(Papers) SSC Junior Engineer Exam Paper - 2016 "held on 02 March 2017 "Morning Shift(General Engineering)

QID : 801 - A football was inflated to a gauge pressure of 1 bar when the ambient temperature was 15°C. When the game started next day, the air temperature at the stadium was 5°C. Assume that the volume of the football remains constant at 2500 cm3. Gauge pressure of air to which the ball must have been originally inflated so that it would equal 1 bar gauge at the stadium is _____.

Options:
1) 2.23 bar
2) 1.94 bar
3) 1.07 bar
4) 1 bar

Correct Answer: 1.07 bar

QID : 802 - The engine oil at 150 °C is cooled to 80 °C in a parallel flow heat exchanger by water entering at 25 °C and leaving at 60 °C. The exchanger effectiveness will be _____.

Options:
1) 0.36
2) 0.46
3) 0.56
4) 0.66

Correct Answer: 0.56

QID : 803 - The atomic packing factor is the highest in which of the following cubic lattice system?

Options:
1) Simple Cubic
2) Body Centered Cubic (BCC)
3) Face Centered Cubic (FCC)
4) Diamond Cubic

Correct Answer: Face Centered Cubic (FCC)

QID : 804 - The valves mounted on the boilers which change the direction of flow of steam by 90° and valves fitted in the pipelines which allow the steam in the same direction are respectively called as _____.

Options:

1) Stop valves and junction valves

2) Junction valves and stop valves

3) Junction valves and safety valves

4) Feed safety valves and stop valves

Correct Answer: Junction valves and stop valves

QID : 805 - Which of the following are boiler mountings and not boiler accessories ?

A] Pressure gauge
B] Air preheater
C] Superheater

Options:

1) B and C only

2) A only

3) A, B and C

4) A and C only

Correct Answer: A only

QID : 806 - Entropy is a measure of _____.

Options:

1) Reversible heat transfer

2) System efficiency

3) Degree of randomness

4) System temperature

Correct Answer: Degree of randomness

QID : 807 - Gibbs free energy is considered at which one of the following condition?

Options:

1) Isothermal, isochoric

2) Isobaric, isochoric

3) Isothermal, isobaric

4) None of these

Correct Answer: Isothermal, isobaric

QID : 808 - In vapour absorption refrigeration systems, which of the following fluids are commonly used?

Options:

1) air and water

2) sulphur dioxide and water

3) ammonia and water

4) freon and water

Correct Answer: ammonia and water

QID : 809 - In a cross compound steam engine _____.

Options:

1) one high and one low pressure cylinder are set side by side, driving the same shaft, cranks being set 90° apart

2) two cylinders are centred on the same piston rod, the 1.p. cylinder being placed nearest the crankshaft

3) two cylinders are set at 90°, usually to save floor space

4) None of these

Correct Answer: two cylinders are centred on the same piston rod, the 1.p. cylinder being placed nearest the crankshaft

QID : 810 - Which of the following is expected to have highest thermal conductivity?

Options:

1) steam

2) solid ice

3) melting ice

4) water

Correct Answer: solid ice

QID : 811 - A reversible thermodynamic cycle containing only three processes and producing work is to be constructed. The constraints are

A. there must be one isothermal process
B. there must be one isentropic process
C. maximum and minimum cycle pressures and the clearance volume are fixed, and
D. polytropic processes are not followed Then, the number of possible cycles is

Options:

1) 1

2) 2

3) 3

4) 4

Correct Answer: 1

QID : 812 - Which combination of the following statements is correct?

The incorporation of re-heater in a steam power plant

A. Always increases the thermal efficiency of the plant

B. Always increases the dryness fraction of steam at condenser inlet

C. Always increases the main temperature of heat addition

D. Always increases the specific work output

Options:

1) A and D only

2) B and D only

3) A, C and D only

4) A, B, C and D

Correct Answer: A, B, C and D

QID : 813 - The amount of heat required to raise the temperature of 1 kg of water from 0°C to the saturation temperature Ts °C at a given constant pressure is defined as _____.

Options:

1) Superheat

2) Entropy

3) Latent heat

4) Sensible heat

Correct Answer: Sensible heat

QID : 814 - The enthalpy of steam is defined as _____.

Options:

1) Difference of internal energy and product of pressure and volume.

2) Product of internal energy and pressure.

3) Sum of internal energy and product of pressure and volume.

4) Amount of heat change divided by the absolute temperature.

Correct Answer: Sum of internal energy and product of pressure and volume.

QID : 815 - What are the advantages of water tube boilers over fire tube boilers?

A. Steam at higher pressures can be produced.

B. More effective heat transfer.

C. Sediment deposition is more.

Options:

1) A only

2) A and C only

3) A, B and C

4) A and B only

Correct Answer: A and B only

QID : 816 - What is the state, in which none of the properties of the system change with time, known as?

Options:

1) Unsteady state

2) Steady state

3) Dynamic

4) Quasistatic

Correct Answer: Steady state

QID : 817 - The rate of heat transfer across any plane normal to the x-direction is proportional to the wall area and the temperature gradient in the x-direction. This statement is also referred to as _____.

Options:

1) Second Law of Thermodynamics

2) Kelvin's Law

3) Third Law of Thermodynamics

4) Fourier's Law

Correct Answer: Fourier's Law

QID : 818 - The critical temperature of a pure substance is defined as _____

Options:

1) The minimum temperature at which solid and liquid phases can coexist in equilibrium.

2) The maximum temperature at which solid and liquid phases can coexist in equilibrium.

3) The minimum temperature at which vapour and liquid phases can coexist in equilibrium.

4) The maximum temperature at which vapour and liquid phases can coexist in equilibrium.

Correct Answer: The maximum temperature at which vapour and liquid phases can coexist in equilibrium.

QID : 819 - Which of the following is the correct expression for the maximum thermal efficiency (η) of a system undergoing a reversible power cycle while operating between thermal reservoirs at temperatures Tc and Th

Options:

1) η = Tc/Th

2) η = Th/Tc-1

3) η = 1-Tc/Th

4) η = 1

Correct Answer: η = 1-Tc/Th

QID : 820 - In actual refrigeration systems, the compressor handles vapour only. What is this process commonly referred to as _____.

Options:

1) Gas compression

2) Phase compression

3) Dry compression

4) Wet compression

Correct Answer: Dry compression

QID : 821 - Property of a fluid at zero temperature is referred to as _____.

Options:

1) Stagnation property

2) Standard property

3) Simple property

4) None of these

Correct Answer: Stagnation property

QID : 822 - The increase in pressure _____.

Options:

1) lowers the boiling point of a liquid

2) raises the boiling point of a liquid

3) does not affect the boiling point of a liquid

4) reduces its volume

Correct Answer: raises the boiling point of a liquid

QID : 823 - The overall efficiency of thermal power plant is _____.

Options:

1) Boiler efficiency, turbine efficiency and generator efficiency

2) Boiler efficiency, turbine efficiency, generator efficiency and gas cycle efficiency

3) Carnot cycle efficiency

4) Regenerative cycle efficiency

Correct Answer: Boiler efficiency, turbine efficiency and generator efficiency

QID : 824 - Heat transfer by radiation mainly depends upon _____.

Options:

1) its temperature

2) nature of the body

3) kind and extent of its surface

4) All optons are correct

Correct Answer: All optons are correct

QID : 825 - Thermal diffusivity is _____.

