1 : Which is the law of friction?
A : Friction force is independent over the area and shape of contacting surfaces
B : Frictional force is inversely proportional to the normal reaction
C : Frictional force acts in the same direction of motion
D : Frictional force is not a dependent on nature of contacting surface

2 : What is the direction of frictional force against a motional object?
A : Inclined to the object
B : Opposite to the object
C : Parallel to the object
D : Perpendicular to the object

3 : Which force is directly proportional to the normal reaction between contacting surfaces?
A : Pulling force
B : Pushing force
C : Frictional force
D : Allied force

4 : Which one of the following acts in between the wheels and roads, if vehicles are able to run on roads?
A : Friction
B : Corrosion
C : Erosion
D : Motion

5 : Which is useful friction?
A : Rings in the cylinder
B : Crank shaft bearings
C : Wheel hub bearings
D : Brake shoe lining

6 : Which is wasteful friction?
A : Rear axle gear
B : Tyres on the floor
C : Brake shoe lining
D : Clutch lining

7 : Which is depends on the frictional force?
A : Type of metals
B : Contact surfaces
C : Quantity of the contacting metals
D : Quality of metals

8 : How co-efficient of friction is expressed?
A : It is expressed as the ratio of force and area
B : It is the ratio between frictional force and normal reaction
C : It is the ratio between normal reaction and the mass of the object
D : It is expressed as the ratio of weight and normal reaction

9 : What is the formula to find co-efficient of friction?
A : $\mu = FxW$
B :

$$\mu = \frac{W}{F}$$

C :

$$\mu = \frac{R}{W}$$

D :

$$\mu = \frac{F}{W}$$

10 : Which symbol is used to denote co-efficient of friction?
A : α (Alpha)
B : μ (Meu)
C : β (Beta)
D : γ (Gamma)

11 : What kind of friction is called if two objects are in contact at rest?
A : Sliding friction
B : Rolling friction
C : Static friction
D : Angular friction

12 : Which is the correct statement?

A : Limiting friction is equal to sliding friction

B : Rolling friction is more than the sliding friction

C : Sliding friction is always less than limiting friction

D : Limiting friction is always less than sliding friction

---

13 : What is the formula to find the force if the object is just move up the plane?

A :

$$\frac{W[Sin\theta - \varphi]}{Cos\varphi}$$

B :
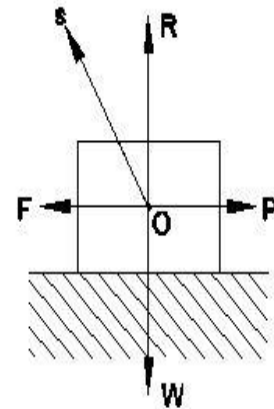
$$\frac{W[Sin\theta + \varphi]}{Cos\varphi}$$

C :

$$\frac{W[Sin\theta + \varphi]}{Sin\varphi}$$

D :

$$\frac{W[Cos\theta + \varphi]}{Cos\varphi}$$

---

14 : Which of the angle is called angle of friction?
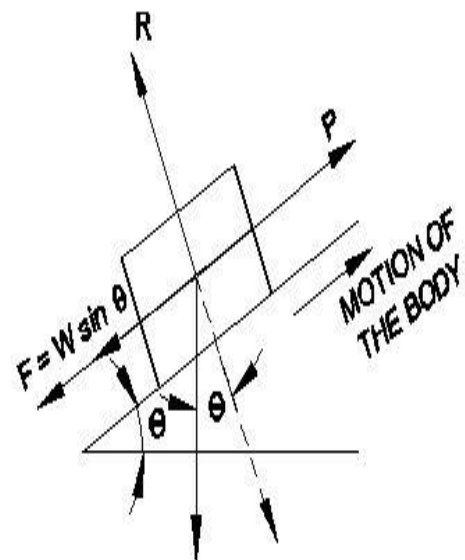

FRICTION

A : Angle - FOS

B : Angle - ROS

C : Angle - POS

D : Angle - ROF

---

15 : What is the co-efficient of friction if the angle of friction isq?

A : Sin θ

B : Cos θ

C : Tan θ

D : Cot θ

---

16 : What denotes the letter 'R' in the given figure?

MOTION UP THE PLANE

A : Force

B : Resistance

C : Load

D : Normal reaction

17 : What is the purpose of a lubricant?
A : To increase the pressure
B : To increase friction
C : To reduce friction
D : To reduce pressure

18 : What type of lubricant is used in wick feed lubrication system
A : Lub-oil
B : Grease
C : Coolant
D : Cutting oil

19 : Which lubrication system is provided with a ring oiler to splash lub-oil continuously around the parts?
A : Gravity feed system
B : Pressure feed system
C : Splash feed system
D : Force feed system

20 : Which one is the three types of lubrication system in general use?
A : Force feed system, speed feed system, frictional feed system
B : Velocity feed system, Speed feed system, Frictional feed system
C : Gravity feed system, force feed system, splash feed system
D : Splash feed system, Frictional force system, Speed feed system

21 : Which lubrication system employs oil holes in the machines?
A : Gravity feed system
B : Force feed system
C : Splash feed system
D : Velocity feed system

22 : What is the name of the lubrication system?
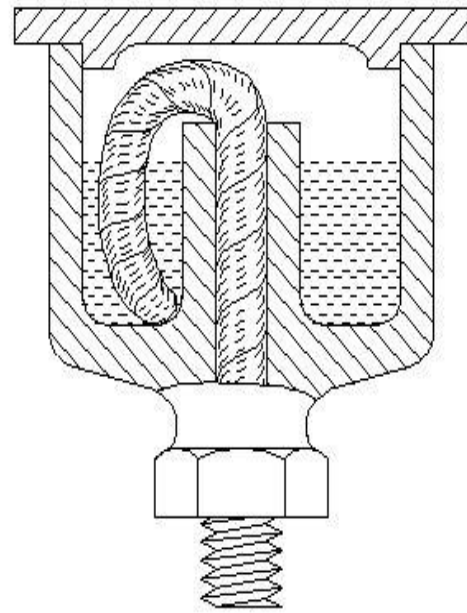
A : Oil cup
B : Wick feed
C : Manual screw down
D : Ring oiling

23 : Which is used to reduce the friction in machine parts?
A : Kerosene
B : Petrol
C : Water
D : Lubricants

24 : Which is the main purpose of using the lubricant oil in engine moving parts
A : To increase the efficiency
B : To reduce friction
C : To improve carrying capacity
D : To improve the durability

25 : Which is the correct statement?
A : Lubricants acts to prevent corrosion
B : Lubricants acts as a seal
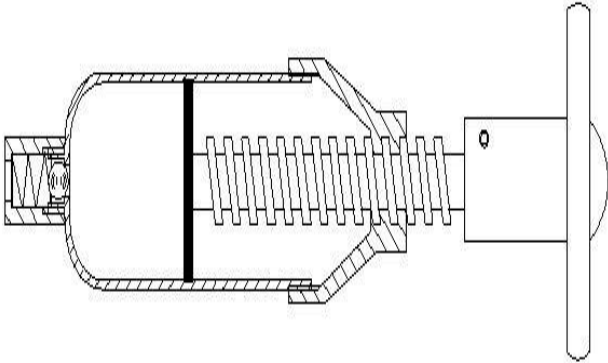C : Lubricants acts as a fuel
D : Lubricants acts as a filter

26 : What causes the efficiency of a machine by maintaining the lubrication?
A : Increases
B : Decreases
C : Remains same
D : Does not affected

27 : What is the name of the instrument used for lubrication?

A : Oil -can
B : Automatic hydraulic - Type pressure gun
C : T-handle pressure gun
D : Pressure grease gun

28 : Which principle of lubrication can be employed?
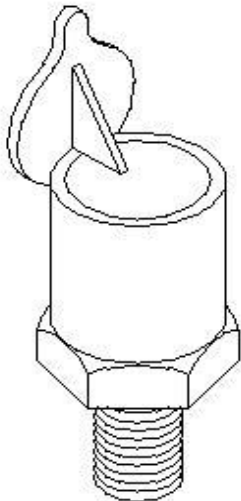
A : Pressure feed system
B : Splash feed system
C : Gravity feed system
D : Force feed system

29 : Which way the coolant acts as a lubricant?
A : To carry away dust
B : To carry away the heat
C : To carry away moisture
D : To carry away dryness

30 : What is the force required to move a body of mass 1000 kg if the co-efficient of friction is 0.4 (assume 1kg = 10 N)?
A : 4000 N
B : 400 N

C : 40 N
D : 4 N

31 : What is the co-efficient of friction if a force of 30 N is required to move a body of mass 35 kg (Assume 1kg=10N)?
A : 8.57
B : 0.082
C : 0.0857
D : 0.0085

32 : How much force is required to move an object weights 20 kg, if the value of m = 0.24?
A : 4.8 kg
B : 83.33 kg
C : 1.2 kg
D : 0.48 kg

33 : What is weight of an object could be moved by a force of 30 kg if co-efficient of friction is 0.0125?
A : 80 kg
B : 2430 kg
C : 72000 kg
D : 2400 kg

34 : What is the angle of inclination if a weight of 150 kg is in equilibrium and the value of m is 0.5773?
A : 30°
B : 45°
C : 60°
D : 90°

35 : How much force is required to just slide a 20 kg object lying on a horizontal table if the m is 0.2?
A : 2 kg
B : 3 kg
C : 4 kg
D : 5 kg

36 : What is the force required to move a 20 kg object with a co-efficient of friction is 0.24?
A : 4.8 kg
B : 0.48 kg
C : 0.048 kg
D : 0.0048 kg

37 : What is co-efficient of friction for pulling a load of 400 kg by a force of 40 kg?
A : 0.01
B : 0.2
C : 0.1
D : 0.02

38 : How much will be the co-efficient of friction for moving a body of mass 80 kg by a force of 40 kg on a horizontal surface?
A : 0.05
B : 0.5
C : 0.65
D : 0.45

39 : How much will be the weight of a body which will be moved by a horizontal force of 50 kg against a frictional resistance of 0.25?
A : 150 kg
B : 200 kg
C : 250 kg
D : 300 kg

40 : What will be the approximate angle of inclination of an object if the co-efficient of friction m=0.84?
A : 60°
B : 45°
C : 40°
D : 30°

41 : What is the work done to move a body of mass 60 kg to a distance of 5 meters, if the co-efficient if friction between body and the plane is 0.2?
A : 12 kg
B : 60 kg
C : 12 m-kg
D : 60 m-kg

42 : How much will be the work done in moving a 10 kg object resing on a horizontal plane through a distance of 10 meter (assume m= 0.15)?
A : 1.5 m-kg
B : 15 m-kg
C : 0.15 m-kg
D : 150 m-kg

43 : How much force is required to stop a vehicle of mass 1000 kg running on a road with coefficient of friction between the tyres and the road is 0.4?

