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# **UPSSSC**

## **JE**

**Previous Year Paper**  
**Mechanical 2016 Paper**  
**2 - English**



## 125 Questions

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**Que. 1** The diameter of rivets for a 20 mm thick plate would be.

1. 10 mm
2. 20 mm
3. 30 mm
4. 40 mm

**Testbook Solution** Correct Option - 3

**Que. 2** Included angle for the Acme thread is -

1.  $29^\circ$
2.  $45^\circ$
3.  $55^\circ$
4.  $60^\circ$

**Testbook Solution** Correct Option - 1

**Que. 3** A fluid in which resistance to deformation is independent of the shear stress, is known as -

1. Bingham plastic fluid
2. Pseudo plastic fluid
3. Dilatants fluid
4. Newtonian fluid

**Testbook Solution** Correct Option - 4

**Que. 4** Material for water turbine should have

1. High creep resistance
2. High temperature resistance
3. High corrosion resistance
4. Low ductility

**Testbook Solution** Correct Option - 3

**Que. 5** Best fuel for S.I. engines is -

1. Aromatic
2. Naphthalene
3. Paraffins
4. Olefins

**Testbook Solution** Correct Option - 1

**Que. 6** A cycle consisting of one constant pressure, one constant volume and two isentropic processes is known as

1. Carnot cycle

2. Stirling cycle
3. Otto cycle
4. Diesel cycle

**Testbook Solution** Correct Option - 4

**Que. 7** The compression ratio for petrol engines is:

1. 3 to 6
2. 8 to 10
3. 20 to 30
4. 15 to 20

**Testbook Solution** Correct Option - 2

**Que. 8** The discharge through a turbine is

1. Directly proportional to  $H^{\frac{1}{2}}$
2. Inversely proportional to  $H^{\frac{1}{2}}$
3. Directly proportional to  $H^{\frac{3}{2}}$
4. Inversely proportional to  $H^{\frac{3}{2}}$

**Testbook Solution** Correct Option - 1

**Que. 9** In a centrifugal pump when delivery valve is fully closed, the pressure of fluid inside the pump will -

1. Become zero
2. Reduce
3. Increase
4. Remain unaltered

**Testbook Solution** Correct Option - 3

**Que. 10** The constant volume cycle is also called

1. Carnot cycle
2. Joule cycle
3. Diesel cycle
4. Otto cycle

**Testbook Solution** Correct Option - 4

**Que. 11** The property of a material which enables it to resist fracture due to high impact loads is known as

1. elasticity
2. endurance
3. strength
4. toughness

**Testbook Solution** Correct Option - 4

**Que. 12** The gears are termed as medium velocity gears if their peripheral velocity is:

1. 1 - 3 m/s
2. 3 - 15 m/s
3. 15 - 30 m/s
4. 30 - 50 m/s

**Testbook Solution** Correct Option - 2

**Que. 13** Principal planes are planes having

1. Maximum shear stress
2. No shear stress
3. Minimum shear stress
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 14** Torsion bars are in parallel

1. if same torque acts on each
2. if they have equal angles of twist and applied torque apportioned between them
3. if they have unequal angles of twist
4. if their ends are connected together

**Testbook Solution** Correct Option - 2

**Que. 15** Swaying couple is resisted by -

1. inner section of the rails
2. side pressure between the flanges of the wheels
3. Both in (1) and (2)
4. None of these

**Testbook Solution** Correct Option - 3

**Que. 16** Second law of thermodynamics defines -

1. Entropy
2. Enthalpy
3. Heat
4. Work

**Testbook Solution** Correct Option - 1

**Que. 17** In wheel and differential axle, the velocity ratio is given by

1.  $\frac{d_1-d_2}{2D}$
2.  $\frac{d_1-d_2}{4D}$
3.  $\frac{2D}{d_1-d_2}$
4.  $\frac{3D}{d_1-d_2}$

**Testbook Solution** Correct Option - 3

**Que. 18** The maximum and minimum speeds of a flywheel during a cycle are  $N_1$  and  $N_2$  r.p.m. respectively. The coefficient of steadiness of the flywheel is

