Subject Code : 102 Section Code : -Select- Difficulty: 1

Subject Code	Q Id	Questions	Answer Key
102	2951	Direction : Fill in the blanks with the correct answer selected from the choice given below I heard the sound of goats …….. (A) howling (B) lowing (C) bleating (D) screaming	(C)
102	2952	Direction : Fill in the blanks with the correct answer selected from the choice given below Every human being has to obey a ……. of laws to become a good citizen of his country. (A) team (B) code (C) chain (D) crowd	(B)
102	2953	Direction : Fill in the blanks with the correct answer selected from the choice given below She ……. to God every day. (A) will pray (B) prays (C) will be praying (D) has prayed	(B)
102	2954	Direction : Fill in the blanks with the correct answer selected from the choice given below She is ……. young to marry me. (A) so (B) much (C) very (D) too	(D)
102	2955	Direction : Fill in the blanks with the correct answer selected from the choice given below This is the man ……. wished to see you. (A) whom (B) that (C) who (D) which	(C)
102	2956	Direction : Fill in the blanks with the correct answer selected from the choice given below Joy was not there ……. his brother was. (A) when (B) that (C) while (D) but	(D)
102	2957	Direction : Fill in the blanks with the correct answer selected from the choice given below He is a jack of all trades …….. master of none.	(C)

		(A) while (B) when (C) but (D) and	
102	2958	Direction: Select the correct question tag for the following: You will support me, …….? (A) will you (B) won't you (C) can you (D) would you	(B)
102	2959	Direction: Select the correct question tag for the following: It is a beautiful painting, …….? (A) was it (B) is it (C) isn't it (D) can it	(C)
102	2960	Direction: Select the correct question tag for the following: They find pleasure in amassing wealth, …….? (A) have they (B) do they (C) don't they (D) hadn't they	(C)
102	2961	Direction: Select the correct question tag for the following: He had never worked hard in his lifetime, …….? (A) hadn't he (B) had he (C) did he (D) could he	(B)
102	2962	Direction: Select the correct question tag for the following: He loves music, …….? (A) does he (B) doesn't he (C) did he (D) hasn't he	(B)
102	2963	Direction: Select the correct question tag for the following: Let us not run away, …….? (A) will we (B) shall we (C) can we (D) do we	(B)
102	2964	Direction: Choose the correct form of passive voice for the following: We cannot change the past. (A) The past is not changed by us. (B) The past cannot be changed buy us.	(B)

		(C) The past will not be changed buy us. (D) The past has not been changed buy us.	
102	2965	Direction: Select the correct form of reported speech for the following: The son said to his mother, " I will reach home tomorrow." (A) The son said to his mother that he would reach home the next day. (B) The son said to his mother that he will reach home tomorrow. (C) The son said to his mother that he can reach home the next day. (D) The son said to his mother that he had reached home the next day.	(A)
102	2966	Directions: Fill in the blanks with the correct form of tense selected from the choice given below: Jack ……. since 2014. (A) had stayed here (B) did stay here (C) has been staying here (D) is staying here	(C)
102	2967	Directions: Fill in the blanks with the correct form of tense selected from the choice given below: The picture ……. on the wall. (A) was hung (B) was hanged (C) had hanged (D) is hanged	(A)
102	2968	Directions: Fill in the blanks with the correct form of tense selected from the choice given below: The novelist ……. us the story of a mother's desperate attempts to set right a mistake in the past. (A) has told (B) tells (C) will tell (D) can tell	(B)
102	2969	Directions: Pick out the correct form of active voice for the following: A new political party is being organized by them. (A) They had organized a new political party. (B) They organize a new political party. (C) They will organize a new political party. (D) They are organizing a new political party.	(D)
102	2970	Directions: Pick out the correct form of active voice for the following: The work has been accomplished by them. (A) They accomplished the work. (B) They had accomplished the work. (C) They have accomplished the work. (D) They are accomplishing the work.	(C)
102	2971	The system of equations $x+2y+3z=6$, $x+y+z=3$ and $2x+3y+4x=9$ has	(B)

		(A) a unique solution (B) infinitely many solutions (C) no solution (D) three solutions	
102	2972	If the area of a triangle is 4 square units with vertices at $(-2,0)$, $(0,4)$ and $(0,k)$, then the value of k is (A) 2 (B) 6 (C) 8 (D) 4	(C)
102	2973	If a, b and c are in AP, then the determinant $\begin{vmatrix} x+2 & x+3 & x+2a \\ x+3 & x+4 & x+2b \\ x+4 & x+5 & x+2c \end{vmatrix}$ is (A) 0 (B) 1 (C) x (D) $2x$	(A)
102	2974	A parabola is open leftward with it's vertex at $(2,0)$ and the distance between its lattice rectum and directeristic 2. Its equation is (A) $y^2 = -4(x-2)$ (B) $y^2 = 4(x-2)$ (C) $x^2 = 4(y-2)$ (D) $x^2 = -4(x+2)$	(A)
102	2975	The equation of the ellipse whose foci are $(1,0)$ and $(-1,0)$ and eccentricity 1/2 is given by (A) $\frac{x^2}{5}+\frac{y^2}{6}=1$ (B) $\frac{x^2}{4}+\frac{y^2}{3}=1$ (C) $\frac{x^2}{25}+\frac{y^2}{36}=1$	(B)