Options:

1) a dimensionless parameter

2) function of temperature

3) used as mathematical model

4) a physical property of the material

Correct Answer: a physical property of the material

QID : 826 - Condensing temperature in a refrigerator is the temperature _____.

Options:

1) of cooling medium

2) of freezing zone

3) of evaporator

4) at which refrigerant gas becomes liquid

Correct Answer: at which refrigerant gas becomes liquid

QID : 827 - With an increase in the thickness of insulation around a circular pipe, heat loss to surroundings due to _____.

Options:

1) convection increases, where as due to conduction decreases

2) convection decreases, where as due to conduction increases

3) both convection and conduction decreases

4) both convection and conduction increases

Correct Answer: convection increases, where as due to conduction decreases

QID : 828 - For air with a relative humidity of 80% _____.

Options:

1) dry bulb temperature is less than the wet bulb temperature

2) dew point temperature is less than wet bulb temperature

3) dew point and wet bulb temperatures are equal

4) dry bulb and dew point temperatures are equal

Correct Answer: dew point temperature is less than wet bulb temperature

QID : 829 - If a mass of moist air in an airtight vessel is heated to a higher temperature, then _____.

Options:

1) specific humidity of the air increases

2) specific humidity of the air decreases

3) relative humidity of the air increases

4) relative humidity of the air decreases

Correct Answer: relative humidity of the air decreases

QID : 830 - In a vapour compression refrigeration system, liquid to suction heat exchanger is used to _____.

Options:

1) keep the COP constant

2) prevent the liquid refrigerant from entering the compressor

3) sub-cool the liquid refrigerant leaving the condenser

4) sub-cool the vapour refrigerant from the evaporator

Correct Answer: sub-cool the liquid refrigerant leaving the condenser

QID : 831 - A right-circular cylinder open at top is filled with water and rotated about its vertical axis at such speed that half the water spills out. What is the value of pressure at centre of the bottom?

Options:

1) One half its value when cylinder was full

2) One fourth its value when cylinder was full

3) Zero

4) Insufficient data

Correct Answer: Zero

QID : 832 - At a point on a streamline, the velocity is 3 m/sec and the radius of curvature is 9 m. If the rate of increase of velocity along the streamline at this point is 1/3 m/sec/m, then the total acceleration at this point would be _____.

Options:

1) 1 m/sec2

2) 3 m/sec2

3) 1/3 m/sec2

4) √2 m/sec2

Correct Answer: √2 m/sec2

QID : 833 - Which of the following statements is correct regarding an impulse turbine?

Options:

1) The steam is initially compressed in a nozzle from low pressure to high pressure.

2) The steam is initially expanded in a nozzle from low pressure to high pressure.

3) The steam is initially compressed in a nozzle from high pressure to low pressure.

4) The steam is initially expanded in a nozzle from high pressure to low pressure.

Correct Answer: The steam is initially expanded in a nozzle from high pressure to low pressure.

QID : 834 - A draft tube is used with _____.

Options:

1) impulse turbine

2) Pelton wheel turbine

3) reaction turbines

4) axial turbine pumps

Correct Answer: reaction turbines

QID : 835 - For Newtonian fluid behaviour, the shear stress exerted by the fluid is equal to the _____.

Options:

1) Fluid viscosity divided by the velocity gradient parallel to the direction of shear.

2) Fluid viscosity divided by the velocity gradient perpendicular to the direction of shear.

3) Product of the fluid viscosity and the velocity gradient parallel to the direction of shear.

4) Product of the fluid viscosity and the velocity gradient perpendicular to the direction of shear.

Correct Answer: Product of the fluid viscosity and the velocity gradient perpendicular to the direction of shear.

QID : 836 - Which of the following are the advantages of impulse turbine over reaction turbines ?

A. Occupies less space per unit power.

B. Compounding is not necessary for speed reduction as the rotor speeds are usually low.

C. Suitable for high power generation.

Options:

1) B and C only

2) A only

3) C only

4) A and C only

Correct Answer: B and C only

QID : 837 - The compressors used in a gas turbine are typically of which type?

Options:

1) Centrifugal

2) Centripetal

3) Reciprocating

4) Axial

Correct Answer: Reciprocating

QID : 838 - Which turbine is also called as the propeller turbine?

Options:

1) Kaplan turbine

2) Francis turbine

3) Pelton wheel

4) Thompson turbine

Correct Answer: Kaplan turbine

QID : 839 - According to Bernoulli's principle in fluid dynamics, for inviscid flow, increase in speed of fluid leads to which of the following?

Options:

1) Increase in pressure and/or increase in fluid's potential energy

2) Decrease in pressure and/or increase in fluid's potential energy

3) Increase in pressure and/or decrease in fluid's potential energy

4) Decrease in pressure and/or decrease in fluid's potential energy

Correct Answer: Decrease in pressure and/or decrease in fluid's potential energy

QID : 840 - The material commonly used for air craft gas turbine is _____.

Options:

1) stainless steel

2) high alloy steel

3) duralumin

4) titanium

Correct Answer: duralumin

QID : 841 - The difference of absolute pressure and local atmospheric pressure is known as _____.

Options:

1) Negative pressure

2) Positive pressure

3) Gauge pressure

4) Hydraulic pressure

Correct Answer: Gauge pressure

QID : 842 - The sum of pressure head and elevation head is known as _____.

Options:

1) dynamic head

2) static head

3) direct head

4) potential head

Correct Answer: static head

QID : 843 - Specific gravity is defined as the ratio of density of fluid and density of water at which temperature (in °C)?

Options:

1) 0

2) 100

3) 4

4) It is not dependent on temperature

Correct Answer: 4

QID : 844 - Falling drops of water become spheres due to the property of _____.

Options:
1) adhesion
2) cohesion
3) surface tension
4) viscosity

Correct Answer: surface tension

QID : 845 - Fluid flow in a straight circular pipe is typically laminar in nature when the Reynolds number is _____.

Options:
1) Less than 2300
2) Less than 4000
3) More than 2300
4) More than 4000

Correct Answer: Less than 2300

QID : 846 - The reduction in fluid pressure that results when a fluid flows through a constricted section of a pipe is known as _____.

Options:
1) Orifice effect
2) Bernoulli's principle
3) Secondary flow
4) Venturi effect

Correct Answer: Venturi effect

QID : 847 - For a compressible flow, Mach Number (M) is given by which of the following expression? where v = velocity of fluid in compressible flow c = speed of sound in air

Options:

1) $M = v/\sqrt{c}$

2) $M = c/v$

3) $M = v/c$

4) $M = v/c^2$

Correct Answer: $M = v/c$

QID : 848 - Which type of forces dominates a fluid flow with a very high Reynolds Number (Re ≈ 10000)?

Options:
1) Inertial
2) Viscous
3) Reaction
4) Divergent

Correct Answer: Inertial

QID : 849 - To avoid cavitation in centrifugal pumps _____.

Options:
1) suction pressure should be low
2) delivery pressure should be low
3) suction pressure should be high
4) delivery pressure should be high

Correct Answer: suction pressure should be high

QID : 850 -

For the continuity equation given by $\vec{\nabla}.\,\vec{V}$ = 0 to be valid, where $\vec{V}$ is the velocity vector, which one of the following is a necessary condition?

दी गई, $\nabla.\,\vec{V}$ = 0 कंटीन्यूटी समीकरण की वैधता के लिए, जहां $\vec{V}$ वेग सदिश है, निम्नलिखित में से कौन सी आवश्यक शर्त है?

