Question Paper Preview

Question Paper Name:	Bio Technology 30th April 2019 Shift1
Subject Name:	Bio Technology
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

Mathematics

Number of Questions:	50
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 67809437253 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The adjoint of $A = \begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

2. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

3. $\begin{pmatrix} 3 & 0 & 6 \\ 6 & 3 & 0 \\ 9 & 6 & 3 \end{pmatrix}$

4. $\begin{pmatrix} 3 & 2 & 1 \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$

Question Number : 2 Question Id : 67809437254 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is a square matrix of order 3 then (adj A).A=

Options :

1. A. (adj A)

2. A× (adj A)

3. A- (adj A)

4. A+ (adj A)

Question Number : 3 Question Id : 67809437255 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The inverse of $A=\begin{pmatrix}2 & 3\\ 2 & 5\end{pmatrix}$ is

Options :

1. $\begin{pmatrix}5/4 & -3/4\\ 1/2 & 1/2\end{pmatrix}$

2. $\begin{pmatrix}5/4 & 3/4\\ -1/2 & 1/2\end{pmatrix}$

3. $\begin{pmatrix}5/4 & -5/4\\ -1/2 & 1/2\end{pmatrix}$

4. $\begin{pmatrix}5/4 & -3/4\\ -1/2 & 1/2\end{pmatrix}$

Question Number : 4 Question Id : 67809437256 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{pmatrix}3 & 2 & x\\ 4 & 1 & -1\\ 0 & 3 & 4\end{pmatrix}$ is a singular matrix then the value of x is

Options :

1. $11/12$

2. $-11/12$

3. $13/12$

4. $5/4$

Question Number : 5 Question Id : 67809437257 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{pmatrix} 3 & 1 \\ -1 & 2 \end{pmatrix}$ then $A^2 - 5A + 7I$ is

Options :

1. $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

2. $\begin{pmatrix} 0 & 3 \\ 2 & 0 \end{pmatrix}$

3. $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$

4. $\begin{pmatrix} 2 & 3 \\ 2 & 5 \end{pmatrix}$

Question Number : 6 Question Id : 67809437258 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve $\frac{3x+7}{(x-1)(x-2)}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

4. $\frac{13}{(x-2)} - \frac{10}{(x-7)}$

Question Number : 7 Question Id : 67809437259 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve $\frac{5x^2+1}{x^3-1}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

4. $\frac{2}{(x-1)} + \frac{3x+1}{x^2+x+1}$

Question Number : 8 Question Id : 67809437260 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $tan^2\theta + sec\theta = 5$ then the value of $\cos\theta$ is

Options :

1. $-1/3$ *or* $1/2$

2. $-11/12$ *or* $1/2$

3. $13/12$ or $-1/3$

4. $5/4$ *or* $1/2$

Question Number : 9 Question Id : 67809437261 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $16sin^3\theta + 8cos^3\theta$ is

Options :

1. 3

2. 1

3. -3

4. 0

Question Number : 10 Question Id : 67809437262 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $sin\alpha = {}^{15}/_{17}$, $cos\beta = {}^{12}/_{13}$ then the value of $sin(\alpha + \beta)$ is

Options :

1. ${}^{110}/_{105}$

2. $-{}^{121}/_{152}$

3. ${}^{220}/_{221}$

4. ${}^{5}/_{4}$

Question Number : 11 Question Id : 67809437263 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $cos20^0 cos40^0 cos60^0 cos80^0$ is

Options :

1. ${}^{11}/_{12}$

2. ${}^{1}/_{16}$

3. ${}^{13}/_{12}$

4. ${}^{5}/_{4}$

Question Number : 12 Question Id : 67809437264 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\frac{\cos 17^0 + \sin 17^0}{\cos 17^0 - \sin 17^0}$ is

Options :

1. $\cos 20^0$

2. $\tan 65^0$

3. $\tan 60^0$

4. $\tan 62^0$

Question Number : 13 Question Id : 67809437265 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\sin\frac{\pi}{5}\sin\frac{2\pi}{5}\sin\frac{3\pi}{5}\sin\frac{4\pi}{5} =$

Options :

1. $\frac{4}{15}$

2. $\frac{5}{16}$

3. $\frac{-5}{16}$

4. $\frac{7}{15}$

Question Number : 14 Question Id : 67809437266 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\tan^{-1}x + \tan^{-1}y + \tan^{-1}z = \frac{\pi}{2}$ then the value of $xy + yz + zx$ is