		(D) $\frac{2x^2}{5}+\frac{y^2}{3}=1$	
102	2976	The parametric form of the equation of an ellipse is (A) $x=\frac{a(1+t^2)}{1-t^2},\ y=\frac{2bt}{1+t^2}$ (B) $x=\frac{a(1-t^2)}{1+t^2},\ y=\frac{2bt}{1+t^2}$ (C) $x=a\sin\theta,\ y=b\cos\theta$ (D) $x=\frac{a(1-t^2)}{1+t^2},\ y=\frac{bt}{1-t^2}$	(B)
102	2977	The equation of the set of points P such that $PA^2+PB^2=2k^2$, where A and B are the points $(3,4,5)$ and $(-1,3,-7)$ respectively, is given by (A) $x^2+2y^2+2z^2-4x-14y+4z=2k^2-109$ (B) $2x^2+2y^2-2z^2+4x+14y-4z=2k^2+98$ (C) $x^2+y^2+z^2-2x-16y+8z=4k^2-125$ (D) $2x^2+2y^2+2z^2-4x-14y+4z=2k^2-109$	(D)
102	2978	The solution of $x\ \tan^{-1}(2x)+\tan^{-1}(3x)=\pi/4$ is (A) 1 (B) 1/6 (C) 0 (D) −1/2	(B)
102	2979	The value of $\sin 15^\circ$ is (A) $\frac{\sqrt{3}+1}{2\sqrt{2}}$ (B) $\frac{\sqrt{3}-1}{\sqrt{2}}$	(C)

		(C) $\frac{\sqrt{3}-1}{2\sqrt{2}}$ (D) $\frac{\sqrt{3}-1}{3\sqrt{2}}$	
102	2980	The series $1+\frac{1}{2!}+\frac{1}{3!}+\ldots$ is (A) divergent (B) convergent (C) conditionally convergent (D) monotonically convergent	(B)
102	2981	The value of $\sin^{-1}\left(\sin\frac{3\pi}{5}\right)$ is (A) $\frac{9\pi}{5}$ (B) $\frac{8\pi}{5}$ (C) $\frac{2\pi}{5}$ (D) $\frac{9\pi}{10}$	(C)
102	2982	For what values of λ and μ, the simultaneous equations $x+y+z=6$, $x+2y+3z=10$ and $x+2y+\lambda z=\mu$ have no solution? (A) $\lambda\neq 3,\ \mu=10$ (B) $\lambda=3,\ \mu\neq 10$ (C) $\lambda=3,\ \mu=10$ (D) $\lambda\neq 3$, μ can take any value in $\mathbb{R}$	(B)
102	2983	The series $\sum\left(\frac{n^2-1}{n^2+1}\right)x^n, x>0$ is (A) divergent if $x\geq 1$ (B)	(D)

		convergent if $x<1$ (C) convergent if $x>1$ and divergent if $x\le 1$ (D) convergent if $x<1$ and divergent if $x\ge 1$	
102	2984	The positive term series $\sum\frac{1}{n^p}$ is convergent if and only if (A) $p<1$ (B) $p\le 1$ (C) $p\ge 2$ (D) $p>1$	(D)
102	2985	The relation $\mathbb{R}$ in the set $A=\{1,2,3,4,5\}$ given by $\mathbb{R}=\{(a,b):\lvert a-b\rvert \text{is even}\}$ is (A) a symmetric relation (B) a transitive relation (C) an equivalence relation (D) a transitive relation but not reflexive	(C)
102	2986	If $f:\mathbb{R}\to\mathbb{R}$ is given by $f(x)=\left(3-x^3\right)^{1/3}$, then $(fof)(x)$ (A) $x^{1/3}$ (B) x^3 (C) x (D) $3-x^3$	(C)
102	2987	The function $\sin x+\cos x$ is (A) odd (B) even (C) both odd and even (D) neither even nor odd	(D)
102	2988		(C)

		If $z = e^{xy^2}$, $x = t\cos t$, $y = t\sin t$, then $\frac{dz}{dt}$ at $t = \pi/2$ is (A) $\frac{\pi^2}{12}$ (B) (C) (D)	
102	2989	The function $\lvert x\rvert + \lvert y\rvert$ is (A) differentiable (B) not continuous at $(0,0)$ (C) continuous everywhere but not differentiable at $(0,0)$ (D) neither continuous nor differentiable at $(0,0)$	(C)
102	2990	If α and β are two different complex numbers with $\lvert\beta\rvert = 1$, then $\left\lvert\frac{\beta-\alpha}{1-\bar{\alpha}\beta}\right\rvert$ is (A) 1/2 (B) 2 (C) 1 (D) −1	(C)
102	2991	P represents the variable complex number z. Then the locus of P if $\mathrm{Re}\left[\frac{z+1}{z+i}\right]$ is (A) parabola (B) circle (C) straight line (D) ellipse	(C)
102	2992	If z_1 and z_2 are any two complex numbers, then $\mathrm{Re}(z_1 z_2)$ is (A) $\mathrm{Re}(z_1)\mathrm{Re}(z_2) + \mathrm{Im}(z_1)\mathrm{Im}(z_2)$ (B) $\mathrm{Re}(z_1)\mathrm{Re}(z_2) - \mathrm{Im}(z_1)\mathrm{Im}(z_2)$	(B)

		(C) $\mathrm{Re}(z_1)\,\mathrm{Im}(z_2)+\mathrm{Re}(z_2)\,\mathrm{Im}(z_1)$ (D) $\mathrm{Re}(z_1)\,\mathrm{Im}(z_1)-\mathrm{Re}(z_2)\,\mathrm{Im}(z_2)$	
102	2993	The number of non-zero integral solutions of the equation $\lvert 1-i\rvert^x = 2^x$ is (A) 1 (B) many (C) 0 (D) infinite	(C)
102	2994	If $\left(\frac{1+i}{1-i}\right)^m = 1$, then the least integral value of m is (A) 4 (B) 2 (C) 5 (D) -5	(A)
102	2995	The interval in which the function $F(x) = 4x^3 - 6x^2 - 72x + 30$ is strictly decreasing is (A) $(-\infty, 3)$ (B) $(-\infty, -2) \cup (3, \infty)$ (C) $(-2, 3)$ (D) $(3, \infty)$	(C)
102	2996	The point at which the tangent to the curve $y = \sqrt{4x-3} - 1$ has its slope 2/3 is (A) $(2, 3)$ (B) $(3, 2)$ (C) $(1, 3)$ (D) $(3, 1)$	(B)