Options:

1) Steady flow

2) Irrotational flow

3) Inviscid flow

4) Incomprehensible flow

Correct Answer: Incomprehensible flow

QID : 851 -

Match the items in List 1 and 2.

सूची-1 और सूची-2 का मिलान करें।

	List-1 सूची-1		List-2 सूची-2
A	Compressible flow संपीड्य प्रवाह	1	Reynolds number रेनॉल्ड्स संख्या
B	Free surface flow मुक्त पृष्ठ प्रवाह	2	Nusselt number नुसेल्ट संख्या
C	Boundary layer flow परिसीमा पृष्ठ प्रवाह	3	Weber number वेबर संख्या
D	Pipe flow नलिका प्रवाह	4	Froude number फ्रोड़ संख्या
E	Heat convection उष्मा संवहन	5	Match number मैच संख्या
		6	Skin friction coefficient उपरिस्तर (स्किन) घर्षण गुणांक

Options:

1) A-1, B-4, C-2, D-6; E-3

2) A-3, B-4, C-6, D-1; E-2

3) A-5, B-3, C-6, D-1; E-4

4) A-5, B-3, C-6, D-1; E-2

Correct Answer: A-5, B-3, C-6, D-1; E-2

QID : 852 -

Match the items in List 1 and 2.

सूची-1 और सूची-2 का मिलान करें।

	List-1 सूची-1		List-2 सूची-2
A	Centrifugal compressor अपकेंद्री संपीड़क	1	Axial flow अक्षीय प्रवाह
B	Centrifugal pump अपकेंद्री पंप	2	Surging आरोही (सर्जिंग)
C	Pelton wheel पेल्टन चक्र	3	Priming प्राथमिक
D	Kaplan turbine काप्लान टरबाईन	4	Pure impulse शुद्ध आवेग

Options:

1) A-2, B-3, C-4, D-1

2) A-2, B-3, C-1, D-4

3) A-3, B-4, C-1, D-2

4) A-1, B-2, C-3, D-4

Correct Answer: A-2, B-3, C-4, D-1

QID : 853 - A fluid whose shear stress is linearly proportional to the velocity gradient in the direction perpendicular to the plane of shear is called as _____.

Options:
1) Friction fluid
2) Stress fluid
3) Newtonian fluid
4) Cartesian fluid

Correct Answer: Newtonian fluid

QID : 854 - Euler's equation for the motion of liquid assumes that _____.

Options:
1) Fluid is viscous
2) Fluid is homogeneous and incompressible
3) Velocity of flow is non-uniform over the section
4) Flow is unsteady along with stream line

Correct Answer: Fluid is homogeneous and incompressible

QID : 855 - A flow whose stream line is represented by a curve, is called _____.

Options:
1) One-dimensional flow
2) Three dimensional flow
3) Two-dimensional flow
4) Four-dimensional flow

Correct Answer: Two-dimensional flow

QID : 856 - The frictional resistance of a pipe varies approximately with _____of the liquid.

Options:
1) pressure
2) square of velocity
3) velocity
4) cube of the velocity

Correct Answer: square of velocity

QID : 857 - The cavitation in a hydraulic machine is mainly due to _____.

Options:
1) Low velocity
2) Low pressure
3) High velocity
4) High pressure

Correct Answer: Low pressure

QID : 858 - The stress, which is responsible for retaining water in a capillary tube above the free water surface of the water body in which the capillary tube is inserted, is called the _____.

Options:
1) Capillary compression
2) Capillary tension
3) Capillary pore pressure
4) None of these

Correct Answer: Capillary tension

QID : 859 - A flow whose stream line is represented by a curve, is called _____.

Options:
1) One-dimensional flow
2) Three dimensional flow
3) Two-dimensional flow
4) Four-dimensional flow

Correct Answer: Two-dimensional flow

QID : 860 - A single speed centrifugal pump, feeding a small water supply distribution system of a block of houses, works at _____.

Options:

1) Maximum efficiency
2) Minimum efficiency
3) Reduced efficiency
4) None of these

Correct Answer: Reduced efficiency

QID : 861 - In under-damped vibrating system, the amplitude of vibration with reference to time _____.

Options:
1) increases linearly
2) increases exponentially
3) decreases linearly
4) decreases exponentially

Correct Answer: decreases exponentially

QID : 862 - A three rotor system has following number of natural frequencies _____.

Options:
1) 1

2) 2

3) 3

4) 4

Correct Answer: 2

QID : 863 -

The figure given below shows a crusher having several cylindrical roll-
ers of weight W. The crushing force due to each roller will be:

नीचे दर्शाई गई आकृति में, संदलित्र में भार w के कुछ बेलनाकार भार लगे हैं। प्रत्येक
रोलर का संदलन बल कितना होगा?
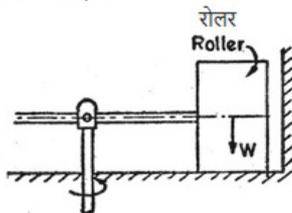
Options:
1) W
2) less than W
3) more than W
4) unpredictable

Correct Answer: more than W

QID : 864 - The principle of direct and reverse cranks is readily applicable to _____.

Options:
1) primary balance
2) secondary balance
3) balancing of in-line engines
4) partial primary balance

Correct Answer: partial primary balance

QID : 865 - In order to facilitate the starting of locomotive in any position, the cranks of a locomotive with two cylinders are placed at following angle to each other _____.

Options:
1) 45°

2) 90°

3) 135°

4) 180°

Correct Answer: 90°

QID : 866 - The critical speed depends on _____.

Options:
1) mass
2) stiffness
3) mass and stiffness
4) mass, stiffness and eccentricity

Correct Answer: mass and stiffness

QID : 867 - If a more stiff spring is used in Hartnell governor, then the governor will be _____.

Options:
1) more sensitive
2) less sensitive
3) sensitively remains unaffected
4) isochronous

Correct Answer: less sensitive

QID : 868 - A gear having 100 teeth is fixed and another gear having 25 teeth revolves around it, the centre lines of both gears being joined by an arm. How many revolutions will be made by gear of 25 teeth for one revolution of arm?

Options:
1) 4

2) 3

3) 5

4) 6

Correct Answer: 5

QID : 869 - The power transmitted by a belt is maximum when the maximum tension in the belt compared to centrifugal tension is _____.

Options:
1) 2 times
2) 3 times
3) 4 times
4) 2.5 times

Correct Answer: 3 times

QID : 870 - A rotating mass having moment of inertia of 30 kgm2 rotates at 800 rpm and is travelling in a curve of 170 metre radius at a speed of 240 km/hr. It will experience a gyroscopic reaction of _____.

Options:
1) 10 m kgf

2) 100 m kgf

3) 1000 m kgf

4) 10000 m kgf

Correct Answer: 100 m kgf

QID : 871 - Throw of a cam is the maximum distance of the follower from:

Options:
1) Base circle
2) Pitch circle
3) Root circle
4) Prime circle

Correct Answer: Base circle

QID : 872 - The following is the inversion of slider crank mechanism
A. Whitworth quick return mechanism
B. Hand pump
C. Oscillating cylinder engine

Options:
1) only A
2) only B
3) only C
4) A, B and C

Correct Answer: A, B and C

QID : 873 - The horse power transmitted by a belt is dependent upon

A. tension on tight side of belt
B. tension on slack side of belt
C. radius of pulley
D. speed of pulley

Options:

1) only A and B
2) only B and C
3) only D
4) A, B, C and D

Correct Answer: A, B, C and D

QID : 874 - Which of the following is a lower pair?