1.  $\frac{N_1 - N_2}{2(N_1 + N_2)}$
2.  $\frac{N_1 + N_2}{2(N_1 - N_2)}$
3.  $\frac{2(N_1 + N_2)}{N_1 - N_2}$
4.  $\frac{N_1 + N_2}{N_1 - N_2}$

**Testbook Solution** Correct Option - 2

**Que. 19** The energy loss in flow through nozzle as compared to venturimeter is

1. Same
2. More
3. Less
4. More/less depending on flow

**Testbook Solution** Correct Option - 2

**Que. 20** The shear stress in a fluid flowing in a round pipe-

1. is constant over the cross-section
2. is zero at the wall and increases linearly to the center
3. is zero at the center and varies linearly with radius
4. varies parabolically across the section

**Testbook Solution** Correct Option - 3

**Que. 21** Stanton diagram is a plot of -

1. Friction factor against Reynolds number
2. Friction factor against log of Reynolds number
3. Log of friction factor against Reynolds number
4. Log of friction factor against log of Reynolds number

**Testbook Solution** Correct Option - 4

**Que. 22** If  $N$  is speed of arm and ball about the spindle axis, the height of a Watt's governor (in meter) is given by

1.  $\frac{8.95}{N^2}$
2.  $\frac{89.5}{N^2}$
3.  $\frac{895}{N^2}$
4.  $\frac{8.95}{N}$

**Testbook Solution** Correct Option - 3

**Que. 23** If for power transmission, a gear train consisting of 12 gears is used, then the motion of the driver and follower will be in the

1. Same direction
2. Opposite direction
3. Both (1) and (2)
4. None of these

**Testbook Solution** Correct Option - 2

**Que. 24** As per IBR, the efficiency of double-riveted butt joint with the double cover strap of equal width should be -

1. 63 to 70%
2. 70 to 83%
3. 80 to 90%
4. 85 to 95%

**Testbook Solution** Correct Option - 2

**Que. 25** When a ship travels in a sea, which of the following effects is more dangerous?

1. Steering
2. Pitching
3. Rolling
4. All of the above

**Testbook Solution** Correct Option - 3

**Que. 26** To transmit power from one rotating shaft to another whose axes are neither parallel nor intersecting, use -

1. Spur gear
2. Spiral gear
3. Crown gear
4. Worm gear

**Testbook Solution** Correct Option - 4

**Que. 27** Efficiency of rankine cycle can be increased by

1. Decreasing initial steam pressure and temperature
2. Increasing exhaust pressure
3. Decreasing exhaust pressure
4. Increasing the expansion ratio

**Testbook Solution** Correct Option - 3

**Que. 28** The steam temperature with increase in load in case of boiler fitted with radiation superheater

1. Increases
2. Decreases
3. Remains Unaffected

4. First increase then decrease

**Testbook Solution** Correct Option - 2

**Que. 29** The steam temperature with increase in load in case of boiler fitted with radiation superheater

1. Increases
2. Decreases
3. Remains Unaffected
4. first increase then decrease

**Testbook Solution** Correct Option - 2

**Que. 30** High elastic modulus in materials arises from

1. High strength of bonds
2. Weak bonds
3. Combination of bonds
4. None of these

**Testbook Solution** Correct Option - 1

**Que. 31** Von mises and Tresca criteria give different yield stress for

1. Uni-axial stress
2. Balanced bi-axial stress
3. Pure shear stress
4. All of these

**Testbook Solution** Correct Option - 3

**Que. 32** Dimensional formula for young's modulus of elasticity is

1.  $ML^{-1}T^{-2}$
2.  $MLT^2$
3.  $M^{-1}L^{-1}T^1$
4.  $ML^{-2}T^2$

**Testbook Solution** Correct Option - 1

**Que. 33** The young's modulus E, the shear modulus G and the Poisson's ratio  $\mu$  for material are related by the expression

1.  $E = 2G(1 + \mu)$
2.  $E = 3G(1 - \mu)$
3.  $E = 3G(1 - 2\mu)$
4.  $E = 3G(1 + 2\mu)$