102	2997	The point on the curve $x^2 = 2y$ which is nearest to the point $(0,5)$ is (A) $(2\sqrt{2}, 4)$ (B) $(2\sqrt{2}, 0)$ (C) $(0,0)$ (D) $(2,2)$	(A)
102	2998	The function $f(x) = \|1 - x + \|x\|\|, x \in \mathbb{R}$ is (A) not well defined (B) a discontinuous function (C) a continuous function (D) a discrete function	(C)
102	2999	If $f(x) = \cos^{-1} x$, then the domain of $f'(x)$ is (A) $(-\infty, \infty)$ (B) $(-\infty, -1) \cup (1, \infty)$ (C) $(-1, 1)$ (D) $\mathbb{R} - \{0\}$	(C)
102	3000	If $x^{2/3} + y^{2/3} = a^{2/3}$, then dy/dx is (A) $\sqrt{x/y}$ (B) $-\sqrt[3]{y/x}$ (C) $-\sqrt{y/x}$ (D) y^2/x	(B)
102	3001	The curves $x = y^2$ and $xy = k$ cut at right angles if (A) $k = 1$	(D)

		(B) $k^2 = 1$ (C) $k^3 = 1$ (D) $8k^2 = 1$	
102	3002	If $\left[\vec{a}\times\vec{b}, \vec{b}\times\vec{c}, \vec{c}\times\vec{a}\right] = 64$, then $\left[\vec{a}, \vec{b}, \vec{c}\right]$ is (A) 32 (B) 8 (C) 128 (D) 4	(B)
102	3003	gof is one-one implies that (A) g is one-one (B) f is one-one. (C) f is onto. (D) g is onto.	(B)
102	3004	The area of parallelogram having diagonals $3\vec{i} + \vec{j} + 2\vec{k}$ and $\vec{i} - 3\vec{j} + 4\vec{k}$ is (A) 8 (B) 4 (C) $5\sqrt{3}$ (D) $10\sqrt{3}$	(D)
102	3005	If $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, the value of k so that $A^2 = kA - 2I$ is (A) 2 (B) 3 (C) 1	(C)

		(D) -1	
102	3006	If A is a square matrix of order 4, then $\|\text{adj } A\|$ is (A) $\|A\|^2$ (B) $\|A\|^3$ (C) $\|A\|^4$ (D) $\|A\|$	(B)
102	3007	If A and B are symmetric matrices of same order, then $AB = BA$ is a (A) symmetric matrix (B) skew symmetric matrix (C) zero matrix (D) identity matrix	(B)
102	3008	If $A = \begin{bmatrix} a & b \\ c & -a \end{bmatrix}$ is such that $A^2 = I$, then (A) $1+a^2+bc = 0$ (B) $1-a^2+bc = 0$ (C) $1-a^2-bc = 0$ (D) $1+bc = a^2$	(C)
102	3009	If $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$, then x is equal to (A) 6 (B) ± 6 (C) -6 (D) 0	(B)
102	3010		(B)

		If $A=\begin{bmatrix}0 & 0\\ 0 & 3\end{bmatrix}$, then A^{12} is (A) $\begin{bmatrix}0 & 0\\ 0 & 36\end{bmatrix}$ (B) $\begin{bmatrix}0 & 0\\ 0 & 3^{12}\end{bmatrix}$ (C) $\begin{bmatrix}0 & 0\\ 0 & 0\end{bmatrix}$ (D) $\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$	
102	3011	If $A=\begin{bmatrix}3 & 1\\ 5 & 2\end{bmatrix}$, then A^{-1} is (A) $\begin{bmatrix}-2 & 1\\ 5 & -3\end{bmatrix}$ (B) $\begin{bmatrix}3 & -1\\ -5 & -2\end{bmatrix}$ (C) $\begin{bmatrix}2 & -1\\ -5 & 3\end{bmatrix}$ (D) $\begin{bmatrix}-3 & 1\\ 5 & -2\end{bmatrix}$	(C)
102	3012	If $\lvert\vec{a}+\vec{b}\rvert=60$, $\lvert\vec{a}-\vec{b}\rvert=40$ and $\lvert\vec{b}\rvert=46$, then $\lvert\vec{a}\rvert=$ (A) 24 (B) 22 (C) 36 (D) 28	(B)
102	3013	If $\vec{a}\times(\vec{b}\times\vec{c})=(\vec{a}\times\vec{b})\times\vec{c}$ for non-coplanar vectors $\vec{a}$, $\vec{b}$, $\vec{c}$, then (A) $\vec{a}+\vec{b}+\vec{c}=0$ (B) $\vec{a}$ parallel to $\vec{b}$ (C) $\vec{b}$ parallel to $\vec{c}$	(D)