A. Ball and socket
B. Piston and cylinder
C. Cam and follower

Options:

1) only A
2) only B
3) only C
4) A and B

Correct Answer: A and B

QID : 875 - The distance between the centres of the rivets in adjacent rows of zigzag riveted joint is known as _____.

Options:

1) pitch
2) back pitch
3) diagonal pitch
4) diametric pitch

Correct Answer: diagonal pitch

QID : 876 - A body is resting on a plane inclined at angle 30° to horizontal. What force would be required to slide it down, if the coefficient of friction between body and plane is 0.3?

Options:

1) Zero
2) 1 kg
3) 5 kg
4) None of these

Correct Answer: Zero

QID : 877 - A satellite is kept on moving in its orbit around the earth due to _____.

Options:

1) centrifugal force
2) centripetal force
3) gravitational force
4) resultant forces acting on satellite

Correct Answer: centripetal force

QID : 878 - The tension in the cable supporting a life is more when the lift is _____.

Options:

1) moving downwards with uniform velocity
2) moving upwards with uniform velocity
3) stationary
4) moving upwards with acceleration

Correct Answer: moving upwards with acceleration

QID : 879 - For steel, the ultimate strength in shear as compared to ultimate strength in tension is _____.

Options:

1) same

2) 1/2

3) 1/3

4) 2/3

Correct Answer: 2/3

QID : 880 - In a simply supported beam, where the shear force is zero, the bending moment will be _____.

Options:
1) zero
2) maximum
3) minimum
4) zero or minimum

Correct Answer: maximum

QID : 881 - The stress in a body due to suddenly applied load compared to when it is applied gradually is _____.

Options:
1) same
2) half
3) two times
4) four times

Correct Answer: two times

QID : 882 - Modulus of rigidity is defined as the ratio of _____.

Options:
1) longitudinal stress and longitudinal strain
2) volumetric stress and volumetric strain
3) lateral stress and lateral strain
4) shear stress and shear strain

Correct Answer: shear stress and shear strain

QID : 883 - The intensity of stress which causes unit strain is called _____.

Options:
1) unit stress
2) bulk modulus
3) modulus of rigidity
4) modulus of elasticity

Correct Answer: modulus of elasticity

QID : 884 - The property of a material by virtue of which a body returns to its original shape after removal of the load is called _____.

Options:
1) Plasticity
2) Elasticity
3) Ductility
4) Malleability

Correct Answer: Elasticity

QID : 885 - For which material the Poisson's ratio is more than unity?

A. steel
B. copper
C. aluminium
D. cast iron

Options:
1) only A
2) only B
3) only C
4) None of these

Correct Answer: None of these

QID : 886 - A beam is loaded as cantilever. If the load at the end is increased, the failure will occur _____.

Options:
1) in the middle
2) at the tip below the load
3) at the support
4) anywhere

Correct Answer: at the support

QID : 887 - At the principal planes _____.

Options:
1) the normal stress is maximum or minimum and the shear stress is zero
**2**) the tensile and compressive stresses are zero

3) the tensile stress is zero and the shear stress is maximum

4) no stress acts

Correct Answer: the normal stress is maximum or minimum and the shear stress is zero

QID : 888 -

Two wires AO and BO support a vertical load W at O as shown in the figure below. The wires are of equal length and equal cross sectional area. The tension in each wire is equal to:

नीचे दी गई आकृति के अनुसार AO और BO दो तार एक लम्बवत भार W को O पर समर्थित करते हैं। तार समान लंबाई और समान अनुप्रस्थ काट (क्रॉस सेक्शन) क्षेत्रफल के हैं। प्रत्येक तार में तनाव किसके बराबर होगा?
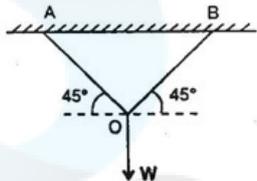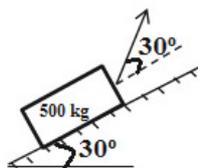

Options:

1) W/2

2) W

3) √2W

4) W/√2

Correct Answer: W/√2

QID : 889 -

A weight of 500 kg is held on a smooth plane, inclined at 30° to the horizontal by a force P acting 30° above the plane as shown in the figure below. The reaction of plane on the weight will be:

नीचे दी गई आकृति के अनुसार एक 500 कि.ग्रा. का भार एक चिकनी सतह पर, जो क्षैतिज से 30° पर झुके हुए तल में बल P द्वारा रखी हुई है। तल की भार पर क्या प्रतिक्रिया होगी?
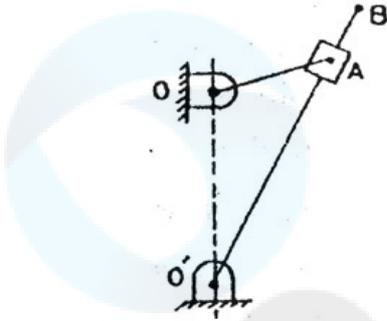

Options:

1) 500 N

2) 250 N

3) 476 N

4) 288 N

Correct Answer: 288 N

QID : 890 -

Given figure shows a quick return mechanism. The crank OA rotates clockwise uniformly. OA = 2 cm. OO' =4 cm. The ratio of time for forward motion to that for return motion is:

दी गई आकृति में शीघ्र प्रतिवर्ती तंत्र दर्शाया गया है। क्रैंक OA एकसमान गति से घड़ी की सुई की दिशा में घूम रहा है। OA = 2 से.मी., OO' = 4 से.मी. आगे की ओर गति व पीछे की ओर गति के समय में क्या अनुपात होगा?

Options:

1) 0.5

2) 2

3) √2

4) 1

Correct Answer: 2

QID : 891 - Binding wire used to support the joints for soldering is made of _____.

Options:
1) aluminium
2) copper
3) soft iron
4) mild steel

Correct Answer: soft iron

QID : 892 - Which of the following is not a casting process?

Options:
1) Carthias process
2) extrusion
3) semi-centrifuge method
4) slush process

Correct Answer: extrusion

QID : 893 - Carburising flame is used to weld metals like _____.

Options:
1) steel
2) copper and brass
3) aluminium, nickel, monel etc.,
4) carburised steel

Correct Answer: aluminium, nickel, monel etc.,

QID : 894 - The most commonly used flame in gas welding is
A. Neutral
B. Oxidising
C. Carburising

Options:
1) only A
2) only B
3) only C
4) only A and B

Correct Answer: only A

QID : 895 - In braze welding, the filler metal is
A. Distributed by capillary attraction
B. Melted and deposited at the point where the weld is to be made

C. Not required

Options:
1) only A
2) only B
3) Both A and B
4) only C

Correct Answer: Both A and B

QID : 896 - Magnetic arc blow is _____.

Options:
1) a recent welding technique
2) used to weld materials
3) occurs when welding near equator
4) phenomenon of occurrence of splatter because of magnetic fields created in d.c. arc welding

Correct Answer: phenomenon of occurrence of splatter because of magnetic fields created in d.c. arc welding

QID : 897 - Preheating is essential in welding _____.

Options:
1) high speed steel
2) stainless steel
3) cast iron
4) german silver

Correct Answer: cast iron

QID : 898 - Tool in the case of ultrasonic machining is made of _____.