**Testbook Solution** Correct Option - 1

**Que. 34** When mild steel is subjected to tensile loading, the fracture will be of

1. Star Shape
2. Flat type

3. Cup-and cone shape
4. Granular shape

**Testbook Solution** Correct Option - 3

**Que. 35** For an irreversible process entropy change is

1. greater than  $\frac{dQ}{T}$
2. equal to  $\frac{dQ}{T}$
3. less than  $\frac{dQ}{T}$
4. equal to zero

**Testbook Solution** Correct Option - 1

**Que. 36** The basis for measuring a thermodynamic property of temperature is given by

1. Zeroth law of thermodynamics
2. First law of thermodynamics
3. Second law of thermodynamics
4. Third law of thermodynamics

**Testbook Solution** Correct Option - 1

**Que. 37** Sometimes the pump work in the vapour power cycle neglected because

1. The pumps work is not considered in efficiency of vapour power cycle
2. The pump work is very small compared to the heat addition
3. The pump work is very small compared to the turbine work
4. None of the above

**Testbook Solution** Correct Option - 3

**Que. 38** To maximize the work output at the turbine, the specific volume of working fluid should be

1. As small as possible
2. As large as possible
3. Constant throughout the cycle
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 39** Which processes do the Rankine cycle contains?

1. Two isothermal and two isochoric processes
2. Two isentropic and two isobaric processes
3. Two isentropic and two isothermal processes
4. Two isothermal and two isobaric processes

**Testbook Solution** Correct Option - 2

**Que. 40** A wet vapour can be completely specified by \_\_\_\_\_

1. Pressure only
2. Temperature only
3. Specific volume only
4. Pressure and dryness fraction

**Testbook Solution** Correct Option - 4

**Que. 41** Dryness fraction of steam is defined as

1. Mass of water vapour in suspension / mass of water vapour in suspension + mass of dry steam
2. mass of dry steam / mass of water vapour in suspension
3. mass of dry steam / (mass of dry steam + mass of water vapour in suspension)
4. Mass of water vapour in suspension / mass of dry steam

**Testbook Solution** Correct Option - 3

**Que. 42** Only throttling calorimeter is used for measuring

1. Very low dryness fraction upto 0.7
2. Very high dryness upto 0.98
3. Dryness fraction of only low pressure steam
4. Dryness fraction of only high pressure steam

**Testbook Solution** Correct Option - 2

**Que. 43** Maximum efficiency of spiral gears is equal to

1.  $\frac{\cos(\theta+\phi)+1}{\cos(\theta-\phi)+1}$
2.  $\frac{\cos(\theta+\phi)-1}{\cos(\theta-\phi)+1}$
3.  $\frac{\cos(\theta+\phi)+1}{\cos(\theta-\phi)-1}$
4.  $\frac{\cos(\theta+\phi)-1}{\cos(\theta-\phi)-1}$

**Testbook Solution** Correct Option - 1

**Que. 44** Change in enthalpy of a system happens with the heat is supplied at

1. constant pressure
2. constant volume
3. constant temperature
4. constant heat

**Testbook Solution** Correct Option - 1

**Que. 45** Throttling is \_\_\_\_\_ process.

1. Reversible
2. Irreversible
3. Adiabatic
4. Isothermal

**Testbook Solution** Correct Option - 2

**Que. 46** Throttling is \_\_\_\_\_ process.

1. Reversible
2. Irreversible
3. Adiabatic
4. Isothermal

**Testbook Solution** Correct Option - 2

**Que. 47** Entropy change depends on

1. Mass transfer
2. Pressure transfer
3. Volume transfer
4. Heat transfer

**Testbook Solution** Correct Option - 4

**Que. 48** A Carnot cycle has:

1. One reversible adiabatic and one reversible isothermal
2. Two reversible adiabatic and two reversible isothermal
3. Two isothermal and two adiabatic
4. Above (1) and (2) both

**Testbook Solution** Correct Option - 2

**Que. 49** A Carnot cycle has:

1. One reversible adiabatic and one reversible isothermal
2. Two reversible adiabatic and two reversible isothermal
3. Two isothermal and two adiabatic
4. Above (1) and (2) both