		(D) $\vec{c}$ parallel to $\vec{a}$	
102	3014	If $\vec{a}$ is a nonzero vector of magnitude a and λ a non zero scalar, then $\lambda\vec{a}$ is a unit vector if (A) $\lambda = 1$ (B) $\lambda = -1$ (C) $a = \lvert\lambda\rvert$ (D) $a = \frac{1}{\lvert\lambda\rvert}$	(D)
102	3015	If $(p-5) + i\,(q+4)$ is the complex conjugate of $(2p+3) + i\,(3q-2)$, then (q, p) are (A) (–1/2, 8) (B) (–1/2, 8) (C) (1/2, –8) (D) (1/2, 8)	(A)
102	3016	If $-i+3$ is a root of $x^2 - 6x + k = 0$, then the value of k is (A) 5 (B) $\sqrt{5}$ (C) $\sqrt{10}$ (D) 10	(D)
102	3017	The quadratic equation whose roots are $\pm i\sqrt{7}$ is (A) $x^2 + 7 = 0$ (B) $x^2 - 7 = 0$ (C) $x^2 + x + 7 = 0$ (D) $x^2 - x + 7 = 0$	(A)
102	3018	The value of $\int \sqrt{\sin 2x}\cos 2x dx$ is	(A)

		(A) $\frac{1}{3}[\sin 2x]^{3/2}+c$ (B) $\left[\frac{\sin 2x}{2}\right]^{3}+c$ (C) $\log\ ((x+1)(x+2))+c$ (D) $\frac{3}{2}[\sin 2x]^{2/3}+c$	
102	3019	$\int \frac{dx}{(x+1)(x+2)} =$ (A) $\log\left(\frac{x+1}{x+2}\right)+c$ (B) $\log\left(\frac{x+2}{x+1}\right)+c$ (C) $\log\ ((x+1)(x+2))+c$ (D) $\log\ (x+1)+c$	(A)
102	3020	$y = cx - c^2$ is the general solution of the differential equation (A) $\left(\frac{dy}{dx}\right)^2 - x\frac{dy}{dx} + y = 0$ (B) $\frac{d^2y}{dx^2} = 0$ (C) $\frac{dy}{dx} = c$ (D) $\left(\frac{dy}{dx}\right)^2 + x\frac{dy}{dx} + y = 0$	(A)
102	3021	If the resultant of two forces *P* and *Q* acting at an angle θ makes an angle α with *P*, then (A) tan α = P sin θ / (Q – P cos θ) (B) tan α = Q sin θ / (P + Q cos θ) (C) tan α = P sin θ / (P + Q tan θ) (D) tan α = Q sin θ / (P - Q sin θ)	(B)
102	3022	A number of forces acting at a point will be in equilibrium if (A) their total sum is zero (B) two resolved parts in two directions at right angles are equal (C) sum of resolved parts in any two perpendicular directions are both zero	(C)

		(D) all of them are inclined equally	
102	3023	According to principle of moments (A) if a system of coplanar forces is in equilibrium, then their algebraic sum is zero (B) if a system of coplanar forces is in equilibrium, then the algebraic sum of their moments about any point in their plane is zero (C) the algebraic sum of the moments of any two forces about any point is equal to moment of their resultant about the same point (D) positive and negative couples can be balanced	(B)
102	3024	According to law of triangle of forces (A) three forces acting at a point will be in equilibrium (B) three forces acting at a point can be represented by a triangle, each side being proportional to force (C) if three forces acting upon a particle are represented in magnitude and direction by the sides of a triangle, taken in order they will be in equilibrium (D) if three forces acting at a point are in equilibrium, each force is proportional to the sine of the angle between the other two.	(C)
102	3025	A trolley wire weighs 12 N per metre length. The ends of the wire are attached to two poles 20 m apart. If the horizontal tension is 15 kN, find the dip in the middle of the span. (A) 2.5 cm (B) 3 cm (C) 4 cm (D) 5 cm	(C)
102	3026	The moment of inertia of a thin ring, external diameter D, internal diameter d, about an axis perpendicular to the plane of the ring is (A) $(\pi/64)(D^4 + d^4)$ (B) $(\pi/64)(D^4 - d^4)$ (C) $(\pi/32)(D^4 + d^4)$ (D) $(\pi/32)(D^4 - d^4)$	(D)
102	3027	The resultant of the following three couples, 20 N force, 0.5 m arm, positive sense; 30 N force, 1 m arm, negative sense; 40 N force, 0.25 m arm, positive sense; having an arm of 0.5 m will be (A) 20 N, negative sense (B) 20 N, positive sense (C) 10 N, positive sense (D) 10 N, negative sense	(A)
102	3028	Moment of inertia of an elliptical area having major and minor diameters as *x* and *y* about the major axis is (A) πxy^3 (B) $\pi yx^3/4$ (C) $\pi x^2y^3/4$ (D) $\pi x^2y^2/3$	(A)
102	3029	Angle of friction is the (A) angle between the normal reaction and the resultant of normal reaction and the limiting force of friction	(A)

		(B) ratio of limiting force of friction and normal reaction (C) the ratio of the minimum force to the frictional force acting when the body is in motion (D) ratio of static and dynamic friction	
102	3030	Least force required to draw a body up the inclined plane is W.sin(plane inclination + friction angle) applied in the direction (A) along the plane (B) horizontally (C) vertically (D) at an angle equal to the angle of friction to the inclined plane	(D)
102	3031	Two bodies of 100 N and 400 N are resting on two inclined planes α and β towards each other and the bodies are joined together by a string passing over a pulley connected at the top of inclined planes. The coefficient of friction of two bodies with their inclined planes are μ1 and μ2 respectively. Tension in string will be (A) 100 N (B) 300 N (C) 400 N (D) 500 N	(C)
102	3032	A semi circular disc rests on a horizontal surface with its top flat surface horizontal and circular portion touching down. The coefficient of friction between semi circular disc and horizontal surface is μ. This disc is to be pulled by a horizontal force applied at one edge and it always remains horizontal. When the disc is about to start moving, its top horizontal force will (A) remain horizontal (B) slant up towards direction of pull (C) slant down towards direction of pull (D) unpredictable	(C)
102	3033	The centre of gravity of an isosceles triangle with base ‘a’ and other side ‘b’ lies at following distance from the base (A) $\sqrt{(4a^2–b^2)}/6$ (B) $\sqrt{(a^2–b^2)}/6$ (C) $\sqrt{(2a^2–b^2)}/6$ (D) $\sqrt{(4a^2–b^2)}/3$	(A)
102	3034	The moment of inertia of hollow circular section about a central axis perpendicular to section as compared to its moment of inertia about horizontal axis is (A) same (B) double (C) half (D) four times	(B)
102	3035	In actual machines (A) mechanical advantage is greater than velocity ratio (B) mechanical advantage is equal to velocity ratio (C) mechanical advantage is less than velocity ratio (D) mechanical advantage is unity	(C)