Options:
1) HSS
2) diamond
3) brass or copper
4) stainless steel

Correct Answer: brass or copper

QID : 899 - Thread rolling is somewhat like _____.
Options:
1) cold extrusion
2) cold machining
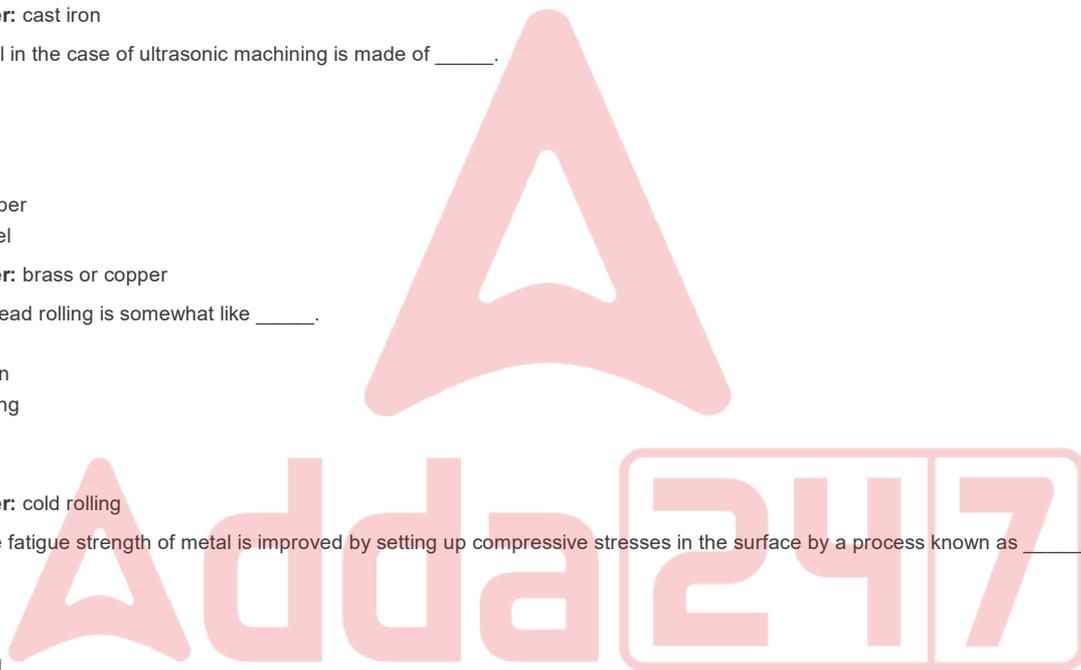**3**) cold rolling
4) cold forging

Correct Answer: cold rolling

QID : 900 - The fatigue strength of metal is improved by setting up compressive stresses in the surface by a process known as _____.

Options:
1) lancing
2) shot-peening
3) hemming
4) slugging

Correct Answer: shot-peening

(Papers) SSC Junior Engineer Exam Paper - 2016 "held on 03 March 2017 "Afternoon Shift(General Engineering)

QID : 1001 - Provision of fins on a given heat transfer surface will be more if there are _____.

Options:

1) Fewer number of thin fins
2) Fewer number of thick fins
3) Large number of thick fins
4) Large number of thin fins

Correct Answer: Large number of thick fins

QID : 1002 - Which of the following would lead to a reduction in thermal resistance?

Options:

1) In conduction, reduction in the thickness of the material and an increase in the thermal conductivity.
2) In convection, stirring of the fluid and cleaning the heating surface
3) In radiation, increasing the temperature and reducing the emissivity
4) All options are correct

Correct Answer: All options are correct

QID : 1003 - Inspite of large heat transfer coefficients in boiling liquids, fins are used advantageously when the entire surface is exposed to _____.

Options:

1) Nucleate boiling
2) Film boiling
3) Transition boiling
4) All modes of boiling

Correct Answer: Film boiling

QID : 1004 - The parameter(s) responsible for loss of heat from a hot pipe surface in a room without fans would include _____.
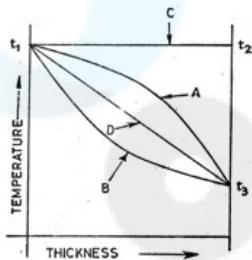
Options:

1) Temperature of the surface and air in the room

2) Emissivity of the surface

3) Length and diameter of the pipe

4) All options are correct

Correct Answer: All options are correct

QID : 1005 -

The figure given below shows the variation of temperature across the thickness of materials with different thermal conductivities under steady states. Curve C will be applicable when thermal conductivity of the material _____

नीचे दी गई आकृति में, स्थिर अवस्था में विभिन्न ऊष्मीय चालकताओं के साथ धातु की मोटाई में तापमान में भिन्नता को दर्शाता है। आरेख C लागू होगा जब धातु की ऊष्मीय चालकता _____

Options:

1) increases with increase in temperature

2) decreases with increase in temperature

3) is very large

4) is constant at all temperatures

Correct Answer: is very large

QID : 1006 - On a summer day, a scooter rider feels more comfortable while on the move than while at a stop light because _____.

Options:

1) An object in motion captures less solar radiation

2) Air is transparent to radiation and hence it is cooler than the body

3) More heat is lost by convection and radiation while in motion

4) Air has a low specific heat and hence it is cooler

Correct Answer: More heat is lost by convection and radiation while in motion

QID : 1007 - In radiative heat transfer, a gray surface is one _____.

Options:

1) Which appears gray to the eye

2) Whose emissivity is independent of wavelength

3) Which has reflectivity equal to zero

4) Which appears equally bright from all directions

Correct Answer: Whose emissivity is independent of wavelength

QID : 1008 - The property of a working substance, which increases or decreases according to the heat supplied or removed in a reversible manner, is called _____.

Options:

1) Enthalpy

2) Entropy

3) Reversibility

4) None of these

Correct Answer: Entropy

QID : 1009 - Triple point _____.

Options:

1) Occurs in a mixture of two or more gases

2) Is the point, where three phases exists together

3) Occurs in sublimation

4) None of these

Correct Answer: Is the point, where three phases exists together

QID : 1010 - Non quasistatic process is _____.

Options:

1) Free expansion of gas

2) Expansion of a gas in a cylinder under constant pressure

3) Rapid compression of a gas in a cylinder

4) Gradual compression of a gas in a cylinder

Correct Answer: Free expansion of gas

QID : 1011 - Isentropic flow is _____.

Options:

1) Reversible adiabatic flow

2) Irreversible adiabatic flow

3) Frictionless fluid flow

4) None of these

Correct Answer: Reversible adiabatic flow

QID : 1012 - In all reversible process, entropy of the system _____.

Options:

1) Increases

2) Decreases

3) Remains same

4) None of these

Correct Answer: Increases

QID : 1013 - In isothermal expansion, work done by gas depends upon _____.

Options:

1) Atomicity of gas only

2) Expansion ratio only

3) Adiabatic index

4) Both Atomicity of gas and expansion ratio

Correct Answer: Both Atomicity of gas and expansion ratio

QID : 1014 - The difference between two specific heats, Cp and Cv for a gas represents _____.

Options:

1) Increase in kinetic energy of gas molecules

2) Increase in potential energy of gas molecules

3) External work done

4) Increase in volume

Correct Answer: External work done

QID : 1015 - The universal gas constant of a gas is the product of molecular weight of the gas and _____.

Options:

1) Gas constant

2) Specific heat at constant pressure

3) Specific heat at constant volume

4) None of these

Correct Answer: Gas constant

QID : 1016 - The temperature of a gas is a measure of _____.

