 4
- ✗ 3. R / 6
- ✗ 4. R / 2

Question Type : **MCQ**
Question ID : **308920945**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.40 Calculate the vertical height (h) of a Watt governor when it rotates at 100 rpm.

Ans
✗ 1. h = 0.025 m
✓ 2. h = 0.0895 m
✗ 3. h = 0.095 m
✗ 4. h = 0.195 m

Question Type : MCQ
Question ID : 308920978
Status : Answered
Chosen Option : 2
Marks : 1

Q.41 Identify the CORRECT statements about a hydroelectric power plant from the following:

a) Potential energy of water is the prime source of energy
b) Water head is important so that potential energy is converted into kinetic energy
c) As quantity of water stored increases, the amount of electrical energy produced increases

Ans
✗ 1. a, b
✓ 2. a, b, c
✗ 3. a, c
✗ 4. b, c

Question Type : MCQ
Question ID : 308920926
Status : Answered
Chosen Option : 2
Marks : 1

Q.42 **The speed at which the shaft begins to vibrate violently is equal to the:**

Ans

✔ 1. natural frequency of transverse vibration

✗ 2. natural frequency of torsional vibration

✗ 3. natural frequency of longitudinal vibration

✗ 4. combined natural frequency of longitudinal and transverse vibration

Question Type : **MCQ**
Question ID : **308920925**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.43 **If the differential element on the rod moves in the direction perpendicular to the longitudinal axis, then the vibration is called:**

Ans

✔ 1. transverse

✗ 2. both longitudinal and transverse

✗ 3. longitudinal

✗ 4. torsional

Question Type : **MCQ**
Question ID : **308920922**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.44 What will be the theoretical discharge of a double-acting reciprocating pump? (Stroke length = 250 mm, bore = 150 mm and crank speed = 60 rpm)

Ans
✗ 1. 2.2 litres/s
✓ 2. 8.8 litres/s
✗ 3. 4.4 litres/s
✗ 4. 8 litres/s

Question Type : MCQ
Question ID : 308920933
Status : Answered
Chosen Option : 2
Marks : 1

Q.45 How many groups of variables can be formed of non-dimensional parameters if a dimensionally homogeneous equation contains 'n' variables with 'm' primary dimensions?

Ans
✗ 1. n × m
✓ 2. n – m
✗ 3. n – 2m
✗ 4. n / m

Question Type : MCQ
Question ID : 308920946
Status : Answered
Chosen Option : 2
Marks : 1

Q.46 The indeterminate truss has:

Ans
✗ 1. number of unknown forcres are equal to the available equilibrium equations.

✗ 2. number of unknown forcres and the available equilibrium equations has no relations.

✓ 3. number of unknown forcres are more than the available equilibrium equations.

✗ 4. number of unknown forcres are less than the available equilibrium equations.

Question Type : **MCQ**
Question ID : **308920977**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.47 A balloon into which air is being inflated can be considered as:

Ans
✗ 1. an isolated system

✗ 2. a closed system

✗ 3. a surrounding

✓ 4. an open system

Question Type : **MCQ**
Question ID : **308920950**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.48 **Power is defined as:**

Ans
- ✗ 1. Time take / Work done
- ✗ 2. Work done x Time take
- ✓ 3. Work done / Time taken
- ✗ 4. Power output / Power input

Question Type : **MCQ**
Question ID : **308920976**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.49 **A body moving with a uniform acceleration covers 20 m in the 6^{th} second and 30 m in the 10^{th} second. The uniform acceleration of the body is:**

Ans
- ✗ 1. 2.76 m/sec^2
- ✗ 2. 1.5 m/sec^2
- ✓ 3. 2.5 m/sec^2
- ✗ 4. 1.25 m/sec^2

Question Type : **MCQ**
Question ID : **308920908**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.50 In which of the following are the runner blades fixed?

Ans
✔ 1. Propeller turbine
✗ 2. Kaplan turbine
✗ 3. Pelton turbine
✗ 4. Francis turbine

Question Type : MCQ
Question ID : 308920932
Status : Answered
Chosen Option : 3
Marks : 0

Q.51 Drilling is a _____.