102	3036	The velocity ratio in case of an inclined plane inclined at angle θ to horizontal and weight being pulled up the inclined plane by vertical effort is (A) sin θ (B) 1/sin θ (C) 1/cos θ (D) tan θ	(A)
102	3037	The value of acceleration due to gravity at poles as compared to equator is (A) greater (B) lesser (C) same (D) unpredictable	(A)
102	3038	A body of mass m moving with a constant velocity v hits another body of the same mass moving with the same velocity v but in opposite direction and sticks to it, then the velocity of the compound body after collision is (A) zero (B) v/2 (C) 4v (D) 2v	(A)
102	3039	A ball is dropped vertically downwards from the top of a building and another one is thrown horizontally. Which will strike ground first? (A) one dropped vertically (B) one thrown horizontally (C) both will strike simultaneously (D) it will depend on their mass	(C)
102	3040	A boatman rowing his boat at normal speed takes 12 minutes to cover 2 kilometres downstream, while rowing upstream at the same speed he takes 20 minutes to cover the same distance. The normal speed of the boat is (A) 2 km/hr (B) 4 km/hr (C) 6 km/hr (D) 8 km/hr	(D)
102	3041	A stone is whirled in a vertical circle. The tension in the string is greatest when the stone is (A) in the lowest position (B) in the highest position (C) in the position when the string is horizontal (D) tension is equal in all positions	(A)
102	3042	The first law of motion provides the definition of (A) momentum (B) force (C) acceleration (D) energy	(B)
102	3043	A satellite is kept on moving in its orbit around the earth due to	(B)

		(A) centrifugal force (B) centripetal force (C) gravitational force (D) resultant forces acting on satellite	
102	3044	What will happen to the time period of a simple pendulum bob when it is made to oscillate in water? (A) time period will remain same (B) time period will decrease (C) time period will increase (D) unpredictable	(C)
102	3045	Which of the following pairs of physical quantities have identical dimension? (A) momentum and impulse (B) work and energy (C) torque and energy (D) all of the above	(D)
102	3046	Moment of inertia of a rectangular lamina of mass M, length l and breadth b about an axis perpendicular to its plane and passing through its centre of gravity is given by (A) $M (l^2 + b^2)/12$ (B) $M (l^3 + b^3)/12$ (C) $M (l^2 + b^2)/4$ (D) $M (l^2 + b^2)/2$	(A)
102	3047	A thief stole a box full of jewellery of W kg and while carrying it on his head jumped down from third storey of building. Before he reached the ground, he experienced a load of (A) zero (B) infinite (C) less than W (D) greater than W	(A)
102	3048	The escape velocity of a body on earth (A) increases with the increase of its mass (B) decreases with the increase of its mass (C) remains unchanged with the variation of mass (D) varies as the square root of change in mass	(C)
102	3049	The amplitude of a vibrating body situated in a resisting medium (A) decreases exponentially with time (B) increases exponentially with time (C) remains constant with time (D) decreases linearly with time	(A)
102	3050	A tunnel is dug through the earth from one end to the opposite end along a diameter and a particle is dropped at one end of the tunnel. The particle will	(B)

		(A) come out of the other end (B) execute simple harmonic motion about the centre of the earth (C) immediately come to rest at the centre (D) stay at the point where it is dropped	
102	3051	A boy is swinging on a swing. If another boy sits along with him without disturbing his motion, then the time period of swing will be (A) increase (B) decrease (C) be doubled (D) remain the same	(D)
102	3052	Time of flight of a projectile fired with velocity u at angle of α with horizontal on an upward inclined plane of β with horizontal is equal to (A) 2u sin (α-β)/g cos β (B) $2u^2$ sin (α-β).cos α/g $\cos^2$ β (C) 2u sin (α+β)/g cos β (D) $2u^2$ sin (α+β).cos α/g $\cos^2$ β	(A)
102	3053	If two equal forces of magnitude P act at an angle θ, their resultant will be (A) P cos θ/2 (B) 2P sin θ/2 (C) 2P tan θ/2 (D) 2P cos θ/2	(D)
102	3054	For perfectly elastic bodies, the value of the coefficient of restitution is (A) zero (B) 0.5 (C) 1 (D) between 0 and 1	(C)
102	3055	A motorbike starts from rest and accelerates at a rate of 4 m/s^2 for 10 seconds and then decelerates at 8 m/s^2 until it stops. The total distance covered is (A) 100 m (B) 200 m (C) 300 m (D) 500 m	(C)
102	3056	The shaft of a motor starts from rest and attains full speed of 1800 rpm in 10 seconds. The shaft has an angular acceleration (rad/s2) of (A) 3π (B) 6π (C) 2π (D) 18π	(B)
102	3057	A body is moving with a constant speed of 10 m/s in a circle of radius 10 m, then its angular acceleration in rad/s^2 will be	(A)