A : 3000 kg
B : 450 kg
C : 350 kg
D : 400 kg

44 : Which affects the centre of gravity of the object?
A : Weight
B : Mass
C : Density
D : Shape

45 : What is the name of the point at which all the weight of the body concentrated?
A : Initial point
B : Centre of gravity
C : Centroid
D : Central point

46 : Where the centre of gravity of a circle lies?
A : At its centre
B : Any where on its radius
C : Any where on its circumference
D : Any where on its diameter

47 : What is the centre of gravity of a right circular cone from its base?
A : h/2
B : h/3
C : h/4
D : h/5

48 : What is the centre of gravity of a rectangular body?
A : Longer side of rectangle
B : Shorter side of rectangle
C : At the point of intersection of its diagonals
D : At the corners

49 : What is the centre of gravity of a solid hemisphere from its base?
A : 4r/5
B : 3r/8
C : 3r/4
D : r/2

50 : What is the centre of gravity of a sphere?
A : At the centre
B : On the circumference
C : At the diameter
D : At the radius

51 : Which state of equilibrium's example is A cone resting on its tip?
A : Stable
B : Neutral
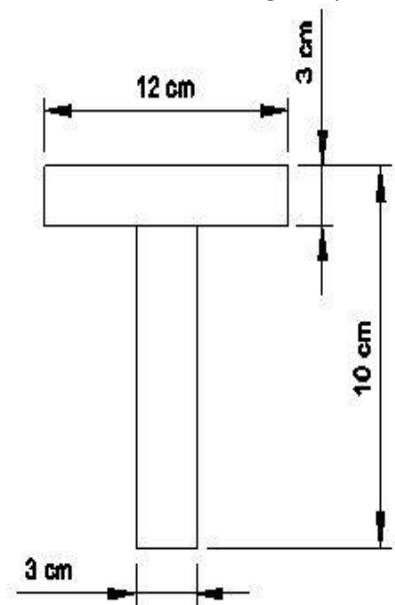
C : Unstable
D : Horizontal

52 : Which one of the following geometrical shape's centre of gravity lies from its base is 1/3 of its height?
A : Square
B : Rhombus
C : Triangle
D : Cone

53 : Which state of equilibrium's example is, A cone resting on its base?
A : Un-stable
B : Neutral
C : Stable
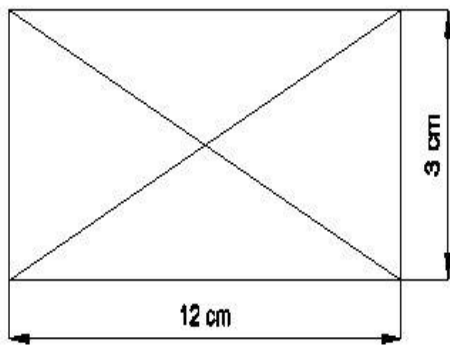**D** : Bothe A and B

54 : Where is the centre of gravity in 'T' section?

A : 8.545 cm
B : 6.5 cm
C : 8.02 cm
D : 7.5 cm

55 : What is the centre of gravity of the rectangle?

A : (6,3)
B : (6,6)
C : (6,1.5)
D : (1.5, 3)

56 : What is the centre of gravity of the lamina?

TRIANGLE
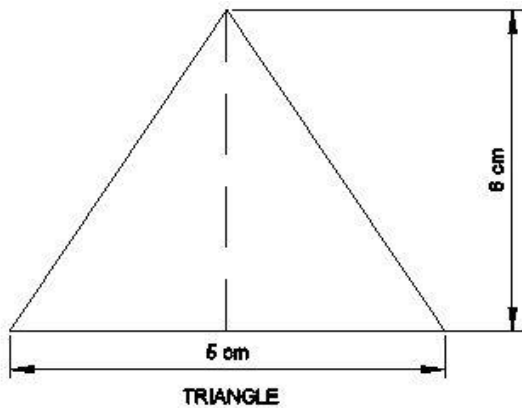
A : 1.55 cm
B : 2.0 cm
C : 1.5 cm
D : 1.45 cm

57 : What is the centre of gravity of the object?
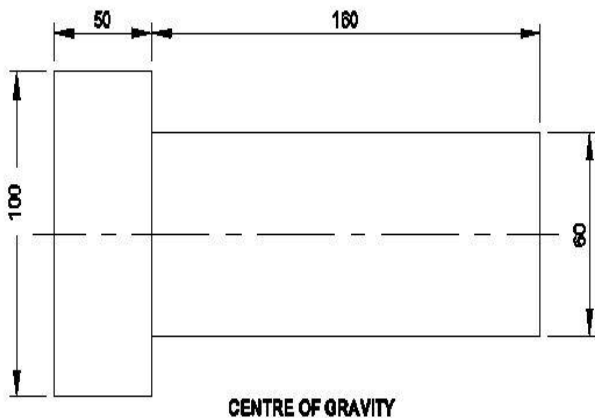
CENTRE OF GRAVITY

A : 90.6 mm
B : 90.0 mm

C : 89.2 mm
D : 89.25 mm

58 : What is the centre of gravity of the conical object?
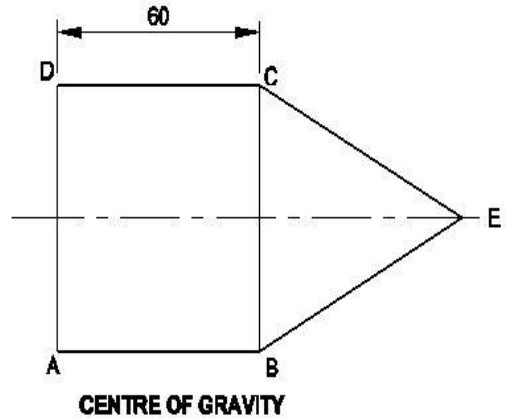
CENTRE OF GRAVITY

A : 42.5 mm
B : 44.3 mm
C : 42.3 mm
D : 43.85 mm

59 : What is the centre of gravity of the square?

SQUARE
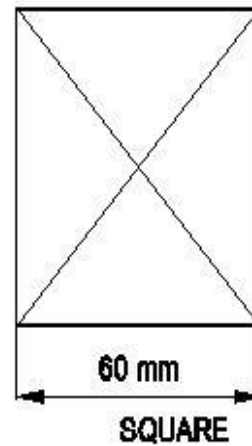
A : (30, 20)
B : (20,30)
C : (30, 30)
D : (25, 30)

60 : What is the centre of gravity of the cone base 10cm and height 50 cm?
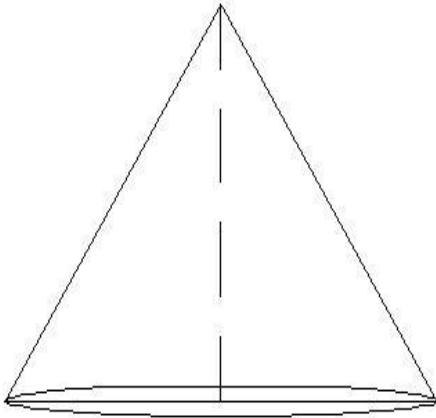
A : 10.5 cm
B : 12.5 cm
C : 11.25 cm
D : 12.75 cm

61 : What is the centre of gravity of a semi circle of diameter 12 cm?
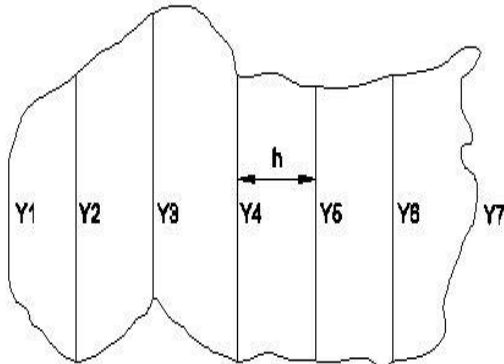A : 2.24 cm
B : 2.54 cm
C : 3.25 cm
D : 2.75 cm

62 : Which formula is suitable for the area of a circle, whose diameter is (d)?
A : πd² / 4
B : πr
C : 2πr
D : πd

63 : What is the circumference of a semi circle?
A : πr + 2r
B : πd / 4
C : 2πr²
D : πd² / 4

64 : What is the area of irregular shape by simpson's is rule?