Ans
✗ 1. None of the given options
✗ 2. single point cutting operation
✔ 3. multi-point cutting operation
✗ 4. thermal operation

Question Type : MCQ
Question ID : 308920959
Status : Answered
Chosen Option : 3
Marks : 1

Q.52 A block weighing 2500 N, overlying a 10° wedge on a horizontal floor and leaning against a vertical wall, is to be raised by applying a horizontal force to the wedge. The coefficient of friction between all surface contacts is 0.3. The minimum horizontal force required to raise the block is:

Ans
- ✗ 1. 3295.9 N
- ✗ 2. 1546.1 N
- ✓ 3. 2364 N
- ✗ 4. 2650 N

Question Type : **MCQ**
Question ID : **308920905**
Status : **Answered**
Chosen Option : **2**
Marks : **0**

Q.53 The state of a simple compressible system is completely specified by how many independent, intensive properties?

Ans
- ✗ 1. Four
- ✗ 2. Three
- ✓ 3. Two
- ✗ 4. One

Question Type : **MCQ**
Question ID : **308920954**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.54 Which of the following temperature measuring instruments is a function of electromotive force in the circuit?

Ans
✔ 1. Thermocouples
✘ 2. Resistance temperature detectors
✘ 3. Liquid-in-glass thermometers
✘ 4. Optical pyrometers

Question Type : MCQ
Question ID : 308920956
Status : Answered
Chosen Option : 2
Marks : 0

Q.55 In reciprocating pumps, the discharge is _____ at the middle of the stroke and becomes _____ during the suction stroke.

Ans
✘ 1. zero; minimum
✘ 2. minimum; zero
✔ 3. maximum; zero
✘ 4. zero; maximum

Question Type : MCQ
Question ID : 308920934
Status : Answered
Chosen Option : 3
Marks : 1

Q.56 At any time t, the position of a particle moving along a straight line is prescribed by a relation: $x = 3t^2 - 6$. From its initial position at t = 0, the particle will attain a velocity of 54 m/sec after:

Ans
- ✔ 1. 9 sec
- ✘ 2. 8 sec
- ✘ 3. 12 sec
- ✘ 4. 15 sec

Question Type : MCQ
Question ID : 308920909
Status : Answered
Chosen Option : 1
Marks : 1

Q.57 In a pump, mechanical energy is converted into _____.

Ans
- ✘ 1. potential energy
- ✔ 2. pressure and kinetic energy
- ✘ 3. kinetic energy
- ✘ 4. pressure energy

Question Type : MCQ
Question ID : 308920935
Status : Answered
Chosen Option : 4
Marks : 0

Q.58 In the CNC part programming, G03 and G91 refers to:

Ans
✗ 1. circular interpolation in a counter clockwise direction and absolute dimension

✓ 2. circular interpolation in a counter clockwise direction and incremental dimension

✗ 3. circular interpolation in a clockwise direction and incremental dimension

✗ 4. circular interpolation in a clockwise direction and absolute dimension

Question Type : MCQ
Question ID : 308920963
Status : Answered
Chosen Option : 2
Marks : 1

Q.59 Which of the following calorimeters is normally used when the value of the dryness fraction is very low?

Ans
✗ 1. Bomb calorimeter

✗ 2. Bucket calorimeter

✓ 3. Separating and throttling calorimeter

✗ 4. Throttling calorimeter

Question Type : MCQ
Question ID : 308920957
Status : Answered
Chosen Option : 3
Marks : 1

Q.60 **Find the modulus of rupture for a rectangular section (breadth 'b' and depth 'd') simply supported beam when it was tested under bending. The ultimate bending moment recorded was 'M'.**

Ans
✗ 1. 12 M/bd^2

✗ 2. 8 M/bd^2

✓ 3. 6 M/bd^2

✗ 4. 24 M/bd^2

Question Type : **MCQ**
Question ID : **308920915**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.61 **In the context of ball bearings, what is meant by basic load rating?**

Ans
✗ 1. It is that load which a group of apparently identical bearings can withstand for a rating life of one revolution.