		(A) zero (B) 0.1 (C) 1 (D) 10	
102	3058	The CG of a right circular solid cone of height ' h' lies at the following distance from the base (A) h/2 (B) h/3 (C) h/6 (D) h/4	(D)
102	3059	A particle moves along a straight line such that distance x travelled in t seconds is given by $x = t^2 (t-4)$, the acceleration of the particle will be given by the equation (A) $3t^2 - 2t$ (B) $3t^2 + 2t$ (C) $6t - 8$ (D) $6t - 4$	(C)
102	3060	If a particle moves in a circle of radius r with a velocity v, then its acceleration towards its centre is equal to (A) v x r (B) v/r (C) v^2 x r (D) v^2/r	(D)
102	3061	When a line is parallel to both HP and VP (A) side view give true length (B) only top view give true length (C) only front view give true length (D) both front and top views give true length.	(D)
102	3062	If the front view of a line crosses XY line, which statement given below is true? (A) The line crosses HP (B) The line crosses VP (C) The line is in II quadrant (D) The line is in IV quadrant	(A)
102	3063	If the distance of the elevation of a point from xy line is same as the distance of its plan from xy line, which statement given below is true? (A) The point is in I quadrant (B) The point is in II quadrant (C) The point is equidistant from both HP and VP (D) The distance of the point from HP is double the distance of the point from VP	(C)
102	3064	A cube is resting on HP on a face and all the three views are geometrically the same. Which statement is true? (A) The cube has one face parallel to VP	(A)

		(B) The cube has one face making 30^0 to VP (C) The cube has one face making 60^0 to VP (D) All the above	
102	3065	To get the true shape as the biggest possible triangle when a cone is cut (A) cutting plane should cut the base (B) cutting plane should pass through the apex (C) cutting plane should be parallel to end generator (D) cutting plane should contain the axis	(D)
102	3066	Central plane in perspective projection is (A) a plane passing through the axis of solid (B) a plane passing through the eye parallel to ground plane (C) a plane passing through the eye perpendicular to ground plane and picture plane (D) a plane passing through the mid point of axis of solid	(C)
102	3067	When height of observer is equal to the height of the cylinder which is standing on its base on ground plane, what is the shape of the perspective view of the top circular face? (A) a line (B) a point (C) an ellipse which is fully visible (D) an ellipse which is partially visible	(A)
102	3068	Isometric view of a sphere of radius “R” is (A) a circle of radius (R/0.816) (B) an ellipse of major axis 2R (C) an ellipse of major axis (2R/0.816) (D) a circle of radius R	(A)
102	3069	An RF with a larger numerator and smaller denominator is preferred when we make the detailed drawing of a (A) a bridge (B) a building (C) a watch (D) a land	(C)
102	3070	The curve satisfying Boyle's Law is a (A) Rectangular hyperbola (B) Parabola (C) cycloid (D) Hyperbola	(A)
102	3071	When measurements are required in THREE units, which type of scale is used (A) Diagonal scale (B) ◆ Plain scale	(A)

		(C) Scale of chords (D) Comparative scale	
102	3072	In a backward reading vernier scale (A) Main scale division > Vernier scale division (B) Main scale division < Vernier scale division (C) Main scale division =Vernier scale division (D) Main scale division always greater by 1.5 times vernier scale division	(B)
102	3073	Name the curve traced by a point moving in a plane such that the difference between its distances from two fixed points in the same plane is always the same (A) Parabola (B) Ellipse (C) Hyperbola (D) Cycloid	(C)
102	3074	For a parabola (A) e = 1 (B) e > 1 (C) e < 1 (D) e can be any value	(A)
102	3075	The linear motion of a point on a line and the rotary motion of the line are uniform, the resulting cure is called (A) Involute (B) Archimedean spiral (C) logarithmic spiral (D) Hypocycloid	(B)
102	3076	In orthographic projection, the projectors are (A) Perpendicular to each other and parallel to the plane (B) Perpendicular to each other and perpendicular to the plane (C) Parallel to each other and perpendicular to the plane (D) Parallel to each other and parallel to the plane	(C)
102	3077	When a line is contained by a plane, then (A) The projection on that plane is will give the true length (B) The projection on the other plane will give the true length (C) The projection on that plane will be in the reference line (D) The projection on the other plane will not be in the reference plane	(A)
102	3078	If a line is inclined to the HP and parallel to the VP, then (A) It will have only the vertical trace (B) It will have only horizontal trace (C) It will have both horizontal and vertical traces (D) It will have no traces	(B)

102	3079	Which one is a regular polyhedron? (A) Square prism (B) Cube (C) Cone (D) Sphere	(B)
102	3080	Which one below is a solid of revolution (A) Cube (B) Prism (C) Pyramid (D) Cylinder	(D)
102	3081	Which of the following position is not possible for a right solid? (A) Axis perpendicular to VP and parallel to HP (B) Axis perpendicular to HP and parallel to VP (C) Axis perpendicular to both HP and VP (D) Axis parallel to both HP and VP	(C)
102	3082	A regular pentagonal prism is first placed in such a way that its axis is perpendicular to the HP and one of its edges on the base is parallel to the VP. In the next position it is tilted such that now the axis makes an acute angle with the HP. The front view for the first and second position will be (A) Pentagon, rectangle (B) Rectangle pentagon (C) Pentagon, pentagon (D) Rectangle, rectangle	(A)
102	3083	When a cone is cut by a plane parallel to a generator, the true shape of the section obtained will be (A) Hyperbola (B) Parabola (C) Ellipse (D) Circle	(B)
102	3084	If a cutting plane is parallel to a face of the tetrahedron, the section produced will be (A) Equilateral triangle (B) Isosceles triangle (C) Rectangle (D) Square	(A)
102	3085	A triangular prism is resting on a rectangular face in the HP is cut by a horizontal plane. Its sectional top view is (A) Equilateral triangle (B) Isosceles triangle (C) Rectangle (D) Square	(C)
102	3086	If a polyhedron is cut by any section plane, the true shape of the section is a closed figure made up of (A) Straight lines	(A)