Options:

1) Average distance between gas molecules

2) Average kinetic energy of gas molecules

3) Average potential energy of gas molecules

4) None of these

Correct Answer: Average kinetic energy of gas molecules

QID : 1017 - A perpetual motion machine of the first kind i.e. a machine which produces power without consuming any energy is _____.

Options:

1) Possible according to first law of thermodynamics

2) Impossible according to first law of thermodynamics

3) Impossible according to second law of thermodynamics

4) Possible according to second law of thermodynamics

Correct Answer: Impossible according to first law of thermodynamics

QID : 1018 - A system consisting of more than one phase is called _____.

Options:

1) Isolated system

2) Open system

3) Non-uniform system
4) Heterogeneous system

Correct Answer: Heterogeneous system

QID : 1019 - Thermal equilibrium between two or more bodies exists, when they are brought together, there is no change in _____.

Options:

1) Density
2) Pressure
3) Temperature
4) All options are correct

Correct Answer: Temperature

QID : 1020 - Control volume refers to a _____.

Options:
1) Specified mass
2) Fixed region in the space
3) Closed system
4) None of these

Correct Answer: Fixed region in the space

QID : 1021 - In regenerator type heat exchanger, heat transfer takes place by

Options:

1) direct mixing of hot and cold fluids
2) a complete separation between hot and cold fluids
3) flow of hot and cold fluids alternately over a surface
4) generation of heat again and again

Correct Answer: flow of hot and cold fluids alternately over a surface

QID : 1022 - Film coefficient is the ratio of _____.

Options:

1) Thickness of film of fluid to thermal conductivity
2) Thickness of film of fluid to temperature drop through film of fluid
3) Thermal conductivity to temperature drop through film of fluid
4) Thermal conductivity to equivalent thickness of film of fluid

Correct Answer: Thermal conductivity to equivalent thickness of film of fluid

QID : 1023 - Highest thermal diffusivity is of _____.

Options:

1) Iron
2) Lead
3) Concrete
4) Wood

Correct Answer: Lead

QID : 1024 - Highest thermal conductivity is of _____.

Options:

1) Solid ice
2) Melting ice
3) Water
4) Steam

Correct Answer: Solid ice

QID : 1025 - The ratio of work done per cycle to the swept volume in case of compressor is called
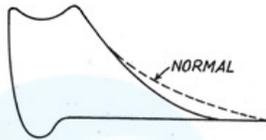
Options:

1) compression index
2) compression ratio
3) compressor efficiency
4) mean effective pressure

Correct Answer: mean effective pressure

QID : 1026 -

The indicator diagram shown in the figure below obtained on a compressor shows that _____.

संपीडक पर प्राप्त नीचे दिए गए सूचक आरेख में, क्या प्रदर्शित होता है?

Options:

1) suction valve or piston rings, or both are leaking
2) discharge valve is leaking into cylinder during compression stroke
3) slow opening suction valve
4) suction valve sticking open at beginning of compression stroke

Correct Answer: discharge valve is leaking into cylinder during compression stroke

QID : 1027 - Metals are good heat conductors because _____.

Options:

1) of free electrons present
2) their atoms are relatively far apart
3) their atoms collide frequently
4) All options are correct

Correct Answer: their atoms collide frequently

QID : 1028 - Heat is transferred from an insulated pipe to the surrounding still air by _____.

Options:

1) Conduction
2) Convection
3) Radiation
4) All options are correct

Correct Answer: Radiation

QID : 1029 - Heat is transferred by conduction, convection and radiation in _____.

Options:

1) Boiler furnaces
2) Melting of ice
3) Condensation of steam in condenser
4) None of these

Correct Answer: Boiler furnaces

QID : 1030 - In optical pyrometers absorption filter is used _____.

Options:

1) To get monochromatic light
2) To eliminate stray rays of light
3) To minimise reflection of rays from the lens surface
4) To enable filament operation at reduced intensity for longer life

Correct Answer: To enable filament operation at reduced intensity for longer life

QID : 1031 - The flow of water in a pipe of diameter 3000 mm can be measured by _____.

Options:

1) Venturimeter
2) Rotameter
3) Pilot tube
4) Orifice plate

Correct Answer: Pilot tube

QID : 1032 - Buoyant force is _____.

Options:

1) Resultant of up-thrust and gravity forces acting on the body
2) Resultant force on the body due to the fluid surrounding it
3) Resultant of static weight of body and dynamic thrust of fluid
4) Equal to the volume of liquid displaced by the body

Correct Answer: Equal to the volume of liquid displaced by the body

QID : 1033 - In equilibrium condition, fluids are not able to sustain _____.

Options:

1) Shear force
2) Resistance to viscosity
3) Surface tension
4) Geometric similitude

Correct Answer: Surface tension

QID : 1034 - A large Reynold number is indication of _____.

Options:

1) Smooth and streamline flow
2) Laminar flow
3) Steady flow
4) Highly turbulent flow

Correct Answer: Highly turbulent flow

QID : 1035 - The fluid forces considered in the Navier Stokes equation are _____.

Options:

1) Gravity, pressure and viscous
2) Gravity, pressure and turbulent
3) Pressure, viscous and turbulent
4) Gravity, viscous and turbulent

Correct Answer: Gravity, pressure and viscous

**QID : 1036** - Tranquil flow must always occur _____.

Options:

1) at normal depth
2) above normal depth
3) below normal depth
4) above critical depth

Correct Answer: above critical depth

QID : 1037 -

A vertical sluice gate 3m wide and 2.5m deep contains water on both of its sides. On the upstream side, the water is 5m deep and on the downstream side it is 2m deep from the bottom of the sluice. What is the resultant pressure on the gate?

एक ऊर्ध्वार्धर जलमार्ग 3 मीटर चौडा और 2.5 मीटर गहरा है जिसके दोनों ओर पानी भरा है। धारा के प्रतिकूल, जलमार्ग के तल से पानी 5 मीटर गहरा है और अनुप्रवाह में यह 2 मीटर गहरा है। द्वार पर परिणामी दाब क्या है?
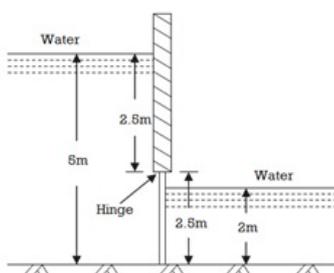
Options:

1) 275.9 KN
2) 58.9 KN
3) 217 KN
4) None of these

Correct Answer: 217 KN

QID : 1038 - The coefficient of discharge (Cd) of an orifice varies with _____.

Options:
1) Reynold number
2) Weber number
3) Froude number
4) Mach number

Correct Answer: Reynold number

QID : 1039 - Head loss in turbulent flow in a pipe _____.

Options:

1) Varies directly as velocity

2) Varies inversely as square of velocity

3) Varies approximately as square of velocity

4) Varies inversely as velocity

Correct Answer: Varies approximately as square of velocity

QID : 1040 - A type of flow in which the fluid particles while moving in the direction of flow rotate about their mass centre, is called _____.

Options:

1) Steady flow

2) Uniform flow

3) Laminar flow

4) Rotational flow

Correct Answer: Rotational flow

QID : 1041 - For a flow to be rotational, velocity normal to the plane of area should be equal to the _____.

Options:

1) Angular velocity vector

2) Half the angular velocity vector

3) Twice the angular velocity vector

4) Zero

Correct Answer: Twice the angular velocity vector

QID : 1042 - A fluid in which resistance to deformation is independent of the shear stress, is called _____.