Options :

1. -1

2. 3

3. 5

4. 1

Question Number : 15 Question Id : 67809437267 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of $4\cos^2 x - 3 = 0$ is

Options :

1. $2n\pi \pm \frac{\pi}{6}$

2. $2n\pi \pm \frac{7\pi}{6}$

3. $3n\pi \pm \frac{5\pi}{6}$

4. $2n\pi \pm \frac{11\pi}{6}$

Question Number : 16 Question Id : 67809437268 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The modulus of a complex number $\sqrt{3}+i$ is

Options :

1. -2

2. 3

3. 2

4. 5

Question Number : 17 Question Id : 67809437269 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $(a-b)^2cos^2\left(\frac{C}{2}\right)+(a+b)^2sin^2\left(\frac{C}{2}\right)$ is

Options :

1. C^3

2. C

3. C^5

4. C^2

Question Number : 18 Question Id : 67809437270 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x+\frac{1}{x}=2\cos\theta$ then the value of $x^n+\frac{1}{x^n}$ is

Options :

1. $2\cos n\theta$

2. $-2\cos n\theta$

3. $3\cos\theta$

4. $2\sin n\theta$

Question Number : 19 Question Id : 67809437271 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $2tan^{-1}\left(\frac{1}{3}\right)+tan^{-1}\left(\frac{1}{7}\right)$ is

Options :

1. $\frac{\pi}{4}$

2. $-\frac{\pi}{4}$

3. $\frac{\pi}{6}$

4. $\frac{\pi}{3}$

Question Number : 20 Question Id : 67809437272 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the major axis of the ellipse: $4x^2+3y^2=48$ is

Options :

1. 10

2. 11

3. 12

4. 13

Question Number : 21 Question Id : 67809437273 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Centre of the ellipse: $9x^2+25y^2-18x+100y-116=0$ is

Options :

1. $(2,-1)$

2. $(-1,-2)$

3. $(1,-2)$

4. $(1,2)$

Question Number : 22 Question Id : 67809437274 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with vertex $(2,-1)$ and focus $(2,-3)$ is

Options :

1. $x^2-4x+8y+12=0$

2. $x^2-4x-8y-12=0$

3. $x^2+4x-8y-12=0$

4. $x^2+5x-8y-11=0$

Question Number : 23 Question Id : 67809437275 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the latus rectum of the hyperbola: $\frac{x^2}{9}-\frac{y^2}{16}=1$ is

Options :

1. 9 units

2. 5 units

3. 6 units

4. 13 units

Question Number : 24 Question Id : 67809437276 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the length of latus rectum is $\frac{9}{2}$ and the distance between its foci is 10 then the equation of hyperbola is

Options :

1. $\frac{x^2}{16}+\frac{y^2}{9}=1$

2. $\frac{x^2}{18}-\frac{y^2}{9}=1$

3. $\frac{x^2}{16}-\frac{y^2}{6}=1$

4. $\frac{x^2}{16}-\frac{y^2}{9}=1$

Question Number : 25 Question Id : 67809437277 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with focus at (-3.2) and vertex (-2.2) is

Options :

1. $x^2-4x+8y+12=0$

2. $x^2+5x-8y-11=0$

3. $y^2+4x-4y+12=0$

4. $x^2-4x-8y-12=0$

Question Number : 26 Question Id : 67809437278 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y=\frac{a+bx}{b-ax}$ then the derivative of y with respect to x is

Options :

1. $\frac{a^2+b^2}{(b-ax)^2}$

2. $\frac{a^2+b^2}{(b+ax)^2}$

3. $\frac{a^2-b^2}{(b-ax)^2}$

4. $\frac{a+b}{(b-ax)^2}$

Question Number : 27 Question Id : 67809437279 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \frac{2+3\sinh x}{3+2\sinh x}$ then the derivative of y with respect to x is

Options :

1. $\frac{5\cosh x}{(3+2\sinh x)^2}$

2. $\frac{5\sinh x}{(3+2\sinh x)^2}$

3. $\frac{5\sin x}{(3-2\cosh x)^2}$

4. $\frac{sinh^2 x}{(2-3\sinh x)^2}$

Question Number : 28 Question Id : 67809437280 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of x for which the function $x^3 - 3x^2 - 45x + 2$ is increasing with x is

Options :

1. $(3, -5)$

2. $(-3, -5)$

3. $(3,5)$

4. $(-3,5)$

Question Number : 29 Question Id : 67809437281 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If u is a homogeneous function of x and y with degree n then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. $-nu$