LENGTH OF BELTS

A : h/3 [y$_1$+y$_7$+4 (y$_2$+y$_4$+y$_6$)+2(y$_3$+y$_5$]
B : h/2 [y1 + y7]
C : h/3 [y$_2$+y$_4$+y$_6$]
D : h/2 [y$_1$ = y$_7$+(y+y$_5$)]

65 : What is the name called biggest chord of the circle?
A : Arc
B : Diameter
C : Radius
D : Diagonal

66 : What is the formula for circumference of a circle?
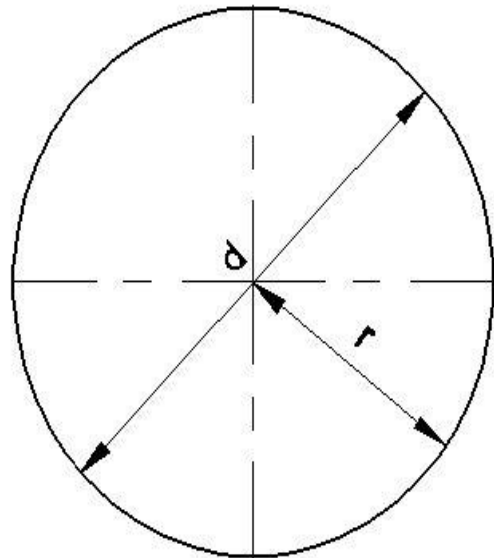
A : πr²
B : πd² / 4
C : 2πr
D : πr

67 : What is the formula for area of the semi circle?
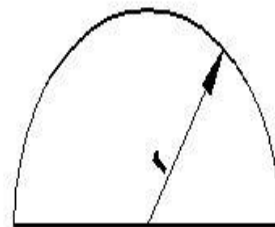
SEMI CIRCLE

A : πr²
B : 2πr
C : πr
D : πd² / 2

68 : What is the formula for area of the circle?
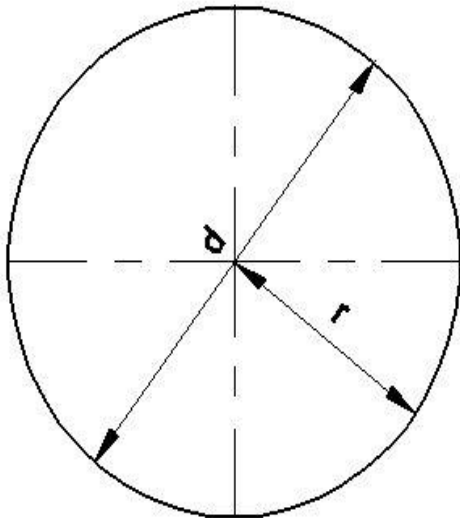
A : πd² / 2
B : πr²
C : 2πr
D : πd / 2

69 : What is the area of the irregular surface?
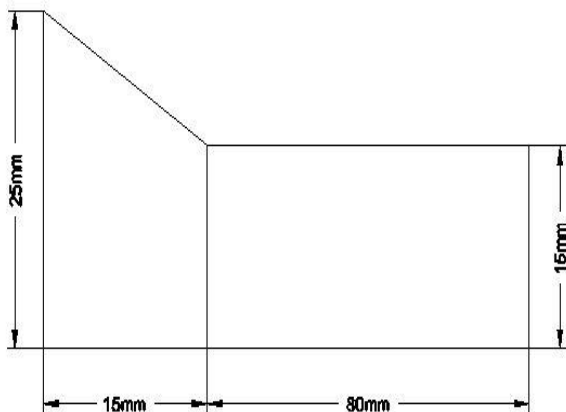
A : 1400 mm²
B : 1450 mm²
C : 1500 mm²
D : 1200 mm²

70 : What is the area of the shaded portion, Equilateral Triangle side is 6cm and circle radius is 1.5cm?
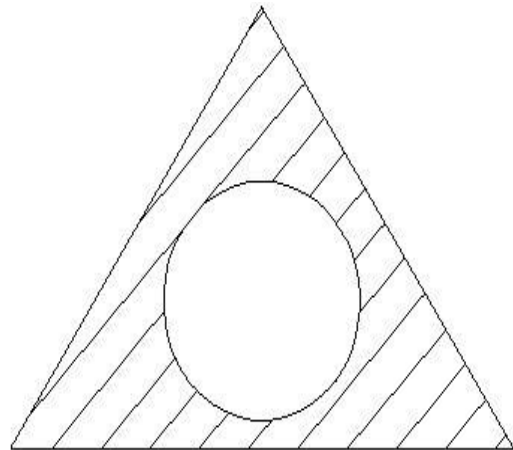
EQUILATERAL TRIANGLE

A : 8.52 cm²
B : 12.75 cm²
C : 9.5 cm²
D : 12.25 cm²

71 : What is the area of the irregular surfaces?

A : 2500 mm²
B : 3544 mm²
C : 3250 mm²
D : 3444 mm²

72 : What is the area of the irregular surfaces?

A : 4800 mm²
B : 4820 mm²
C : 4830 mm²
D : 4843 mm²

73 : What is the area of irregular surfaces?
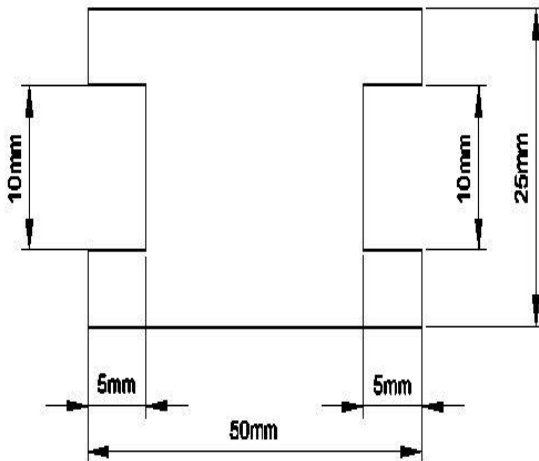
A : 1350 mm²
B : 1175 mm²
C : 1150 mm²
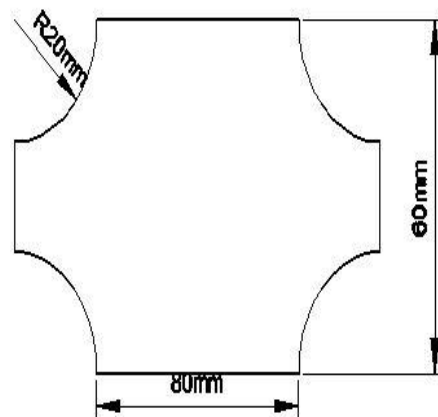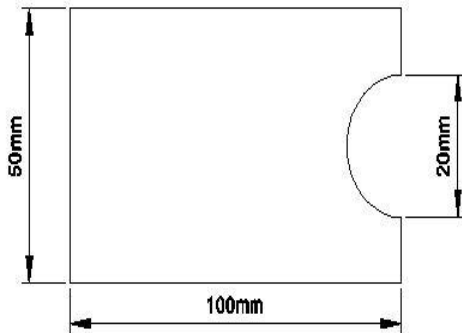**D** : 1250 mm²

74 : What is the length of arc of a sector, whose perimeter is 64.8cm and radius is 12.4 cm?
A : 40 cm
B : 45 cm
C : 40.8 cm
D : 42 cm

75 : What is the length of arc of the sector whose radius is 15 cm and the intended angle is 30°?
A : 7.85 cm
B : 7.25 cm
C : 6.75 cm
D : 6.85 cm

76 : What is the area of the sector, if the diameter is 12 cm and the angle is 60°?
A : 18.0 cm²
B : 17.75 cm²
C : 19.00 cm²
D : 18.84 cm²

77 : What is the formula for area of the segment of a circle?
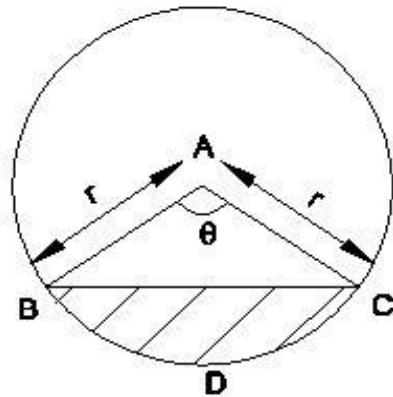
A : Area of the sector - Area of the triangle
B : Area of the circle
C : Area of the sector
D : Area of the triangle - Area of the sector

78 : What is the area of the circle, if the circumference of the circle is 44cm?
A : 128 cm²
B : 130 cm²
C : 154 cm²
D : 129 cm²

79 : What is the area of the irregular surfaces?
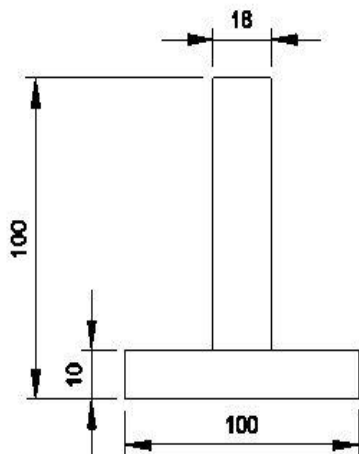
A : 2600 unit²
B : 2590 unit²
C : 2625 unit²
D : 2620 unit²

80 : What is the area of the irregular surfaces?
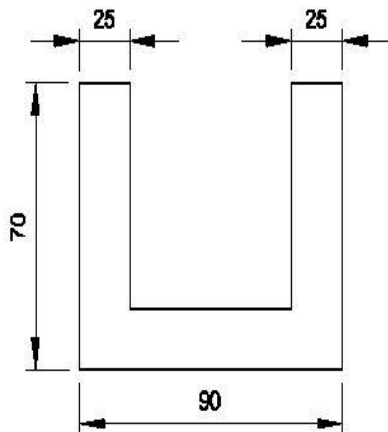
A : 4200
B : $4300.00
C : $4500.00
D : 4400