**Testbook Solution** Correct Option - 2

**Que. 50** The equivalent length of a simple pendulum which gives the same frequency as compound pendulum is

1.  $\frac{h}{K_G^2 + h^2}$
2.  $\frac{K_G^2 + h^2}{h}$
3.  $\frac{h^2}{K_G^2 + h^2}$
4.  $\frac{K_G^2 + h^2}{h^2}$

**Testbook Solution** Correct Option - 2

**Que. 51** Two beams have the same width but the first beam has double the depth of the second beam. The elastic strength of the first beam compared to the second beam will be

1. four times
2. double
3. eight times
4. half

**Testbook Solution** Correct Option - 1

**Que. 52** When torque is applied on any shaft the value of shear stress is:

1. Uniform in cross section
2. Maximum at circumference
3. Minimum at circumference
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 53** An ideal gas as compared to a real gas at very high pressure occupies

1. More volume
2. Less volume
3. Same Volume
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 54**  $\left(p + \frac{a}{V^2}\right)(V - b) = R$  is known as \_\_\_\_\_ equation.

1. Vander waal's
2. Maxwell
3. Real gas
4. Ideal gas

**Testbook Solution** Correct Option - 1

**Que. 55** Heat is \_\_\_\_\_ in thermodynamics

1. Point functions
2. Path functions
3. line function
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 56** Under certain polytropic process value of  $n = 1$ . It is \_\_\_\_\_ process.

1. Adiabatic
2. Reversible
3. Irreversible
4. Isothermal

**Testbook Solution** Correct Option - 4

**Que. 57** A simply supported beam at its end of length 'l' and carries a uniform distributed load of  $\omega$  kg per unit length. The bending moment at mid-span will be:

1.  $wl^2/2$
2.  $wl^2/8$
3.  $wl^2/4$
4.  $wl^2/16$

**Testbook Solution** Correct Option - 2

**Que. 58** Mostly diamond riveted joint is preferred in \_\_\_\_\_ joints.

1. butt
2. lap
3. Double riveted lap joints
4. all of the above

**Testbook Solution** Correct Option - 1

**Que. 59** A cylindrical section having no joint is known as:

1. Lap section
2. Jointless section
3. Seamless section
4. Butt section

**Testbook Solution** Correct Option - 3

**Que. 60** Ratio of longitudinal stress to hoop stress in a thin cylinder is

1. equal
2. half
3. one-fourth
4. four times

**Testbook Solution** Correct Option - 2

**Que. 61** At principal planes in combined stresses

1. No stress occur
2. No tensile stress and shear stress is maximum
3. The normal stress is maximum or minimum and shear stress is zero
4. All stresses are maximum

**Testbook Solution** Correct Option - 3

**Que. 62** Under tensile testing on mild steel, the breaking stress is \_\_\_\_\_ as compared to ultimate stress:

1. more
2. same
3. less
4. two times

**Testbook Solution** Correct Option - 3

**Que. 63** The material expands freely due to heating, it will develop:

1. Thermal stress
2. Tensile stress
3. Bending stress
4. No stress

**Testbook Solution** Correct Option - 4

**Que. 64** If a material expands freely due to heating, it will develop

1. Thermal stress
2. Tensile stress
3. Compressive stress
4. No stress

**Testbook Solution** Correct Option - 4

**Que. 65** The fracture in cast iron occur due to compression (direction of load) test along its

1. load
2. perpendicular to axis of load
3. oblique plane
4. None of above

**Testbook Solution** Correct Option - 3

**Que. 66** A beam is loaded as cantilever. If the load at the end is increased, the failure will occur:

1. In the middle
2. At the tip below the load
3. At the support
4. Anywhere

**Testbook Solution** Correct Option - 3

**Que. 67** For a riveted joint design, diameter of rivet 'd' in terms of plate thickness 't' is equal to

1.  $d = 1.2(t)^{1/2}$
2.  $d = 6.05(t)^{1/2}$
3.  $d = 5.06(t)^{1/2}$
4.  $d = 2.1(t)^{1/2}$