Options:

1) Bingham plastic fluid

2) Pseudo plastic fluid

3) Dilatant fluid

4) Newtonian fluid

Correct Answer: Newtonian fluid

QID : 1043 - The rate of change of linear momentum is equals to _____.

Options:

1) Active force

2) Reactive force

3) Torque

4) Work done

Correct Answer: Active force

QID : 1044 - The force buoyancy is dependent on _____.

Options:

1) Mass of liquid displaced

2) Viscosity of fluid

3) Surface tension of fluid

4) Depth of immersion

Correct Answer: Mass of liquid displaced

QID : 1045 - The vapour pressure over the concave surface is _____.

Options:

1) Less than the vapour pressure over the plane surface

2) Equal to vapour pressure over the plane surface

3) Greater than the vapour pressure over the plane

4) Zero

Correct Answer: Less than the vapour pressure over the plane surface

QID : 1046 - Bernoulli's equation cannot be applied when the flow is _____.

Options:

1) Rotational

2) Turbulent

3) Unsteady

4) All options are correct

Correct Answer: Turbulent

QID : 1047 - When a body floating in a liquid is displaced slightly, it oscillates about _____.

Options:

1) Centre of gravity of body

2) Centre of pressure

3) Centre of buoyancy

4) Metacentre

Correct Answer: Metacentre

QID : 1048 - Heaviest fluid is _____.

Options:

1) Air

2) Castor oil

3) Glycerin

4) Carbon tetrachloride

Correct Answer: Carbon tetrachloride

QID : 1049 - A hydrometer is used to determine _____.

Options:

1) Relative humidity

2) Buoyant force

3) Specific gravity of liquids

4) Viscosity of liquids

Correct Answer: Specific gravity of liquids

QID : 1050 - A model of torpedo is tested in a towing tank at a velocity of 25 m/sec. The prototype is expected to attain a velocity of 5 m/sec. What model scale has been used?

Options:

1) 1 : 5

2) 1: 2.5

3) 1: 25

4) None of these

Correct Answer: 1 : 5

QID : 1051 - For the water is flowing through a 20 cm diameter pipe with friction factor, f = 0.04. The flow will be _____.

Options:

1) Viscous

2) Non viscous

3) Both viscous and non-viscous

4) None of these

Correct Answer: Viscous

QID : 1052 - Crude oil of kinematic viscosity 2.25 stokes flows through a 20 cm diameter pipe, The rate of flow being 1.5 litres/sec. The flow will be _____.

Options:

1) Laminar

2) Turbulent

3) Uncertain

4) None of these

Correct Answer: Laminar

QID : 1053 - The maximum continuous power available from a hydroelectric plant under the most adverse hydraulic conditions is known as _____.

Options:

1) base power

2) firm power

3) primary power

4) secondary power

Correct Answer: firm power

QID : 1054 - A plot between power generated in MW and time is known as _____.

Options:

1) Load curve

2) Load duration curve

3) Load factor

4) Demand curve

Correct Answer: Load curve

QID : 1055 - The ratio of 'Average generation in KWH per year' to 'the product of Installed capacity in KW and hrs per year' is known as _____.

A. Plant factor

B. Capacity factor

C. Use factor

Options:

1) only A

2) A or B

3) A or B or C

4) only C

Correct Answer: A or B or C

QID : 1056 - Portion of the installed reserve kept in operable condition but not placed in service to supply the peak load is known as _____.

Options:

1) Operating reserve

2) Spinning reserve

3) Cold reserve

4) Hot reserve

Correct Answer: Cold reserve

QID : 1057 - Capacity of hydroelectric plant in service in excess of the peak load is known as _____.

Options:

1) Operating reserve

2) Spinning reserve

3) Cold reserve

4) Hot reserve

Correct Answer: Operating reserve

QID : 1058 - An impulse turbine is used for _____.

Options:

1) Low head of water

2) High head of water

3) Medium head of water

4) High discharge

Correct Answer: High head of water

QID : 1059 - In a reaction turbine, the draft tube is used _____.

Options:

1) To run the turbine full

2) To prevent air to enter the turbine

3) To increase the effective head of water

4) To transport water to downstream

Correct Answer: To increase the effective head of water

QID : 1060 - In an inward flow reaction of turbine _____.

Options:

1) The water flows parallel to the axis of the wheel

2) The water enters the centre of wheel and there flows towards the outer periphery of the wheel

3) The water enters the wheel at the outer periphery, and then flows towards the centre of the wheel

4) The flow of water is partly radial and partly axial

Correct Answer: The water enters the wheel at the outer periphery, and then flows towards the centre of the wheel

QID : 1061 - Castor and camber are terms associated with which of the following parts of an automobile?

Options:

1) Gears

2) Engine

3) Suspensions

4) Wheels

Correct Answer: Wheels

QID : 1062 - In reciprocating engines primary forces _____.

Options:

1) Are completely balanced

2) Are partially balanced

3) Are balanced by secondary forces

4) Cannot be balanced

Correct Answer: Are partially balanced

QID : 1063 - A friction circle is a circle drawn when the journal rotates in a bearing. Its radius depends on the coefficient of friction and _____.

Options:

1) Magnitude of the forces on the journal

2) Angular velocity of the journal

3) Clearance between the journal and the bearing

4) Radius of the journal

Correct Answer: Radius of the journal

QID : 1064 - The gear train usually employed in clocks is a _____.

Options:

1) Reverted gear train

2) Simple gear train

3) Sun and planet gear

4) Differential gear

Correct Answer: Reverted gear train

QID : 1065 - Critical damping is a function of _____.

Options:

1) Mass and stiffness

2) Mass and damping co-efficient

3) Stiffness and natural frequency

4) Natural frequency and damping co-efficient

Correct Answer: Mass and stiffness

QID : 1066 - Rotating shafts tend to of vibrate violently at whirling speeds because _____.

Options:

1) The shafts are rotating at vary speeds

2) Bearing centre line coincide with the shaft axis

3) The system is unbalanced

4) Resonance is caused due to the heavy weight of the rotor

Correct Answer: Resonance is caused due to the heavy weight of the rotor

QID : 1067 - Critical or whirling speed is the speed at which the shaft tends to vibrate violently in _____.

Options:

1) Transverse direction

2) Longitudinal direction

3) Linear direction

4) None of these

Correct Answer: Transverse direction

QID : 1068 - When a shaking force is transmitted through the springs, damping becomes detrimental when the ratio of its frequency to the natural frequency is greater than _____.

Options:

1) 0.25

2) 0.5

3) 1

4) $\sqrt{2}$

Correct Answer: $\sqrt{2}$

QID : 1069 - Stress concentration in static loading is more serious in _____.

Options:

1) Ductile materials

2) Brittle materials

3) Equally serious in both cases

4) Depends on other factors

Correct Answer: Brittle materials

QID : 1070 - Which of the following key transmits power through frictional resistance only?

Options:

1) Saddle key

2) Barth key

3) Kennedy key

4) Tangent key

Correct Answer: Saddle key

QID : 1071 - The key will fail in which of the following manner?

Options:

1) Shearing

2) Crushing

3) Both crushing and shearing

4) None of these

Correct Answer: Both crushing and shearing

QID : 1072 - In hydrostatic bearing the starting friction is _____.

Options:

1) Very low
2) More
3) Either more or less
4) Uncertain

Correct Answer: Very low

QID : 1073 - Feather keys are generally _____.