81 : What is the radius of the circle if the angle of sector is 90° and the area of the circle is 196 cm2?
A : 15.77 cm
B : 15 cm
C : 14.85 cm
D : 14.95 cm

82 : What is the formula for perimeter of a sector?
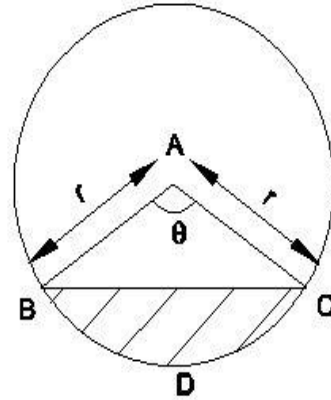
A : 2l + r
B : l + 2r
C : πr²
D : 2πr

83 : What is the area of conical object?
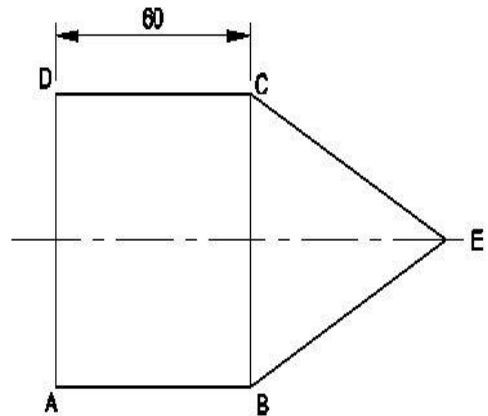
A : 5100 mm²
B : 5120 mm²
C : 5125 mm²
D : 5158.8 mm²

84 : What is the area of the lamina?
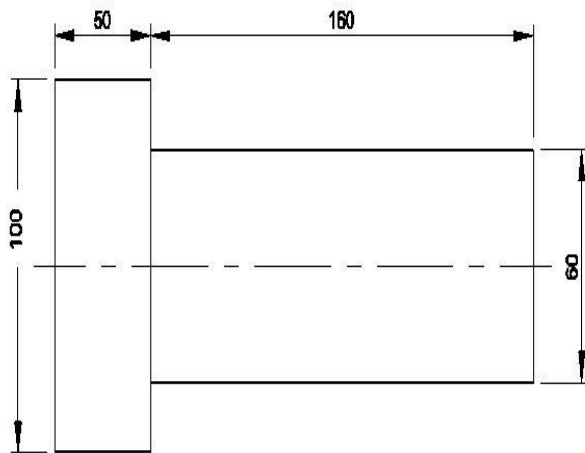
A : 14,800 mm²
B : 14,600 mm²
C : 14,650 mm²
D : 14,750 mm²

---

85 : What is the area of the sector, whose diameter is 40 mm and angle is 120°?
A : 418.66 mm²
B : 400.50 mm²
C : 415.5 mm²
D : 416.6 mm²

---

86 : What is the length of arc of a sector, whose radius is 15 cm and angle is 40°?
A : 9.75 cm
B : 9.8 cm
C : 10.60 cm
D : 10.4 cm

---

87 : What is the length of arc of a sector whose radius is 3.6 cm and angle is 36°?
A : 2.10 cm
B : 2.26 cm
C : 22.6 cm
D : 21.0 cm

---

88 : What is the area of the surface?
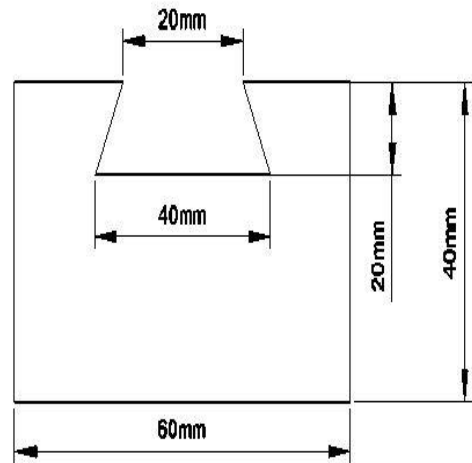
A : 1750 mm²
B : 1775 mm²
C : 1805 mm²
D : 2600 mm²

---

89 : What is the name of the shaded portion?
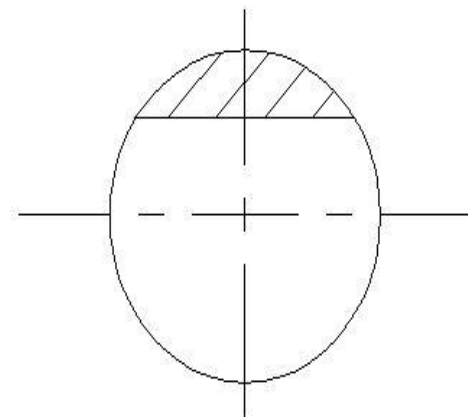
A : Segment
B : Sector
C : Arc
D : Chord

---

90 : Which line is called as chord?
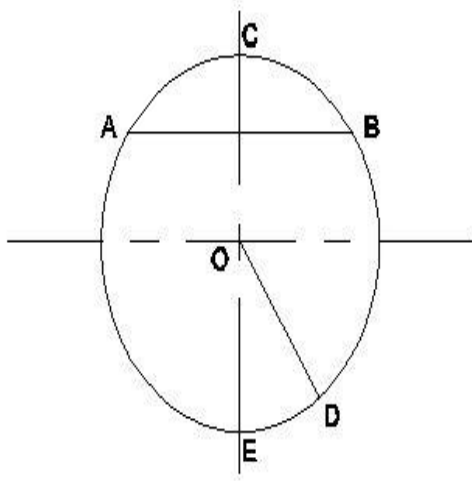
A : ED
B : AB
C : OD
D : OE

---

91 : What is the area of the circle, whose diameter is 50 cm?
A : 1900 cm²
B : 1950 cm²
C : 1962.5 cm²
D : 1960 cm²

---

92 : What is the name of the region of a circle between any two point on the circumference?
A : Arc
B : Segment
C : Sector
D : Chord

---

93 : What is the radius of the circle, whose circumference is 440 cm?
A : 71.5 cm
B : 70 cm
C : 70.5 cm
D : 72.2 cm

---

94 : What is the area of a circular surface if the radius is 14 cm?
A : 615.44 cm²
B : 614.5 cm²
C : 612.25 cm²
D : 612.44 cm²

---

95 : What is the circumference of a circle whose diameter is 7 cm?
A : 22 cm

B : 44 cm
C : 25 cm
D : 21 cm

---

96 : What is the radius of a circle whose diameter is 44 cm?
A : 44 cm
B : 22 cm
C : 23 cm
D : 20 cm

---

97 : What is the diameter of the circle, if the area of the circle is 78.5cm²?
A : 5 cm
B : 10 cm
C : 15 cm
D : 5.5 cm

---

98 : What is the area of the circle if the radius is 10 cm?
A : 314 cm²
B : 31.4 cm²
C : 30.4 cm²
D : 3.14 cm²

---

99 : What is the radius of the semicircle, if the circumference of the semicircle is 28.26 cm?
A : 5.49 cm
B : 6.49 cm
C : 8.5 cm
D : 8.75 cm

---

100 : What is the diameter of the semicircle, if the circumference of the semicircle is 21.98 cm?
A : 8.55 cm
B : 8 cm
C : 7.55 cm
D : 7 cm

---

101 : What is the area of the semicircle, if the diameter is 14 cm?
A : 70 cm²
B : 76.93 cm²
C : 75.06 cm²
D : 86.93 cm²

---

102 : What is the diameter of the circle, if the area of the circle is 706.5cm²?

A : 29 cm
B : 29.5 cm
C : 30 cm
D : 30.5 cm

103 : What is the diameter of the circle, if the circumference is 31.4 cm?

A : 5 cm
B : 10 cm
C : 8 cm
D : 8.5 cm

104 : What is the area of the lamina?
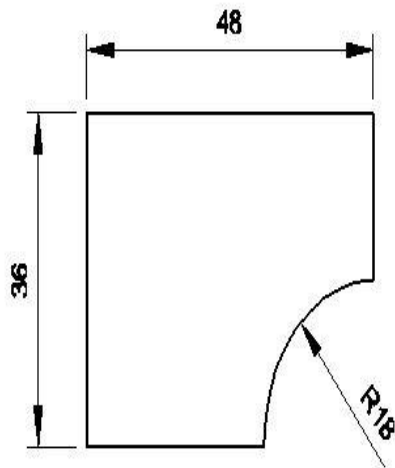
A : 1470.55
B : 1473.66
C : 1472
D : 1472.5

105 : What is the area of the irregular lamina?
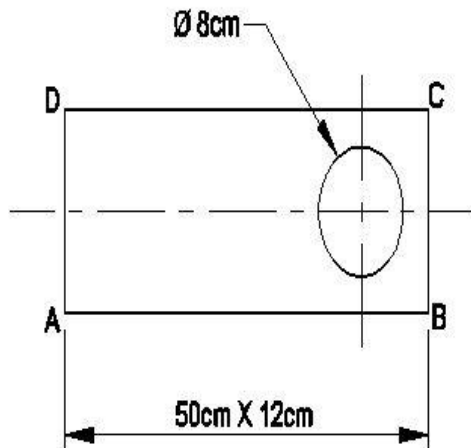
A : 550 cm²
B : 549.76 cm²