		(B) Curves (C) Combination of lines and curves (D) Any of these	
102	3087	Isometric drawings fall in to the category of (A) Oblique drawing (B) Axonometric drawing (C) Multiview drawing (D) Perspective drawing	(C)
102	3088	The projectors in isometric view are (A) Converging (B) Diverging (C) Parallel to plane of projection (D) Perpendicular to plane of projection	(D)
102	3089	A square in a regular multiveiw projection appears in isometric view as (A) Box (B) Square (C) Rhombus (D) Parallelogram	(C)
102	3090	A sphere in isometric projection appears as a circle of diameter (A) Equal to the diameter of the sphere (B) 0.816 times the diameter of the sphere (C) Less that 0.816 times the diameter of the sphere (D) Greater that that 0.816 times the diameter of the sphere	(A)
102	3091	Perspective drawings are classified according to the number of these features (A) Station points (B) Picture planes (C) Vanishing points (D) Ground lines	(C)
102	3092	As the distance of an object from the observer increases, its size in the perspective view (A) Remains constant (B) Increases (C) Decreases (D) Any of the above	(C)
102	3093	A circle will appear as a circle in its perspective view when (A) Parallel to the ground plane (B) Parallel to the Centre line (C) Parallel to the picture plane	(C)

		(D) Parallel to the horizon	
102	3094	What type of drawing shows the front in true shape? (A) Oblique (B) Isometric (C) Perspective (D) Multiview	(C)
102	3095	In isometric projection, all the lengths measured parallel to the principal axes of the soild are shortened in the proportion of (A) 0.62 (B) 0.82 (C) 0.75 (D) 0.9	(B)
102	3096	In isometric projection, four centre method is used to construct (A) Circle (B) Square (C) Rectangle (D) Pentagon	(A)
102	3097	If a cutting cuts six edges of a cube, then the true shape obtained will be (A) Square (B) Rectangle (C) Pentagon (D) Hexagon	(D)
102	3098	If a line is inclined to the VP and parallel to the HP, then which of the following statements is always CORRECT? (A) True Length = Plan Length (B) True Length = Elevation Length (C) True Length > Elevation Length (D) VT is above XY	(A)
102	3099	When the flat face of a hemisphere is inclined to the HP and perpendicular to the VP, then the top view will be (A) Ellipse (B) Circle (C) Semi circle (D) None of the above	(A)
102	3100	To obtain a parabolic section while cutting a right circular cone, the cutting plane should be (A) Inclined to the base and cut all the generators (B) Parallel to a generator (C) Perpendicular to the base of the cone (D) None of the above	(B)

102	3101	Which of the following cement is suitable for use in massive concrete structures such as large dams? (A) Ordinary Portland cement (B) Low heat cement (C) Rapid hardening cement (D) Sulphate resisting cement	(B)
102	3102	Type of bond provided in brick masonry for carrying heavy loads is (A) Single Flemish Bond (B) Double Flemish Bond (C) English Bond (D) Zig Zag Bond	(C)
102	3103	A good brick should not absorb more than what percentage of water when soaked? (A) 0.15 (B) 0.2 (C) 0.3 (D) 0.1	(A)
102	3104	The compressive strength of the brick should be (A) Minimum 3.5 kN/m^2 (B) Maximum 3.5 kN/m^2 (C) Minimum 3.5 N/mm^2 (D) Maximum 3.5 N/mm^2	(C)
102	3105	Fine Aggregates should pass through which IS sieve? (A) 2.35 mm (B) 45 μm (C) 4.75 mm (D) 75 μm	(C)
102	3106	What is the ideal water-cement ratio to be used while hand mixing? (A) 0.4-0.5 (B) 0.5-0.6 (C) 0.6-1 (D) 1.6-2	(B)
102	3107	Excess vibration during compacting can lead to (A) Bleeding (B) Segregation (C) High strength (D) Air bubbles	(B)
102	3108	In ……. levelling, the first and last points are at a far distance. (A) Fly	(B)

		(B) Differential (C) Profile (D) Reciprocal	
102	3109	What property does steel impart to a R.C.C. structure? (A) Compression and tension (B) Tension (C) Shear (D) Compression	(A)
102	3110	The processes occurring in open system which permit the transfer of mass to and from the system, are known as (A) flow processes (B) non-flow processes (C) adiabatic processes (D) none of these	(A)
102	3111	A cycle consisting of one constant pressure, one constant volume and two isentropic processes is known as (A) Carnot cycle (B) Stirling cycle (C) Otto cycle (D) Diesel cycle	(D)
102	3112	The compression ratio is the ratio of (A) swept volume to total volume (B) total volume to swept volume (C) swept volume to clearance volume (D) total volume to clearance volume	(D)
102	3113	The temperature at which a pure liquid transforms into vapour at constant pressure is called as (A) vaporisation temperature (B) normal temperature (C) saturation temperature (D) none of the above.	(C)
102	3114	The basis for measuring thermodynamic property of temperature is given by (A) zeroth law of thermodynamics (B) first law of thermodynamics (C) second law of thermodynamics (D) Avogadro’s hypothesis.	(A)
102	3115	Carnot cycle consists of (A) two constant volume and two isentropic processes (B) two isothermal and two isentropic processes (C) two constant pressure and two isentropic processes	(B)