✓ 2. It is that load which a group of apparently identical bearings can withstand for a rating life of one million revolutions.

✗ 3. It is that load which a group of apparently identical bearings can withstand for a rating life of one hundred thousand revolutions.

✗ 4. It is that load which a group of apparently identical bearings can withstand for a rating life of one thousand revolutions.

Question Type : **MCQ**
Question ID : **308920970**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.62 How many angles can be determined using two angle gauges?

Ans
- ✗ 1. 1
- ✓ 2. 2
- ✗ 3. 5
- ✗ 4. 4

Question Type : MCQ
Question ID : 308920964
Status : Answered
Chosen Option : 4
Marks : 0

Q.63 The maximum inclination of the plane on which a body, free from external forces, can sleep is called:

Ans
- ✗ 1. the inclination angle
- ✗ 2. the angle of wrap
- ✗ 3. the angle of friction
- ✓ 4. the angle of repose

Question Type : MCQ
Question ID : 308920904
Status : Answered
Chosen Option : 4
Marks : 1

Q.64 In a thermal boundary layer, the fluid temperatures are affected by:

Ans
✗ 1. viscosity
✗ 2. fluid velocity
✗ 3. fluid pressure
✓ 4. heating or cooling from the surface wall

Question Type : MCQ
Question ID : 308920947
Status : Answered
Chosen Option : 1
Marks : 0

Q.65 Grinding is a _____.

Ans
✗ 1. non-traditional machining operation
✗ 2. single point machining process
✓ 3. multi-point machining process
✗ 4. None of the given options

Question Type : MCQ
Question ID : 308920958
Status : Answered
Chosen Option : 3
Marks : 1

Q.66 A body with 5 m/sec of velocity has a kinetic energy of 1.5 joules. What is the mass of the body?

Ans
✔ 1. 0.12 kg
✗ 2. 0.6 kg
✗ 3. 0.2 kg
✗ 4. 0.5 kg

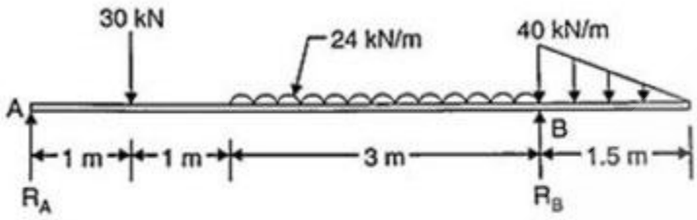
Question Type : MCQ
Question ID : 308920910
Status : Answered
Chosen Option : 1
Marks : 1

Q.67 The parameter that remains constant in the beams of uniform strength is:

Ans
✔ 1. the maximum bending stress
✗ 2. the bending moment
✗ 3. the deflection
✗ 4. the shear force

Question Type : MCQ
Question ID : 308920917
Status : Answered
Chosen Option : 1
Marks : 1

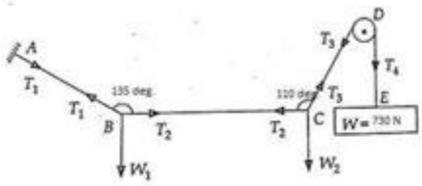
Q.68 What is the reaction at points A and B for the given figure?



Ans
- ✗ 1. 56.3 kN, 91.6 kN
- ✗ 2. 56.3 kN, 94 kN
- ✓ 3. 42.6 kN, 89.4 kN
- ✗ 4. 42.6 kN, 91.6 kN

Question Type : **MCQ**
Question ID : **308920911**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Q.69 A string whose extreme A is fixed has weights W1 and W2 attached to it at B and C, respectively, and passes around a smooth peg D carrying a weight of 730 N at the free end E. If in a state of equilibrium, BC is horizontal and AB and CD make angles of 135° and 110°, respectively, with BC, the weights W1 and W2 will be _____ and _____, respectively.