**Testbook Solution** Correct Option - 2

**Que. 68** The distribution of stresses in a thick spherical shell are:

1. Parabolic in nature
2. Uniform in nature
3. Cubic in nature
4. Hyperbolic in nature

**Testbook Solution** Correct Option - 3

**Que. 69** The distribution of stresses in a thick spherical shell are:

1. Parabolic in nature
2. Uniform in nature
3. Cubic in nature
4. Hyperbolic in nature

**Testbook Solution** Correct Option - 3

**Que. 70** The planes of minimum shear stress with reference to principal planes are located at

1.  $45^\circ$
2.  $90^\circ$
3.  $0^\circ$
4.  $180^\circ$

**Testbook Solution** Correct Option - 1

**Que. 71** Section modulus is defined as

1. 
$$\frac{\text{Moment of inertia about the neutral axis}}{\text{Square of the distance of neutral axis from farthest point}}$$
2. 
$$\frac{\text{Moment of inertia about the neutral axis}}{\text{Distance of the most distant point from the neutral axis}}$$
3. 
$$\frac{\text{Bending moment}}{\text{Moment of Inertia}}$$
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 72** The radius of wire stretched by a load is halved then its young's modulus will be:

1. Half
2. Unaffected
3. Doubled
4. Become four times

**Testbook Solution** Correct Option - 2

**Que. 73** \_\_\_\_\_ quality material with stand upon impact load

1. Compressive strength
2. Tensile strength
3. Hardness
4. Toughness

**Testbook Solution** Correct Option - 4

**Que. 74** For the same material, length and torque of a hollow shaft, its weight \_\_\_\_\_ as solid shaft

1. more than
2. less than

3. equal to
4. None of the above

**Testbook Solution** Correct Option - 2

**Que. 75** The centre of the 'Mohr's circle' for a two-dimensional stress system lies

1. On X-axis
2. On Y-axis
3. On Z-axis
4. On  $45^\circ$  of X-axis

**Testbook Solution** Correct Option - 1

**Que. 76** The radius of the 'Mohr's circle' gives the value of

1. Minimum normal stress
2. Maximum normal stress
3. Maximum shear stress
4. Minimum shear stress

**Testbook Solution** Correct Option - 3

**Que. 77** A simply supported beam of length 3 m carries a concentrated load of 12 kN at a distance of 1 m from left support. The maximum bending moment in the beam is

1. 12 kNm
2. 24 kNm
3. 8 kNm
4. 16 kNm

**Testbook Solution** Correct Option - 3

**Que. 78** The point of contra flexure is a point where

1. shear force changes sign
2. bending moment changes sign
3. shear force is maximum
4. bending moment is maximum

**Testbook Solution** Correct Option - 2

**Que. 79** The point of contra flexure is a point where

1. shear force changes sign
2. bending moment changes sign
3. shear force is maximum
4. bending moment is maximum

**Testbook Solution** Correct Option - 2

**Que. 80** The shear force at the centre of a circular shaft under torsion is

1. minimum

2. zero
3. maximum
4. none of above

**Testbook Solution** Correct Option - 2

**Que. 81** The governor is said to be unstable when the radius of rotation of balls \_\_\_\_\_ as the equilibrium speed increases.

1. increases
2. decreases
3. remain constant
4. fluctuate

**Testbook Solution** Correct Option - 2

**Que. 82** The governor is said to be unstable when the radius of rotation of balls \_\_\_\_\_ as the equilibrium speed increases.

1. increases
2. decreases
3. remain constant
4. fluctuate

**Testbook Solution** Correct Option - 2

**Que. 83** The cam follower should move with \_\_\_\_\_ in high-speed engines.

1. S.H.M
2. Uniform velocity
3. Cycloidal motion
4. None of the above

**Testbook Solution** Correct Option - 3

**Que. 84** Strain in a direction at right angles to the direction of applied force is known as

1. lateral strain
2. shear strain
3. longitudinal strain
4. volumetric strain

**Testbook Solution** Correct Option - 1

**Que. 85** A continuous beam is one which has

1. single supports
2. two supports only
3. above (1) and (2) both
4. more than two supports