C : 560 cm²
D : 555 cm²

106 : What is the area of the lamina?
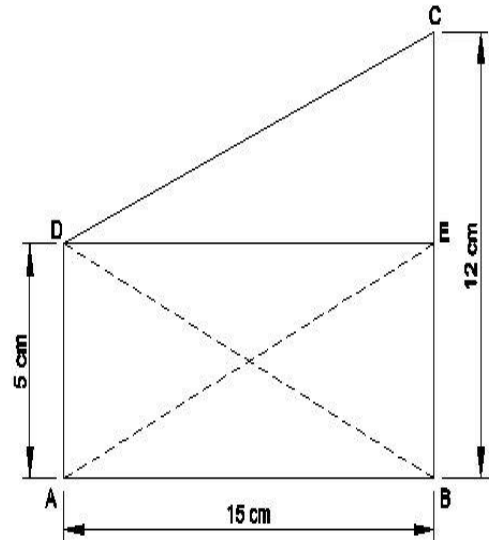
A : 125.5 cm²
B : 120.5 cm²
C : 127.5 cm²
D : 126.5 cm²

107 : What is the area of irregular surfaces?
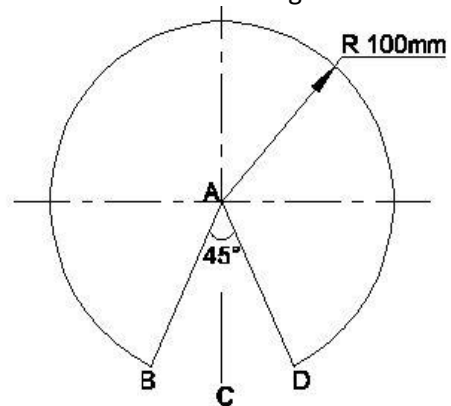
A : 27,475 mm²
B : 27,500 mm²
C : 27,350 mm²
D : 26,500 mm²

108 : What is the area of shaded portion whose OD = 38 mm, ID = 32 mm?
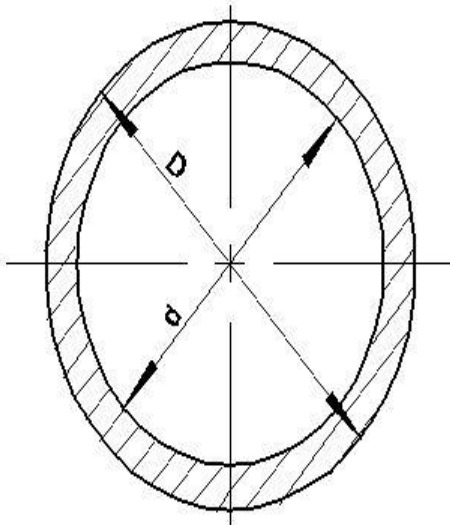
A : 325.4 mm²
B : 329.7 mm²
C : 305.5 mm²
D : 320.5 mm²

109 : What is the area of irregular surfaces whose equilateral triangle size is 20 mm?
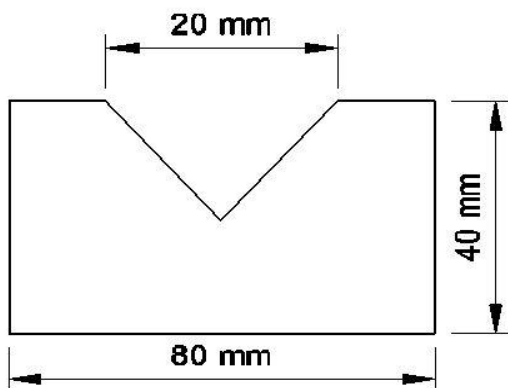
A : 3000 mm²
B : 3080 mm²
C : 3026.8 mm²
D : 3060 mm²

110 : What is the area of shaded portion. Whose square size 300mm?
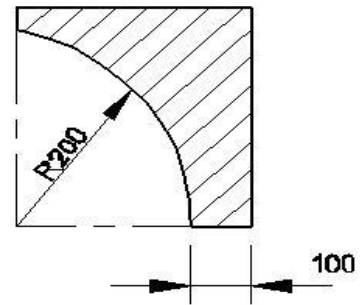
A : 58,000 mm²
B : 58,400 mm²
C : 59,000 mm²
D : 58,600 mm²

111 : What is the area of shaded portion?
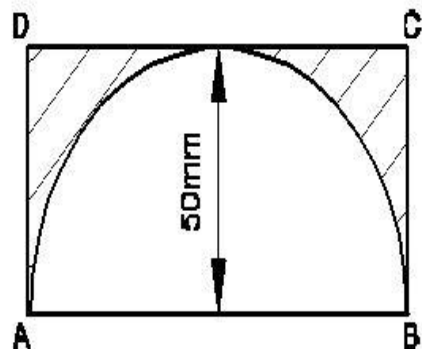
A : 1000 mm²
B : 1500 mm²
C : 1100 mm²
D : 1075 mm²

112 : What is the value of 14x+3y+25x+2y?
A : 17x + 27y
B : 16x + 28y
C : 39x + 5y
D : 44xy

113 : What is the multiplication value of $5a^2b$ x $8a^5b^3$?
A : $40a^7b^4$
B : $40a^3b^2$
C : $40a^4b^7$
D : $40a^2b^3$

114 : What is the simplified value of (3x + 15) / 5x + 25)
A : 5/3
B : 3/5
C : -5/3
D : -3/5

115 : What is the value of x if 13+x =20?
A : 8
B : 7
C : 9
D : 13

116 : What is the value of x, if x (120) = 960?
A : 6
B : 7
C : 8
D : 10

117 : What is the formula for a^m x a^n?
A : a^{m+n}
B : a^{m-n}
C : a^{mn}
D : $n.a^m$

118 : Which is the formula for a^m / a^n
A : a^{m+n}
B : a^{m-n}
C : $a^{m \times n}$
D : $(a^m)^n$

119 : What is the value of any number raised to the power of 0?
A : 0
B : 1
C : -1
D : α

120 : What is the value of 1 / a^m ?
A : a^m
B : a^{-m}
C : $\sqrt[m]{a}$
D : $\sqrt[a]{m}$

121 : Which is equal to $(a^m)^n$?
A : a^{m-n}
B : a^{m+n}
C : $a^{m/n}$
D : a^{mn}

122 : What is the expanded form of $(a+b)^2$?
A : $a^2 + 2ab + b^2$
B : $a^2 - 2ab + b^2$
C : $a^2 + 2ab - b^2$
D : $-a^2 - 2ab + b^2$

123 : What is the formula for $(a-b)^2$?
A : $a^2 - 2ab + b^2$
B : $a^2 + 2ab + b^2$
C : $a^2 - 2ab - b^2$
D : $-a^2 - 2ab - b^2$

124 : Which is equal to $(a+b)^2 - (a-b)^2$?
A : 2ab
B : 3ab
C : 4ab
D : 5ab

125 : What is the value of a x a^2 x a^3 x a^4 ?
A : a^7
B : a^8
C : a^9
D : a^{10}

126 : What is the value of $(a^5)^7$?
A : a^{35}
B : $a1^2$
C : a^21
D : a^{22}

127 : What is the value of 625°?
A : 0
B : 1
C : 525
D : 25

128 : What is the value of $1 / a^{-5}$?
A : a^5
B : a^{-5}
C : $5a$
D : $-5a$

129 : What is the value of $5x^4 / 5x^3$?
A : $5x$
B : $5x^2$
C : x
D : $5x^{4/3}$

130 : What is the subtracted value of $3x - 4x^2 + 2y^2$ from $4y^2 - 2x + 8x^2$?
A : $2y^2 - 5x + 12x^2$
B : $2y^2 + 5x - 12x^2$
C : $2y^2 - 5x - 12x^2$
D : $-2y^2 - 5x + 12x^2$

131 : What is the value of adding $(5x+2y)$, $(4x - 7z)$ and $(15z - 3y)$?
A : $9x - y + 8z$
B : $x - 9y + 8z$
C : $x + 9y + 8z$
D : $9x + y - 8z$

132 : What is the value of $12x^3y^2 / 4x^2y$?
A : $8xy$
B : $16xy$
C : $3xy$
D : $-3xy$

133 : What is the value of x, if $3 (2x - 4) = -4x + 28$?
A : 4
B : 8
C : 6
D : 12

134 : What is the value of x if $(x + 2) / 2 = 19$?
A : 38
B : 33
C : 35
D : 36

135 : What is the value of x if $11x+4=37$?
A : 2
B : 3
C : 4
D : 5

136 : What is the value of $1/a^m$?
A : a^m
B : a-m
C : $\sqrt{a^m}$
D : a1

137 : What is the value of am/n?
A : am-n
B : am+n
C : $1 / a^m$
D : $\sqrt[n]{a^m}$

138 : Which is the expansion of $a^3 + b^3$?
A : $(a-b) (a^2 + b^2 - ab)$
B : $(a+b) (a^2 + b^2 - ab)$
C : $a^3 + b^3 + 3ab (a+b)$
D : $a^3 - b^3 + 3ab (a-b)$

139 : What is the expansion of $(a+b+c)^2$?
A : $a^2 + b^2 + c^2 + 2 (ab + bc + ca)$
B : $a^2 + b^2 + c^2 - 2ab + 2bc + 2ca$
C : $a^2 + b^2 + c^2 + 2ab - 2bc + 2ca$
D : $a^2 - b^2 - c^2 + 2ab + 2bc + 2ca$

140 : Which is expanded form of $a^3 - b^3$?
A : $(a+b) (a^2 - b^2 - ab)$
B : $(a-b) (a^2 + b^2 + ab)$
C : $(a-b) (a^2 - b^2 - ab)$
D : $(a-b) (a^2 - b^2 + ab)$

141 : What is the value of $(6^3) / ((-3)^3)$?
A : 8
B : -8
C : 27
D : -27

142 : What is the value of $x^2 - y^2$ if $(x+y) = 9$, $(x - y) = 4$?
A : 13
B : 65
C : 36
D : 46

143 : What is the value of 'X' if $x - y = 6$ and $x + y = 8$?
A : 5
B : 6
C : 7
D : 14

144 : What is the value of a^2+b^2 if $a+b=9$ and $ab = 20$?