Ans

✗ 1. 353 N; 685.9 N

✗ 2. 353 N; 730 N

✗ 3. 249.67 N; 353 N

✓ 4. 249.67 N; 685.9 N

Question Type : **MCQ**
Question ID : **308920903**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.70 **The study of relationship between the load on hand and capacity of the work centers is known as:**

Ans

✓ 1. Loading

✗ 2. Scheduling

✗ 3. Controlling

✗ 4. Routing

Question Type : **MCQ**
Question ID : **308920980**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.71 In which of the following categories is wind energy classified?

Ans
✗ 1. Commercial energy
✗ 2. Non-renewable energy
✓ 3. Renewable energy
✗ 4. Conventional energy

Question Type : MCQ
Question ID : 308920927
Status : Answered
Chosen Option : 3
Marks : 1

Q.72 Fourier's equation of heat conduction presumes:

Ans
✓ 1. one dimensional heat flow
✗ 2. wall surfaces have nonuniform temperature
✗ 3. unsteady state conditions
✗ 4. two dimensional heat flow

Question Type : MCQ
Question ID : 308920941
Status : Answered
Chosen Option : 1
Marks : 1

Q.73 **Which of the following statements is CORRECT about stable lubrication?**

Ans
✔ 1. Rise in the temperature leads to decrease in the viscosity, decrease in the co-efficient of friction.

✗ 2. Rise in the temperature leads to decrease in the viscosity, increase in the co-efficient of friction.

✗ 3. The viscosity and co-efficient of friction remain stable.

✗ 4. Rise in the temperature leads to rise in the viscosity, decrease in the co-efficient of friction.

Question Type : **MCQ**
Question ID : **308920975**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.74 **The orientation of a beam (section 240 mm × 80 mm) is changed to horizontal, whereas it was designed to be placed vertically. The ratio of the load carrying capacity in the two cases (first case to the second case) will be:**

Ans
✗ 1. $\frac{1}{6}$

✗ 2. 1

✗ 3. $\frac{1}{9}$

✔ 4. $\frac{1}{3}$

Question Type : **MCQ**
Question ID : **308920902**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.75 **By using which of the following principles is the direction of jet when subject to propulsive force found?**

Ans
✗ 1. Bernoulli's equation

✗ 2. Impulse momentum equation

✗ 3. Navier–Stokes equation

✓ 4. Newton's third law

Question Type : **MCQ**
Question ID : **308920928**
Status : **Answered**
Chosen Option : **2**
Marks : **0**

Q.76 **In a simple band brake, the tension in the taut side:**

Ans
✗ 1. increases as a cubic function

✓ 2. increases exponentially as the friction increases

✗ 3. increases linearly as the friction increases

✗ 4. decreases linearly as the friction increases

Question Type : **MCQ**
Question ID : **308920968**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.77 Calculate the co-efficient of friction if the Somerfield number is 5 and the radial clearance is 200.

Ans
- ✔ 1. 0.49
- ✘ 2. 0.25
- ✘ 3. 0.12
- ✘ 4. 0.15

Question Type : MCQ
Question ID : 308920971
Status : Answered
Chosen Option : 4
Marks : 0

Q.78 A system is in thermodynamic equilibrium if it is in:

Ans
- ✘ 1. only mechanical equilibrium
- ✘ 2. only chemical equilibrium
- ✔ 3. chemical, mechanical, phase and thermal equilibrium
- ✘ 4. only thermal equilibrium

Question Type : MCQ
Question ID : 308920953
Status : Answered
Chosen Option : 3
Marks : 1

Q.79 A material is subject to normal stresses (σ_x and σ_y) on two perpendicular planes along with shear stress τ_{xy}. If one of the principal stresses is zero, which of the following holds TRUE?