**Testbook Solution** Correct Option - 4

**Que. 86** The strength of the beam mainly depends on

1. Bending moment
2. Its weight
3. Section modulus
4. C.G. of the section

**Testbook Solution** Correct Option - 3

**Que. 87** A spherical vessel with an inside diameter of 2 m is made of a material having allowable stress in the tension of 500 kg/cm<sup>2</sup>. The thickness of a shell to withstand a pressure of 50 kg/cm<sup>2</sup> should be

1. 5 cm
2. 2.5 cm
3. 10 cm
4. 1.25 cm

**Testbook Solution** Correct Option - 1

**Que. 88** Section modulus Z is expressed as

1.  $I / Y$
2.  $M / I$
3.  $E / I$
4. E.I

**Testbook Solution** Correct Option - 1

**Que. 89** In case of a circular section the section modulus is given as

1.  $\pi d^2/16$
2.  $\pi d^3/16$
3.  $\pi d^3/32$
4.  $\pi d^3/64$

**Testbook Solution** Correct Option - 3

**Que. 90** In normal loading condition point contra flexure occur only in -

1. Cantilever beam
2. Over hanging beam
3. Simply supported beam
4. All of above

**Testbook Solution** Correct Option - 2

**Que. 91** For uniformly distributed load (UDL) to nature of curve for shear force diagram will be:

1. Straight horizontal line
2. Straight inclined line
3. Parabolic curve
4. Any curve

**Testbook Solution** Correct Option - 2

**Que. 92** Maximum shear stress is Mohr's circle is

1. Equal to radius of Mohr's circle
2. Greater than radius of Mohr's circle
3. Less than radius of Mohr's circle
4. None of above

**Testbook Solution** Correct Option - 1

**Que. 93** Coefficient of discharge, C.D. is equal to -

1.  $C_V \times C_C$
2.  $C_C \times C_r$
3.  $C_V + C_C$
4.  $C_V - C_C$

**Testbook Solution** Correct Option - 1

**Que. 94** The coefficient of velocity is determined experimentally by using the relation \_\_\_\_\_

1.  $C_v = \sqrt{\frac{y^2}{4xH}}$
2.  $C_v = \sqrt{\frac{x^2}{4yH}}$
3.  $C_v = \sqrt{\frac{4xH}{y^2}}$
4.  $c_v = \sqrt{\frac{4yH}{x^2}}$

**Testbook Solution** Correct Option - 2

**Que. 95** Pitot tube is used for measurement of -

1. Pressure
2. Velocity
3. Flow
4. Discharge

**Testbook Solution** Correct Option - 2

**Que. 96** The number of members in a perfect frame having J number of joint is equal to -

1.  $2J - 1$
2.  $3J - 2$
3.  $2J - 3$
4.  $2J - 2$

**Testbook Solution** Correct Option - 3

**Que. 97** The periodic time of a simple pendulum depends on

1. Mass of bob

2. Amplitude
3. Length of pendulum
4. All of the above

**Testbook Solution** Correct Option - 3

**Que. 98** At the principal plane in Mohr's circle -

1. The shear stress is maximum
2. The shear stress is zero
3. Normal stress is zero
4. Tensile stress is zero and shear stress is maximum

**Testbook Solution** Correct Option - 2

**Que. 99** The ratio of brake horse power indication horse power is called -

1. Mechanical efficiency
2. Overall efficiency
3. Indicating thermal efficiency
4. Brake thermal efficiency

**Testbook Solution** Correct Option - 1

**Que. 100** Steam nozzle converts

1. Heat energy to kinetic energy
2. Kinetic energy to heat energy
3. Heat energy to potential energy
4. Potential energy to heat energy

**Testbook Solution** Correct Option - 1

**Que. 101** The specific weight of water in M system is taken as -

1. 1 gram/cm<sup>3</sup>
2. 1000 liter/m<sup>3</sup>
3. 1000 kg/m<sup>3</sup>
4. All the above