A : 121

B : -121

C : 41

D : -41

---

145 : What is the value of ab if $(a+b)^2=36$ $(a-b)^2=24$?

A : 6

B : 4

C : 3

D : 2

---

146 : What is the value of $x^3+3y^2x^2$ if $x=3$, $y=2$?

A : 135

B : 81

C : 54

D : 63

---

147 : What are the three consecutive numbers if there sum is 42?

A : 11,12,13

B : 12,13,14

C : 13,14,15

D : 14,15,16

---

148 : Which is elastic material?
A : Nylon
B : Polystyrenes
C : Celluloid
D : Polycarbonates

149 : Which is thermo plastic material?
A : Butyl rubber
B : Nylon
C : Neoprene
D : Vinyl polymers

150 : What is the maximum percentage of stretch of its original length is allowable for elastic materials?
A : 100%
B : 200%
C : 300%
D : 400%

151 : What is the ratio between the change in dimension to its original dimension of the substance?
A : Stress
B : Strain
C : Poisson's ratio
D : Factor of safety

152 : What is the unit of strain?
A : Kg/cm²
B : Newton/metre²
C : Metre
D : No unit

153 : What is the ratio of change in length to original length?
A : Linear strain
B : Lateral strain
C : Volumetric strain
D : Poisson's ratio

154 : What is the ratio between lateral strain and longitudinal strain?
A : Hooks law
B : Young's modulus
C : Bulk modulus
D : Poisson's ratio

155 : Which symbol is used to express change in length?
A : L
B : δl

C : l
D : e

156 : Which one is the ratio of stress?
A : Load and area
B : Load and direction
C : Load and diameter
D : Load and time

157 : Which force acts on rivets?
A : Tensile force
B : Compressive force
C : Shear force
D : Bending force

158 : Which type of stress?
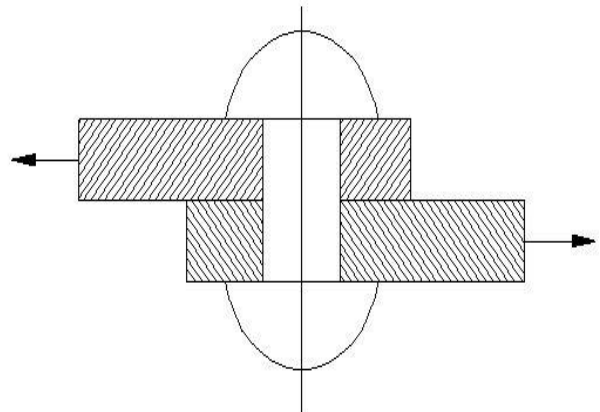
A : Tensile stress
B : Compressive stress
C : Shear stress
D : Torsional stress

159 : What is the formula for bulk modulus?
A : Tensile stress/Tensile strain
B : Compressive stress/Compressive strain
C : Volumetric stress/Volumetric strain
D : Shear stress/Shear strain

160 : Which law states that within elastic limit stress is directly proportional to strain?
A : Newtons law
B : Hooks law
C : Joules law
D : Charles law

161 : What is the name of the point 'C'?
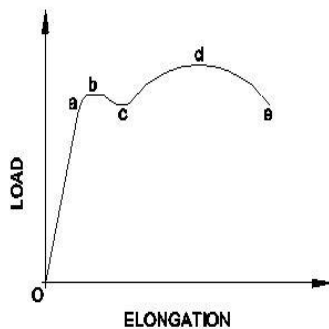
CURVE SHOWING RELATIONSHIP BETWEEN LOAD AND ELONGATION

A : Yield point
B : Elastic limit
C : Ultimate load
D : Fracture

162 : What is the term used for maximum stress attained by a material before rupture?
A : Tensile stress
B : Compressive stress
C : Working stress
D : Ultimate stress

163 : What is the ratio between ultimate stress to working stress?
A : Bulk modulus
B : Young's modulus
C : Factor of safety
D : Modulus of rigidity

164 : What is the ratio of ultimate load to area of original cross section?
A : Factor of safety
B : Yield point
C : Ultimate stress
D : Youngs modulus

165 : What does the point 'b' denotes in the stress-strain graph?
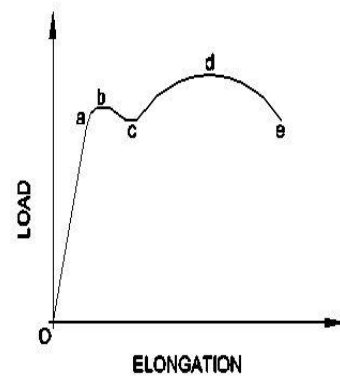
CURVE SHOWING RELATIONSHIP BETWEEN LOAD AND ELONGATION

A : Elastic limit
B : Yield point
C : Limit of proportionality
D : Ultimate load

166 : What is the ratio of shear stress to shear strain?
A : Modulus of elasticity
B : Modulus of rigidity
C : Bulk modulus
D : Yield point

167 : What is the ratio between stress and strain?
A : Yield point
B : Factor of safety
C : Youngs Modulus
D : Poisson's ratio

168 : Which force acts on crank shaft?
A : Shear stress
B : Torsional stress
C : Tensile stress
D : Compressive stress

169 : Which is thermosetting plastic?
A : Vinyl polymers
B : Polystyrenes
C : Celluloid
D : Melamine resins

170 : What force will be required to punch a hole of 10 mm dia in a 1 mm thick plate, if the allowable shear stress is 50N/mm²? ($\pi = 22/7$)
A : 1757 N
B : 1575 N
C : 1571.4 N
D : 1577 N

171 : What is the tensile stress if a square rod of 10 mm side is tested for a tensile load of 1000 kg?

A : 1 kg/mm²
B : 10 kg /mm²
C : 100 kg/mm²
D : 1000 kg/mm²

172 : What is the tensile strain if a force of 3.2 KN is applied to a bar of original length 2800 mm extends the bar by 0.5 mm?

A : 0.0001786
B : 0.0001687
C : 0.0001867
D : 0.0001968

173 : How much strain is developed in an iron rod of 1 metre length gets elongated by 1 cm, if a force of 100 kg is applied at one end?

A : 0.1
B : 0.01
C : 0.001
D : 0.0001

174 : What is the youngs modulus if a wire of 2m long, 0.8 mm2 in cross section increases its length by 1.6 mm on suspension of 8 kg weight from it?

A : 1.25 kg/mm²
B : 12.5 kg /mm²
C : 125 kg/mm²
D : 12500 kg/mm²

175 : What is the safe stress if the ultimate stress of a material is 35 kg/mm² and factor of safety is 5?

A : 0.143
B : 0.7
C : 1.43
D : 7

176 : Which type of stress?
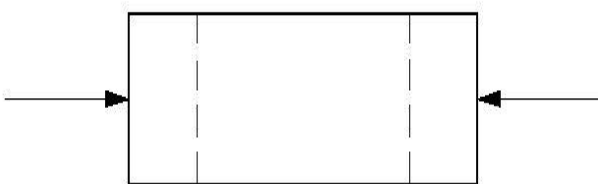
A : Tensile stress
B : Compressive stress

C : Shear stress
D : Torsional stress

177 : What are the various types of heat treatment processes?
A : Annealing, Normalising, Hardening and Tempering
B : Normalising, Heating, Cooling and Painting
C : Hardening, Soaking, Painting and Packing
D : Tempering, Cooling, Packing and Solling

178 : What is the process of heat treatment?
A : The process of heating and cooling to change the structure and properties
B : The process of heating to change the dimensions
C : The process of cooling to measure the dimensions
D : The process of heating and bending as per our requirement

179 : What are the various stages of heat treatment?
A : Heating, Cooling and Quenching
B : Quenching, Cooling and Heating
C : Heating, Soaking and Quenching
D : Soaking, Quenching and Cooling

180 : What is the name of the structure formed, if a steel is heated for about 723°C?
A : Cementide
B : Austenite
C : Martensite
D : Ferrite

181 : Which heat treatment process is done to refine the grain structure of the steel?
A : Annealing
B : Normalising
C : Hardening
D : Tempering

182 : What is the name of heat treatment process done to relieve strain and stress?
A : Normalising
B : Annealing
C : Hardening
D : Tempering

183 : Which process produce equilibrium conditions?
A : Annealing and Hardening
B : Normalising and Tempering
C : Annealing and Normalising
D : Normalising and Tempering

184 : Which process steel is heated in a carbonaceous atmosphere for the penetration of carbon?
A : Case hardening
B : Nitriding
C : Carburising
D : Induction hardening

185 : Which is the suitable nitriding process for all alloyed and unalloyed steels?
A : Silver nitriding
B : Nitriding in salt-bath
C : Nitriding in Quenching tank
D : Gas nitriding

186 : What is the name of the heat treatment process, where the metal is heated and quenched in water or oil?
A : Hardening
B : Normalising and Tempering
C : Annealing
D : Tempering

187 : Which is a kind of surface hardening process?
A : Cementide
B : Ferrite
C : Nitriding
D : Tempering

188 : How much time is allowed normally in soaking zone for a 10mm thick metal piece while hardening?
A : 5 minutes
B : 10 minutes
C : 15 minutes
D : 20 minutes

189 : What is colour of a metal piece when heated to 250°C while doing the tempering process?
A : Blue
B : Brown
C : Purple
D : Pale

190 : What is the purpose of tempering a steel?