		(D) one constant volume, one constant pressure and two isentropic processes	
102	3116	Impulse turbine requires (A) High head and low discharge (B) High head and high discharge (C) Low head and low discharge (D) Low head and high discharge	(A)
102	3117	A straight conductor 0.30 m long moves at a steady speed of 2.0 meters per second at right angles to a magnetic field of flux density 0.20 T. The emf induced across the conductor is (A) 0.06 V (B) 0.12 V (C) 0.04 V (D) 0.24 V	(B)
102	3118	In electrodynamic instruments, the operating field is produced by (A) Permanent magnet (B) Moving coil (C) Fixed coil (D) All of these	(C)
102	3119	At resonance, the following condition is true (A) Inductive reactance is equal to capacitive reactance (B) Inductive reactance is greater than capacitive reactance (C) Inductive reactance is less than capacitive reactance (D) None of the above	(A)
102	3120	Two circuits having the same ohmic impedance are joined in parallel. The p.f of one (A) 0.6 (B) 1 (C) 0.707 (D) 0.8	(C)
102	3121	The maximum value of the voltage of 230V 50 Hz a.c supply is (A) 230 V (B) 400 V (C) 460 V (D) 322 V	(B)
102	3122	The power consumed in a single phase a.c circuit having a voltage of 230 V, load current of 5A and a lagging p.f of 0.8 will be (A) 92 kW (B) 92 W (C) 920 W (D) 920 kW	(C)

102	3123	Three capacitors of value 10, 20 and 40 μF are connected in parallel across a 200 V source. Find the total charge residing on the capacitors? (A) 4 $\times 10^{-3}$ C (B) 8 $\times 10^{-3}$ C (C) 24 $\times 10^{-3}$ C (D) 14 $\times 10^{-3}$ C	(D)
102	3124	When germanium crystal is doped with phosphorous atoms, it becomes (A) N-type semiconductor (B) P-type semiconductor (C) An insulator (D) Photo-transistor	(A)
102	3125	The number of minority carriers crossing the junction of a diode depends primarily on the (A) Concentration of doping impurities (B) Magnitude of potential barrier (C) Magnitude of the forward –bias voltage (D) Rate of thermal generation of electron-hole pairs	(D)
102	3126	The transistor is said to be in quiescent state when (A) It is unbiased (B) No current flows through it (C) No signal is applied to the input (D) Emitter junction is just biased equal to collector junction	(C)
102	3127	Which of following represent an active transducer? (A) Strain gauge (B) Thermistor (C) LVDT (D) Thermocouple	(D)
102	3128	The sensitivity factor of strain guage is normally of the order of (A) 1 to 1.5 (B) 1.5 to 2.0 (C) 0.5 to 1.0 (D) 5 to 10	(B)
102	3129	Resolution of a transducer depends on (A) Material of the wire (B) Length of wire (C) Diameter of wire (D) Excitation Voltage	(C)
102	3130	Which of the following analog modulation scheme requires the minimum transmitted power and minimum channel band-width?	(C)

		(A) VSB (B) DSB-SC (C) SSB (D) AM	
102	3131	Which of the following is a part of CPU? (A) Printer (B) Keyboard (C) ALU (D) Mouse	(C)
102	3132	Which of following is an example of direct access? (A) Magnetic Disc (B) Floppy Disc (C) Program Tape (D) Plain Disc	(A)
102	3133	The First network is (A) CNNET (B) NSFNET (C) TELNET (D) ARPANET	(D)
102	3134	Computer network which spans a large physical area, connecting several sites of an organization across cities, countries and continents is known as (A) WAN (B) MAN (C) LAN (D) VAN	(A)
102	3135	C was developed at Bell Laboratories in 1972 by (A) Bjarne Stroustrup (B) Dennis Ritchie (C) Richard Stollman (D) Von Neumann	(B)
102	3136	strcpy() is a built in function which belongs to (A) string.h (B) assert.h (C) stdio.h (D) math.h	(A)
102	3137	What is the right way to initialize an array in C ? (A) int num[6] = { 2, 4, 12, 5, 45, 5 } (B) int n{} = { 2, 4, 12, 5, 45, 5 };	(A)

		(C) int n{6} = { 2, 4, 12 }; (D) int n(6) = { 2, 4, 12, 5, 45, 5 };	
102	3138	Iron which contains little or no carbon is called (A) HSS (B) Stainless steel (C) Austenite (D) Ferrite	(D)
102	3139	The least count value of a Micrometer is (A) 1 mm (B) 0.1 mm (C) 0.2 mm (D) 0.01 mm	(D)
102	3140	Alloy of copper and zinc is (A) Bronze (B) Steel (C) Lead (D) Brass	(D)
102	3141	Galvanizing is done with a layer of (A) copper (B) zinc (C) lead (D) cadmium	(B)
102	3142	Holes in castings is made by (A) Riser (B) Runner (C) Sprue (D) Core	(D)
102	3143	Maximum value of probability of any event to occur is (A) 1 (B) 2 (C) 5 (D) 0	(A)
102	3144	Which among the following is not a heat treatment process? (A) Tempering (B) Normalizing (C) Turning (D) Annealing	(C)

102	3145	Organizations will pay …… to the share holders (A) Interest (B) Bonds (C) Shares (D) Dividends	(D)
102	3146	The book in which everyday transactions are recorded is (A) Book keeping (B) Ledger (C) Balance sheet (D) Journal	(D)
102	3147	Sound is measured in the unit (A) Hertz (B) Lux (C) Decibels (D) Frequency	(C)
102	3148	Inventory classification according to its value is (A) VED (B) ABC (C) FSN (D) MNG	(B)
102	3149	Which among the following physical quantity is not a vector? (A) Force (B) Mass (C) Velocity (D) Momentum	(B)
102	3150	Unit of Density is (A) kg/m (B) kg/m^2 (C) kg/m^3 (D) kg m	(C)