**Testbook Solution** Correct Option - 3

**Que. 102** The specific gravity of water is taken as

1. 0.001
2. 0.01
3. 0.1
4. 1

**Testbook Solution** Correct Option - 4

**Que. 103** The absolute pressure is equal to

1. Gauge pressure + Vacuum pressure
2. Atmospheric pressure + Vacuum pressure
3. Gauge pressure + Atmospheric pressure
4. Gauge pressure - Vacuum pressure

**Testbook Solution** Correct Option - 3

**Que. 104** A piezometer tube is used only for measuring

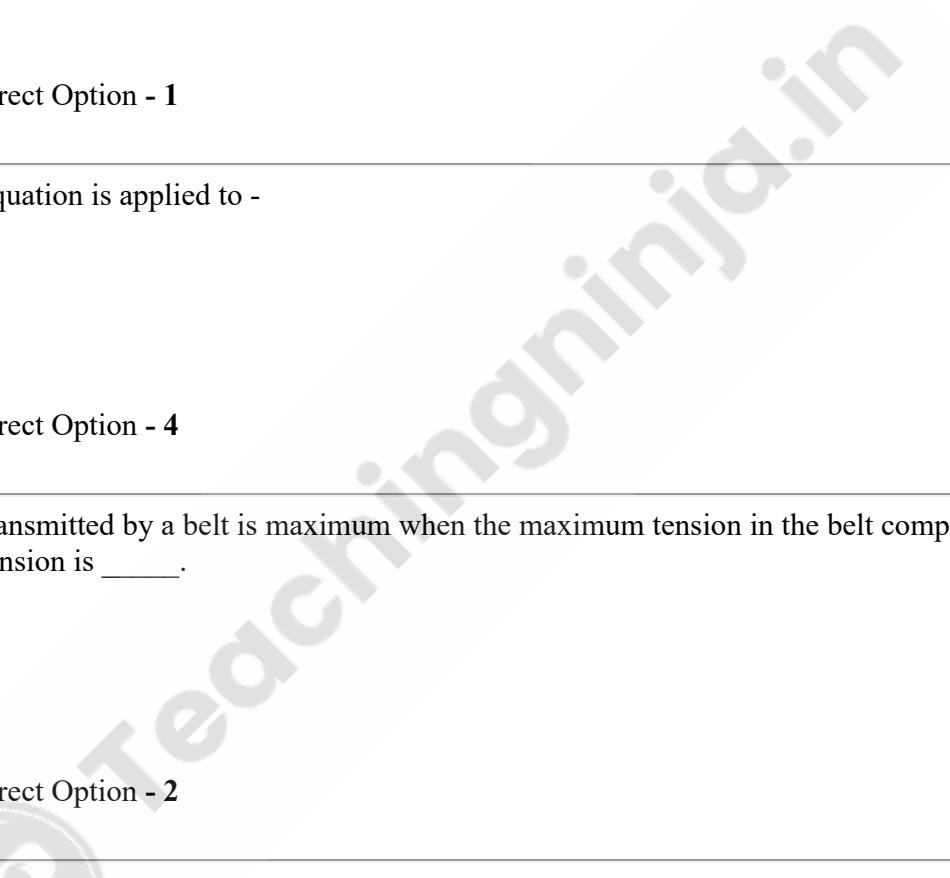
1. moderate pressure
2. low pressure
3. high pressure
4. vacuum pressure

**Testbook Solution** Correct Option - 1

**Que. 105** Bernoulli's equation is applied to -

1. Venturimeter
2. Orifice meter
3. Pitot tube
4. All of the above

**Testbook Solution** Correct Option - 4

**Que. 106** The power transmitted by a belt is maximum when the maximum tension in the belt compared to centrifugal tension is \_\_\_\_\_.  