A : To reduce the brittleness

B : To remove the ductility

C : To increase the hardness

D : To increase the brittleness

191 : What is discount?
A : Selling price is less than Cost price
B : Selling price is greater than Cost price
C : The reduction given to the selling price of a product
D : Selling price + discount

192 : What is a profit?
A : Selling price - Cost price
B : Cost price - Selling price
C : Selling price + Cost price
D : Cost price + Selling price

193 : What is the term, if an article is purchased?
A : Selling price
B : Cost price
C : Margin price
D : Discount price

194 : What is the expanded form of S.P?
A : Selected Price
B : Special Price
C : Selling Price
D : Super Price

195 : Which is the short form of profit and loss statement?
A : P & L
B : PR & LS
C : PRO & LOS
D : L & P

196 : What is denoted as 'I'?
A : Principal
B : Interest
C : Rate
D : Year

197 : How the 'Principal' is denoted in simple interest calculation?
A : 'P'
B : 'I'
C : 'R'
D : 'n'

198 : What is the formula for the calculation of simple interest?
A :

$$I = \frac{Pnr}{100}$$

B :

$$I = \frac{100}{Pnr}$$

C :

$$I = \frac{P \times r}{n \times 100}$$

D :

$$I = \frac{P \times n}{r \times 100}$$

199 : What is the formula for compound interest, if compounded Annually?
A :

$$A = P\left[1 + \frac{1}{2}\left(\frac{r}{100}\right)\right]^{2n} \text{ and } C.I = A - P$$

B :

$$A = P\left[1 + \frac{1}{4}\left(\frac{r}{100}\right)\right]^{4n} \text{ and } C.I = A - P$$

C :

$$P\left[1 + \frac{r}{100}\right]^{n} \text{ and } C.I = A - P$$

D :

$$A = \frac{Pnr}{100}$$

200 : How the years is denoted in simple interest calculations?

A : P
B : I
C : n
D : r

---

201 : How the profit / gain is expressed?
A : ₹
B : $
C : %
D : *

---

202 : What is the formula to find Loss%?
A :

$$\frac{Loss \times 100}{C.P}$$

B :

$$\frac{C.P}{Loss \times 100}$$

C :

$$\frac{Loss + 100}{S.P}$$

D :

$$\frac{S.P}{Loss + 100}$$

---

203 : What is the cost price (C.P) formula if there is a profit?
A :

$$\left(\frac{100}{100 - Loss\%}\right) \times S.P$$

B :

$$\left(\frac{100}{100 + Profit\%}\right) \times S.P$$

C :

$$\left(\frac{100 + Profit\%}{100}\right) \times C.P$$

D :

$$\left(\frac{100 - Loss\%}{100}\right) \times C.P$$

---

204 : What is the formula to find selling price (S.P) if there is a loss?
A :

$$\left(\frac{100}{100 + Profit\%}\right) \times S.P$$

B :

$$\left(\frac{100 + Profit\%}{100}\right) \times C.P$$

C :

$$\left(\frac{100}{100 - Loss\%}\right) \times S.P$$

D :

$$\left(\frac{100 - Loss\%}{100}\right) \times C.P$$

---

205 : What is the formula to find Profit%?
A :

$$\frac{C.P}{Profit} \times 100$$

B :

$$\frac{Profit}{S.P} \times 100$$

C :

$$\frac{S.P - C.P}{Profit} \times 100$$

D :

$$\frac{Profit}{C.P} \times 100$$

206 : What is the profit amount, if the i - phone cost price is Rs.50000/- and selling price is Rs.70000/-?
A : Rs. 2000/-
B : Rs. 10000/-
C : Rs. 20000/-
D : Rs. 50000/-

207 : What is the selling price, if the profit is 5% for a computer table bought at Rs.1150/- with Rs.50/- as a transport charge?
A : 1160
B : 1620
C : 1060
D : 1260

208 : What is the cost price if the product is sold at ₹ 572 with a profit of ₹ 72?
A : ₹ 500
B : ₹ 1000
C : ₹ 644
D : ₹ 472

209 : What is the profit % if the cost price of 16 bolts is equal to the selling price of 12 bolts?
A : 13.33
B : 23.33
C : 33.33
D : 43.33

210 : What is the selling price if the cost price is Rs.7282/- with a profit of Rs.208?
A : Rs.7074
B : Rs.7698
C : Rs.7290
D : Rs.7490

211 : What is the interest earned, if the principal is Rs.12000/- becomes to an amount of Rs.15600/-?
A : Rs.2600
B : Rs.3600
C : Rs.4600
D : Rs.5600

212 : What is the principal amount deposited, if the maturity proceeds to an amount of Rs.25000/- and interest earned Rs.6000/-?
A : Rs.31000/-
B : Rs.19000/-
C : Rs.20000/-
D : Rs.25000/-

213 : What is the interest earned, if the principal is for Rs.12500/- maturity becomes to a amount of Rs.17500/-?
A : Rs.30000
B : Rs.25000
C : Rs.5000
D : Rs.5500

214 : What is the matured amount for the deposit of Rs.5000/- and the simple interest earned for Rs.500/-?
A : Rs.4500
B : Rs.5500
C : Rs.6000
D : Rs.6500

215 : What is the simple interest for the principal amount of Rs.100000 at 10% per annum for 1 year period?
A : Rs.1000/-
B : Rs.5000/-
C : Rs.50000/-
D : Rs.10000/-

216 : What is the compounded annual interest, for a loan amount of Rs.80000/- at 10% per annum for a period of 2 years?
A : Rs.16800/-
B : Rs.92400/-
C : Rs.96800/-
D : Rs.94800/-

217 : What is the compounded amount, if the principal of Rs.30000/- and interest earned at 7% per annum is Rs.4347?
A : Rs.30347/-
B : Rs.32347/-
C : Rs.33347/-
D : Rs.34347/-

218 : What is the difference between the simple and the compound interest amount at 5% per annum for 2 years on a principal of Rs.20000/-?
A : Rs.5
B : Rs.25
C : Rs.50
D : Rs.55

219 : What is the maturity amount if Rs.20000 is deposited at 5% compound interest per annum for 2 years?

A : Rs.22000

B : Rs.22050

C : Rs.22500

D : Rs.25000

220 : What is the compound interest on a principal of Rs.25000/- after 3 years at the rate of 12% per annum?

A : Rs. 9000

B : Rs.9720

C : Rs.10123.20

D : Rs.10483.20

221 : What is the other term used for reference table?
A : Dictionary
B : Biography
C : Bibliography
D : Information Table

222 : Which hand book referred by machine engineer?
A : Parry's cheorikal
B : CRC
C : Mark standard
D : Oxford Dictionary

223 : What is a hand book?
A : Model book of various works
B : Type of reference work or other collection of instruction
C : Design book of latest works
D : Dictionary of materials

224 : Which standard schedule of rates to be considered for estimation?
A : Standard schedule of rates of the last year
B : Standard schedule of rates of the average of the last 10 years
C : Standard schedule of rates of the average of last 5 years
D : Standard schedule of rates of the current year

225 : What is an over estimate?
A : When an estimate is exceeded to actual estimate
B : When an estimate is fell short of the actual estimate
C : When an estimate perfectly matches the actual estimate
D : No work started as per estimate

226 : What is a under estimate?
A : No work started as per estimate
B : An estimate perfectly matches with actual
C : An estimate is fell short of the actual estimate
D : An estimate is exceeded the actual estimate

227 : What is the term used for the method of calculating various quantities and expenditure on a particular job or process?
A : Estimation
B : Drawing

C : Specification
D : Plan

228 : What is the main factor to be considered while preparing a detailed estimate?
A : Shape of material
B : Brand of the materials
C : Quantity, availability and transportation of materials
D : Location of material

229 : Which authority publishes schedule of rates?
A : Individual
B : Corporate
C : Partnership firm
D : Government department

230 : What is the name of a booklet, the rates of various terms are indicated?
A : Price bank
B : Price bunch
C : Price tag
D : Price catalogue

231 : What is the term, for the details of materials, brand name, grade of quality, rating of current and voltage etc.?
A : Drawing
B : Specification of materials
C : Raw materials
D : Price catalogue

232 : What is the use of engineering drawing?
A : For estimation of material and execution of work
B : For colourful appearance
C : For reducing the cost
D : For increasing the cost

233 : What is the other term of pocket reference in engineering works?
A : Hand tool
B : Hand book
C : Good book
D : New book

234 : Which one is related to estimation of work?
A : Bill of material
B : Packing
C : Information table
D : Hand book

235 : What is a total cost?
A : Raw material cost only
B : Machining cost only
C : Raw materials cost and machining cost
D : Advertisement cost only

236 : Who prepares the cost of estimation?
A : Operator
B : Quality Inspector
C : Estimator
D : Draughts man

237 : Which one is included in machining estimation sheet?
A : Transport cost
B : Advertisement cost
C : Raw material cost
D : Tax

238 : What is the minimum permissible size of aluminium wire used in estimation?
A : 1.5 sq.mm
B : 2.5 sq.mm
C : 5 sq.mm
D : 3.5 sq.mm

239 : What is the minimum permissible area of conductor (U/G cable) for three and half cores cable?
A : 25 sq.mm
B : 50 sq.mm
C : 5 sq.mm
D : 100 sq.mm