Options:

1) Tight in shaft and loose in hub
2) Loose in shaft and tight in hub
3) Tight in both shaft and hub
4) Loose in both shaft and hub

Correct Answer: Tight in shaft and loose in hub

QID : 1074 - The uniform pressure theory as compared to the uniform wear theory gives _____.

Options:

1) Higher frictional torque
2) Lower frictional torque
3) Either lower or higher frictional torque
4) None of these

Correct Answer: Higher frictional torque

QID : 1075 - Tapered roller bearings can take _____.

Options:

1) Radial load only
2) Axial load only
3) Both radial and axial loads and the ratio of these being less than unity
4) Both radial and axial loads and the ratio of these bring greater than unity

Correct Answer: Both radial and axial loads and the ratio of these being less than unity

QID : 1076 - Two shafts A and B are made of the same material. The diameter of shaft B is twice that of shaft A. The ratio of power which can be transmitted by shaft A to that of shaft B is _____.

Options:
1) 1/2
2) 1/4
3) 1/8
4) 1/16

Correct Answer: 1/8

QID : 1077 - For the two shafts connected in parallel, find which statement is true?

Options:

1) Torque in each shaft is the same
2) Shear stress in each shaft is the same
3) Angle of twist of each shaft is the same
4) Torsional stiffness of each shaft is the same

Correct Answer: Angle of twist of each shaft is the same

QID : 1078 - The buckling load will be maximum for a column if _____.

Options:

1) One end of the column is clamped and the other end is free
2) Both ends of the column are clamped
3) Both ends of the column are hinged
4) One end of the column is hinged and the other end is free

Correct Answer: Both ends of the column are clamped

QID : 1079 - The number of strain readings (using strain gauges) needed on a plane surface to determine the principal strains and their directions are _____.

Options:

1) 1
2) 2
3) 3
4) 4

Correct Answer: 3

QID : 1080 - If the value of Poisson's ratio is zero, then it means that _____.

Options:

1) The material is rigid
2) The material is perfectly plastic
3) There is no longitudinal strain in the material
4) None of these

Correct Answer: None of these

QID : 1081 - Which of the following is applied to brittle materials?

Options:

1) Maximum principal stress theory
2) Maximum principal strain theory
3) Maximum strain energy theory
4) Maximum shear stress Theory

Correct Answer: Maximum principal stress theory

QID : 1082 - Design of shafts made of brittle materials is based on _____.

Options:

1) Guest's theory
2) Rankine's theory
3) St.Venant's theory
4) Von Mises theory

Correct Answer: Rankine's theory

QID : 1083 - The moment of inertia of a hollow circular section whose external diameter is 8 cm and internal diameter is 6 cm about centroidal axis is _____ cm4.

Options:

1) 437.5
2) 337.5
3) 237.5
4) 137.5

Correct Answer: 437.5

QID : 1084 - The maximum frictional force which comes into play when a body just begins to slide over the surface of another body is known as _____.
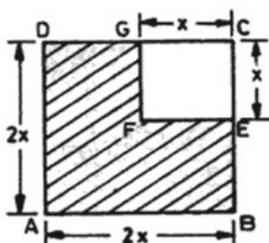
Options:

1) sliding friction
2) rolling friction
3) limiting friction
4) None of these

Correct Answer: limiting friction

QID : 1085 -

A square sheet of metal has a square of one quarter of the original area cut from one corner as shown in the figure. Which of the following statements is true about the position of the centre of gravity of the remaining portion of the sheet?

धातु की एक वर्गाकार शीट के एक कोने से वास्तविक क्षेत्र के एक चौथाई भाग का एक वर्ग काटा गया है। शीट के बचे हुए भाग के गुरुत्व केन्द्र की स्थिति के बारे में निम्नलिखित में से कौन सा कथन सत्य है?

Options:

1) Centre of gravity lies at a distance of 5/12 of the side of the original square from each uncut side
2) Centre of gravity lies at a distance of 7/12 of the side of the original square from each uncut sid
3) Centre of gravity lies at a distance of 3/4 of the side of the original square from each uncut side
4) None of these

Correct Answer: Centre of gravity lies at a distance of 5/12 of the side of the original square from each uncut side

QID : 1086 - A steel bar 20 mm in diameter simply supported at its ends over a total span of 40 cm, carries a load at its center. If the maximum stress included in the bar is limited to 480/π N/mm2 then the bending strain energy stored in the bar is _____.

Options:

1) 411 N mm
2) 511 N mm
3) 611 N mm
4) 711 N mm

Correct Answer: 611 N mm

QID : 1087 - The Charpy test is conducted to measure _____.

Options:

1) Toughness
2) Creep strength
3) Fatigue strength
4) Elastic strength of a material

Correct Answer: Toughness

QID : 1088 - The stress produced by a suddenly applied load as compared to that produced by the same load when applied gradually is _____ times.

Options:

1) 1.5
2) 2
3) 3
4) 4

Correct Answer: 2

QID : 1089 - The bending moment for a certain portion of the beam is constant. For that section, shear force would be _____.

Options:

1) Zero
2) Increasing
3) Decreasing
4) Constant

Correct Answer: Zero

QID : 1090 - An increase in load at the free end of a cantilever is likely to cause failure _____.

Options:

1) At the free end
2) At the mid of its length
3) At the fixed support end
4) Anywhere on the beam

Correct Answer: At the fixed support end

QID : 1091 - In the electro-discharge machining process, the work-piece and the electrode are submerged in _____.

Options:

1) a dielectric fluid
2) an abrasive slurry
3) an electrolytic solution
4) vacuum

Correct Answer: a dielectric fluid

QID : 1092 - Swaging is an operation of _____.

Options:

1) hot rolling
2) forging
3) extrusion
4) piercing

Correct Answer: forging

QID : 1093 - In arc welding operations the current value is decided by _____.

Options:

1) thickness of plate
2) length of welded portion
3) voltage across the arc
4) size of the electrode

Correct Answer: size of the electrode

QID : 1094 - Two sheets of same material but different thickness can be butt welded by _____.

Options:

1) adjustment of the current
2) time duration of current
3) pressure applied
4) changing the size of one electrode

Correct Answer: changing the size of one electrode

QID : 1095 - Pick up the incorrect statement about MIG welding.

Options:

1) no flux required
2) high welding speed
3) increased corrosion resistance
4) even unclean surface can be welded to obtain sound welds

Correct Answer: no flux required

QID : 1096 - First product of the blast furnace in the process of converting iron ore into useful metal by reduction is called _____.

Options:

1) Cast iron
2) Wrought iron
3) Pig iron
4) Steel

Correct Answer: Pig iron

QID : 1097 - Raw material for all iron and steel product is _____.

Options:

1) Cast iron
2) Wrought iron
3) Pig iron
4) Steel

Correct Answer: Pig iron

QID : 1098 - Grey cast iron has _____.

Options:

1) brittleness
2) low electrical conductivity
3) low compressive strength
4) All options are correct

Correct Answer: low electrical conductivity

QID : 1099 - Chilled cast iron is _____.

Options:

1) Soft on surface
2) Machined freely
3) High resistance to wear
4) All options are correct

Correct Answer: High resistance to wear

QID : 1100 - If carbon present in cast iron is partly free and partly in combined state, it is called _____.

Options:

1) White cast iron
2) Grey cast iron
3) Molten cast iron
4) None of these

Correct Answer: White cast iron