1. 2 times
2. 3 times
3. 4 times
4. 2.5 times

**Testbook Solution** Correct Option - 2

**Que. 107** The maximum permissible velocity of belt is given by -

1.  $\sqrt{\frac{T_g}{3w}}$
2.  $\sqrt{\frac{2T_g}{3w}}$
3.  $\sqrt{\frac{3T_g}{2w}}$
4.  $\sqrt{\frac{3T_g}{w}}$

**Testbook Solution** Correct Option - 1

**Que. 108** In involutes gear, the normal to the involutes is tangent to the

1. Pitch circle
2. Base circle
3. Addendum circle

4. Dedendum circle

**Testbook Solution** Correct Option - 2

**Que. 109** In a Hartnell governor, if the stiffness of spring is increased, then the governor will be

1. more sensitive
2. less sensitive
3. hunting
4. insensitive

**Testbook Solution** Correct Option - 2

**Que. 110** If gear and pinion both are made of the same material then load transmitting capacity is decided by -

1. Gear
2. Pinion
3. Any one of two
4. None of these

**Testbook Solution** Correct Option - 2

**Que. 111** The air and fuel ratio of a petrol engine is controlled by -

1. Carburettor
2. Injector
3. Governor
4. All of the above

**Testbook Solution** Correct Option - 1

**Que. 112** Indicating power of four-stroke Engine is expressed as

1. PLAN
2. 2PLAN
3. PLAN/2
4. 4PLAN

**Testbook Solution** Correct Option - 3

**Que. 113** The function of the fuel pump in petrol engine is -

1. Inject fuel in cylinder
2. Supply fuel when carburettor fail
3. Pump fuel to reach it in carburettor
4. None of these

**Testbook Solution** Correct Option - 3

**Que. 114** Which of the following is boiler accessories -

1. Safety valve
2. Pressure gauge

3. Water level indicator
4. Super heater

**Testbook Solution** Correct Option - 4

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**Que. 115** Rope brake dynamometer uses -

1. Oil as lubricant
2. Water as lubricant
3. Grease as lubricant
4. No lubricant

**Testbook Solution** Correct Option - 4

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**Que. 116** Coefficient of fluctuation of energy of an engine -

1. Variation of energy above or below the mean resisting torque
2. Ratio of maximum and minimum energy
3. Ratio of maximum fluctuation of energy to the work done per cycle
4. None of above

**Testbook Solution** Correct Option - 3

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**Que. 117** In the belt transmission system initial tension in the belt when stationary is -

1.  $T_1$
2.  $T_2$
3.  $T_1 + T_2$
4.  $T_1 + T_2/2$

**Testbook Solution** Correct Option - 4

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**Que. 118** The unit of power in SI unit is -

1. Newton
2. Pascal
3. Joule
4. Watt

**Testbook Solution** Correct Option - 4

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**Que. 119** The relation between specific heat  $C_p$  and  $C_v$  is given by -

1.  $C_v/C_p = \gamma$
2.  $C_p - C_v = R/J$
3.  $(C_p \cdot C_v)/J = R$
4.  $C_v \cdot C_p = R/J$

**Testbook Solution** Correct Option - 2

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**Que. 120** In a Carnot cycle, heat is transferred at \_\_\_\_\_.

1. Constant pressure

2. Constant volume
3. Constant temperature
4. Constant enthalpy

**Testbook Solution** Correct Option - 3

**Que. 121** The first law of thermodynamics is the law of:

1. Conservation of mass
2. Conservation of energy
3. Conservation of momentum
4. Conservation of heat

**Testbook Solution** Correct Option - 2

**Que. 122** Carnot cycle consists of the following process -

1. Two isothermal and two isentropics
2. Two isentropics and two constant volume
3. Two isentropics and two constant pressure
4. Two isentropics, one constant volume and one constant pressure

**Testbook Solution** Correct Option - 1

**Que. 123** One kilowatt-hours Energy is equal to -

1. 1 k-J
2. 100 k-J
3. 3600 J
4. 3600 kJ

**Testbook Solution** Correct Option - 4

**Que. 124** Supercharging is the process of -

1. Supplying the intake of an engine with air at density higher than the density of surrounding
2. Providing forced cooling air
3. Injecting excess fuel for raising more load
4. Raising exhaust pressure

**Testbook Solution** Correct Option - 1

**Que. 125** The throw of cam is the maximum distance of the follower from

1. Base circle
2. Pitch circle
3. Prime circle
4. Pitch curve

**Testbook Solution** Correct Option - 1