240 : Which one is the most reliable estimate?
A : Preliminary estimate
B : Plinth area estimate
C : Cube rate estimate
D : Detailed estimate

241 : Which IE rules are to be verified on completion of wiring on any new installation?
A : IE Rules, 1956
B : IE Rules, 1960

C : IE Rules, 1961
D : IE Rules, 1967

242 : What describes the detailed specification for the item of work?
A : Quality, Quantity, Workmanship, Method of execution
B : Colour
C : Tax, Transport, Overhead expenses
D : Maintenance, Stock, Cost

243 : Which of the impurity in cast iron makes it hard and brittle?
A : Silicon
B : Sulphur
C : Manganese
D : Phosphorus

244 : What cables are used for 132KV lines?
A : High tension
B : Super tension
C : Extra high tension
D : Extra super voltage

245 : Which specification is other than general specification?
A : Brief specification
B : Bulk specification
C : Detailed specification
D : Main specification

246 : What percentage of water absorbed by a good building stone?
A : Less than 10%
B : Less than 20%
C : Less than 8%
D : Less than 5%

247 : What is the relative permittivity of rubber?
A : Between 2 and 3
B : Between 5 and 6
C : Between 8 and 10
D : Between 12 and 14

248 : What is the weight of the iron ball has volume of 250 cc and density 7.5 gm/cc?
A : 1750 gram
B : 1875 gram
C : 1975 gram
D : 1785 gram

249 : What is the weight of a rectangular block of a cost iron of 250cm X 20cm X 8cm (density of cast iron is 7.8 gm/cm³)?
A : 312 kg
B : 372 kg
C : 410 kg
D : 525 kg

250 : What is the total estimation cost for making the component of 8 drilled hole dia 10 mm and 4 Numbers of M6 taps in the plate, if Rs.8/- per drilled holes and Rs.12 per drill and tap?
A : Rs.102
B : Rs.100
C : Rs.112
D : Rs.110

251 : What is the estimation of milling cost of a rectangular block size 100 X 80 X60 mm, if cost of the milling is Rs.2/sq.cm?
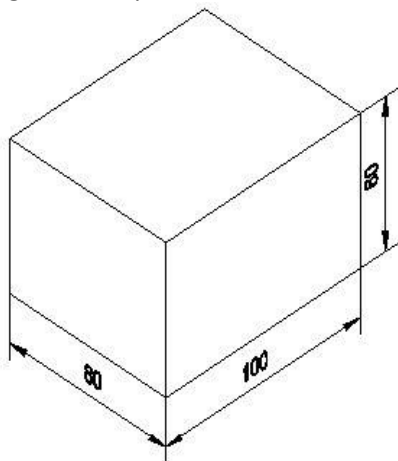
A : Rs.652/-
B : Rs.752/-
C : Rs.572/-
D : Rs.960/-

252 : What is the total wattage in a room if 2 tube lights of 50W rating, 2 fans of 80W rating, 2 numbers of light points of 60W rating, one fan point of 60W rating and one 3 pin socket of 100W rating?
A : 340 W
B : 440 W
C : 540 W
D : 640 W

253 : What is the total labour charges for a particular wiring work completed in 2 days by one electrician and one helper.(Electrician @ ₹800/day and helper @ ₹ 400/day)
A : Rs. 2000

B : Rs. 2400
C : Rs. 3000
D : Rs. 1400

254 : What is the total cost of painting of a class room including ceiling, if the size of length is 6m, breadth is 5m and height is 4m. (Painting + labour cost Rs.150/- per sq.m)
A : Rs.15000/-
B : Rs.16700/-
C : Rs.17700/-
D : Rs.18700/-

255 : What is the total cost to assemble 10 personal computer systems, spares cost as given for one system: 1 TB hard disc Rs.4500/-, Intel i3 mother board Rs.7000/-, SMPS Rs.2500/-, monitor Rs.6000/-, keyboard Rs.1000/-, other material cost (Switches, USB, Cables etc.,) Rs.6500/-?
A : Rs.275000/-
B : Rs.250000/-
C : Rs.225000/-
D : Rs.265000/-

256 : What is the total construction cost of a house construction area of 3000 sq.ft. (cost of construction Rs.2000/- per sq.ft including material and labour)?
A : Rs.30,000,000
**B** : Rs.60,00,000
C : Rs.6,00,000
D : Rs.6,000,000

257 : What is the total cost of Air-conditioners installed in a college, 40 class room-each 1 Air-conditioner, Computer lab 5 Air- conditioners and conference hall 5 Air-conditioners (Cost of one air conditioner Rs.30000/- including installation)?
A : Rs.10 lakhs
B : Rs. 20 lakhs
C : Rs. 12 lakhs
D : Rs. 15 lakhs

258 : What is the total estimation cost for mandrel, if density is 7.8 gm/cm² and material cost is Rs.240 kg?
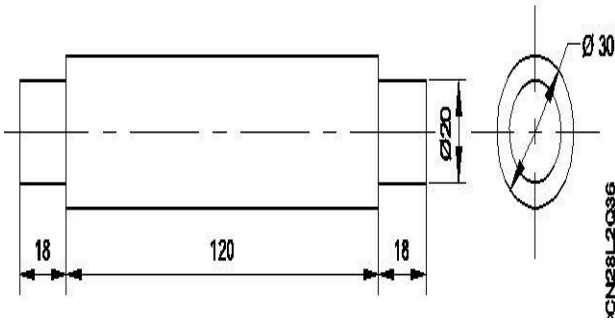
A : 0.65 kg
B : 0.90 kg
C : 0.70 kg
D : 0.75 kg

259 : What is the estimation of labour charge for making inside square of size 30 X 30 mm, if making charge Rs.500/10cm²?
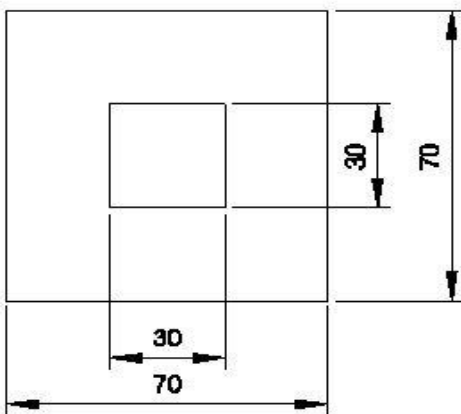
A : Rs.500/-
B : Rs.450/-
C : Rs.350/-
D : Rs.400/-

ANSWERS :

1:A; 2:B; 3:C; 4:A; 5:D; 6:A; 7:B; 8:B; 9:D; 10:B; 11:C; 12:C; 13:B; 14:B; 15:C; 16:D; 17:C; 18:A; 19:C; 20:C; 21:A; 22:B; 23:D; 24:B; 25:A; 26:A; 27:C; 28:C; 29:B; 30:A; 31:C; 32:A; 33:D; 34:A; 35:C; 36:A; 37:C; 38:B; 39:B; 40:C; 41:D; 42:B; 43:D; 44:B; 45:B; 46:A; 47:C; 48:C; 49:B; 50:A; 51:C; 52:C; 53:C; 54:A; 55:C; 56:B; 57:A; 58:B; 59:C; 60:B; 61:B; 62:A; 63:A; 64:A; 65:B; 66:C; 67:D; 68:B; 69:C; 70:A; 71:B; 72:D; 73:C; 74:A; 75:A; 76:D; 77:A; 78:C; 79:D; 80:C; 81:A; 82:B; 83:D; 84:B; 85:A; 86:D; 87:B; 88:D; 89:A; 90:B; 91:C; 92:B; 93:B; 94:A; 95:A; 96:B; 97:B; 98:A; 99:A; 100:C;

101:B; 102:C; 103:B; 104:B; 105:B; 106:C; 107:A; 108:B; 109:C; 110:D; 111:D; 112:C; 113:A; 114:B; 115:B; 116:C; 117:A; 118:B; 119:B; 120:B; 121:D; 122:A; 123:A; 124:C; 125:D; 126:A; 127:B; 128:A; 129:C; 130:A; 131:A; 132:C; 133:A; 134:D; 135:B; 136:B; 137:D; 138:B; 139:A; 140:B; 141:B; 142:C; 143:C; 144:C; 145:C; 146:A; 147:C; 148:A; 149:D; 150:C; 151:B; 152:D; 153:A; 154:D; 155:B; 156:A; 157:C; 158:C; 159:C; 160:B; 161:A; 162:D; 163:C; 164:C; 165:A; 166:B; 167:C; 168:B; 169:D; 170:C; 171:B; 172:A; 173:B; 174:D; 175:D; 176:B; 177:A; 178:A; 179:C; 180:B; 181:B; 182:B; 183:C; 184:C; 185:B; 186:A; 187:C; 188:A; 189:B; 190:A; 191:C; 192:A; 193:B; 194:C; 195:A; 196:B; 197:A; 198:A; 199:C; 200:C; 201:C; 202:A; 203:B; 204:D; 205:D; 206:C; 207:D; 208:A; 209:C; 210:D; 211:B; 212:B; 213:C; 214:B; 215:D; 216:A; 217:D; 218:C; 219:B; 220:C; 221:D; 222:C; 223:B; 224:D; 225:A; 226:C; 227:A; 228:C; 229:D; 230:D; 231:B; 232:A; 233:B; 234:A; 235:C; 236:C; 237:C; 238:A; 239:B; 240:D; 241:A; 242:A; 243:B; 244:D; 245:C; 246:D; 247:A; 248:B; 249:A; 250:C; 251:B; 252:C; 253:B; 254:C; 255:A; 256:B; 257:D; 258:D; 259:B;