Ans

✗ 1. $\tau_{xy} = \sqrt{(\sigma_x + \sigma_y)}$

✗ 2. $\tau_{xy} = (\sigma_x \times \sigma_y)/2$

✗ 3. $\tau_{xy} = (\sigma_x \times \sigma_y)$

✓ 4. $\tau_{xy} = \sqrt{(\sigma_x \times \sigma_y)}$

Question Type : **MCQ**
Question ID : **308920907**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.80 **The bending stress in a beam varies directly with:**

Ans

✗ 1. the polar moment of inertia

✗ 2. the moment of inertia

✓ 3. the distance from the neutral axis

✗ 4. the cross section of the beam

Question Type : **MCQ**
Question ID : **308920913**
Status : **Answered**
Chosen Option : **3**
Marks : **1**

Section : General Knowledge and Current Affairs

Q.1 'Department of Youth Affairs' belongs to _____.

Ans
✗ 1. Ministry of Playing
✗ 2. Ministry of Corporate Affairs
✓ 3. Ministry of Youth Affairs and Sports
✗ 4. Ministry of Finance

Question Type : MCQ
Question ID : 308920982
Status : Answered
Chosen Option : 3
Marks : 1

Q.2 Which among the following Articles deals with 'Abolition of Titles'?

Ans
✓ 1. Article 18
✗ 2. Article 17
✗ 3. Article 15
✗ 4. Article 16

Question Type : MCQ
Question ID : 308920981
Status : Answered
Chosen Option : 4
Marks : 0

Q.3 **Which of the following is the first National Academy of Performing Arts established by the Republic of India?**

Ans
- ✗ 1. Sangeet Dance Akademi
- ✗ 2. National Dance Akademi
- ✗ 3. Noopur Dance Akademi
- ✓ 4. Sangeet Natak Akademi

Question Type : **MCQ**
Question ID : **308920983**
Status : **Answered**
Chosen Option : **4**
Marks : **1**

Q.4 **Which among the following Prime Minister articulated India's vision of regional economic integration based on enhanced intra-regional trade, investment flows and interconnectivity, at the last SAARC Summit held in the Maldives in November 2011?**

Ans
- ✓ 1. Manmohan Singh
- ✗ 2. Inder Kumar Gujral
- ✗ 3. Atal Bihari Vajpayee
- ✗ 4. P. V. Narasimha Rao

Question Type : **MCQ**
Question ID : **308920986**
Status : **Answered**
Chosen Option : **1**
Marks : **1**

Q.5 Alexander invaded India in _____.

Ans
✗ 1. 426 BC
✗ 2. 226 BC
✓ 3. 326 BC
✗ 4. 526 BC

Question Type : MCQ
Question ID : 308920987
Status : Answered
Chosen Option : 1
Marks : 0

Q.6 ____ is the maintenance of a relatively constant internal environment in the cells of an organism.

Ans
✗ 1. Osmoregulation
✓ 2. Homeostasis
✗ 3. Physiology
✗ 4. Excretion

Question Type : MCQ
Question ID : 308920985
Status : Answered
Chosen Option : 1
Marks : 0

Q.7 HRIDAY (National Heritage City Development and Augmentation Yojana) comes under:

Ans
✗ 1. Ministry of Rural development
✓ 2. Ministry of Housing and Urban Affairs
✗ 3. Ministry of Corporate Affairs
✗ 4. Ministry of Finance

Question Type : MCQ
Question ID : 308920984
Status : Answered
Chosen Option : 2
Marks : 1

Section : English

Q.1 Select the word that is ANTONYM (opposite in meaning) to the word given below.

Turpitude

Ans
✓ 1. Decency
✗ 2. Abuse
✗ 3. Immorality
✗ 4. Arrogant

Question Type : MCQ
Question ID : 308920989
Status : Answered
Chosen Option : 1
Marks : 1

Q.2 **Select the most appropriate meaning of the given phrase.**

A fly in the ointment.

Ans
✗ 1. To find someone unexpectedly.

✓ 2. A flaw or imperfection that spoils the whole thing.

✗ 3. A dangerous situation

✗ 4. To be perceived in a wrong manner.

Question Type : **MCQ**
Question ID : **308920991**
Status : **Answered**
Chosen Option : **2**
Marks : **1**

Q.3 **The sentence below has been divided into three parts. Select the part of the sentence that has an error. If the sentence has no error, select the option 'No Error'.**

Their year is divided into 13 months, / 12 of which has have 30 days each; the / 13th month has five days, or six if it is a leap year. / No Error

Ans
✗ 1. Their year is divided into 13 months,

✓ 2. 12 of which has have 30 days each; the

✗ 3. 13th month has five days, or six if it is a leap year.

✗ 4. No Error

Question Type : **MCQ**
Question ID : **308920993**
Status : **Answered**
Chosen Option : **3**
Marks : **0**

Q.4 Select the most appropriate 'one word ' for the expressions given below.

Changing the direction of one's path suddenly.

Ans
- ✗ 1. Direct
- ✗ 2. Steer
- ✓ 3. Veer
- ✗ 4. Bend

Question Type : MCQ
Question ID : 308920992
Status : Answered
Chosen Option : 2
Marks : 0

Q.5 Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. Select the option 'no correction required' if the sentence is correct as given.

You cannot sell (them or disposed them) without the permission of the finance company.

Ans
- ✗ 1. No correction required.
- ✗ 2. them or dispose out them
- ✓ 3. them or dispose of them
- ✗ 4. them or dispose off them

Question Type : MCQ
Question ID : 308920994
Status : Answered
Chosen Option : 4
Marks : 0

Q.6 Four words are given, out of which only one word is spelt incorrectly. Choose the INCORRECT spelt word.

Ans
✗ 1. HIERARCHY
✗ 2. BEHAVIOURAL
✗ 3. LECTURE
✓ 4. HAEMETOLOGY

Question Type : MCQ
Question ID : 308920990
Status : Answered
Chosen Option : 4
Marks : 1

Q.7 Select the word that is SYNONYM (similar in meaning) to the word given below.

Detest

Ans
✗ 1. Wisdom
✗ 2. Admire
✓ 3. Loathe
✗ 4. Respect

Question Type : MCQ
Question ID : 308920988
Status : Answered
Chosen Option : 3
Marks : 1

Section : Reasoning & Numerical Ability

Q.1 Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.

Ans
✗ 1. 119
✓ 2. 171
✗ 3. 272
✗ 4. 51

Question Type : MCQ
Question ID : 308920996
Status : Answered
Chosen Option : 2
Marks : 1

Q.2 Find the wrong term in the following letter series.

KML, OQP, SUT, WXY, ACB

Ans
✗ 1. SUT
✗ 2. OQP
✗ 3. KML
✓ 4. WXY

Question Type : MCQ
Question ID : 308920998
Status : Answered
Chosen Option : 4
Marks : 1

Q.3 In the question given below, there are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes in options.

Assertion (A): Tea becomes cold after some time when kept outside.

Reason (R): Heat flows from a hotter object to a colder object till they attain the same temperature.

Ans
✗ 1. Both A and R are true but R is not the correct explanation of A.
✓ 2. Both A and R are true and R is the correct explanation of A.
✗ 3. A is false but R is true.
✗ 4. A is true but R is false.

Question Type : MCQ
Question ID : 308920995
Status : Answered
Chosen Option : 2
Marks : 1

Q.4 Select the option that is related to the third term on the same basis as the second term is related to the first term.

223 : 12 :: 768 : ?

Ans
✗ 1. 567
✗ 2. 442
✓ 3. 336
✗ 4. 109

Question Type : MCQ
Question ID : 308920997
Status : Answered
Chosen Option : 3
Marks : 1

Q.5 Arrange the given words in the sequence in which they occur in the dictionary.

1. Sabotage
2. Sacrificed
3. Safeguards
4. Salutatory
5. Sandalwood

Ans
✗ 1. 12435
✓ 2. 12345
✗ 3. 13245
✗ 4. 14523

Question Type : MCQ
Question ID : 3089201000
Status : Answered
Chosen Option : 2
Marks : 1

Q.6 Find the missing term in the following number series.

_____, 16, 64, 256

Ans
✗ 1. 2
✗ 2. 8
✓ 3. 4
✗ 4. 12

Question Type : MCQ
Question ID : 308920999
Status : Answered
Chosen Option : 3
Marks : 1