2. n^2u

3. nu

4. $nu^2 + u$

Question Number : 30 Question Id : 67809437282 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The angle between the curves $y = x^2 + 3x - 7$ and $y^2 = 2x + 5$ at $(2,3)$ is

Options :

1. $\tan\theta = 2$

2. $\sec\theta = 2$

3. $\cos\theta = 1$

4. $\sin\theta = 3$

Question Number : 31 Question Id : 67809437283 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum value of the function $2x^3 - 12x^2 + 18x + 5$ is

Options :

1. 13

2. 12

3. 10

4. 15

Question Number : 32 Question Id : 67809437284 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The three sides of a trapezium are equal each being 6" long then the area of the trapezium when it is maximum is

Options :

1. 27 square units

2. 33 square units

3. $27\sqrt{3}$ square units

4. $29\sqrt{3}$ square units

Question Number : 33 Question Id : 67809437285 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The interval in which the function $f(x) = x^2 logx$ is an increasing function is

Options :

1. $(1\ ,\ e^{-1/2}\ )$

2. $(2\ ,\ e^{-1/2}\ )$

3. $(0\ ,\ e^{1/2}\ )$

4. $(0\ ,\ e^{-1/2}\ )$

Question Number : 34 Question Id : 67809437286 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stationary points and the corresponding values of the function $f(x) = x^3 - 9x^2 + 15x - 1$ is

Options :

1. 6,-26

2. 3,-26

3. 6,26

4. -6,-26

Question Number : 35 Question Id : 67809437287 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $u = \log\left(\frac{x^2+y^2}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ =

Options :

1. 2

2. 4

3. 5

4. 1

Question Number : 36 Question Id : 67809437288 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \log x \, dx$ is

Options :

1. $x \log x + x + c$

2. $x^2 \log x - x + c$

3. $x \log x - x + c$

4. $x \log x - \frac{x^2}{2} + c$

Question Number : 37 Question Id : 67809437289 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{n\to\infty} \left[\frac{1}{n+1} + \frac{1}{n+2} + \cdots .. + \frac{1}{n+n}\right]$ is

Options :

1. $\log 2$

2. $\log 3$

3. -log 2

4. $\log n$

Question Number : 38 Question Id : 67809437290 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{\cos\sqrt{x}}{\sqrt{x}} dx$ is

Options :

1. $2 \sin \sqrt{x} + c$

2. $3 \sin \sqrt{x} + c$

3. $2 \sin x + c$

4. $\sin\sqrt{x}+c$

Question Number : 39 Question Id : 67809437291 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area enclosed between the curve $y^2 = 4ax$ and the line $x = 2y$ is

Options :

1. $\frac{64}{5}$ sq. units

2. $\frac{64}{3}$ sq. units

3. $\frac{65}{4}$ sq. units

4. $\frac{63}{4}$ sq. units

Question Number : 40 Question Id : 67809437292 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^{\frac{\pi}{2}} sin^2x\,dx$ is

Options :

1. $\frac{\pi}{2}$

2. $-\frac{\pi}{4}$

3. $\frac{\pi}{6}$

4. $\frac{\pi}{4}$

Question Number : 41 Question Id : 67809437293 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^4 \left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)dx$ is

Options :

1. $\frac{20}{3}$

2. $-\frac{20}{3}$

3. $\frac{10}{3}$

4. $\frac{15}{3}$

Question Number : 42 Question Id : 67809437294 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/4} \sqrt{1+sin2x}\, dx =$

Options :

1. -1

2. -3

3. 3

4. 1

Question Number : 43 Question Id : 67809437295 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/2} \frac{sinx}{1+cos^2x}\, dx =$

Options :

1. $\pi/4$

2. $-\pi/4$

3. $\pi/3$

4. $\pi/2$

Question Number : 44 Question Id : 67809437296 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D^2+5D+6)y = e^x$ is

Options :

1. $\frac{-e^{-x}}{12}$

2. $\frac{e^{2x}}{12}$

3. $\frac{e^{x}}{12}$

4. $\frac{e^{x}}{6}$

Question Number : 45 Question Id : 67809437297 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation by eliminating the arbitrary constant a from $ay^2 = x^3$

Options :

1. $\frac{dy}{dx} = \frac{3y}{2x}$

2. $\frac{dy}{dx} = \frac{2x}{3y}$

3. $\frac{dy}{dx} = \frac{x}{y}$

4. $\frac{dy}{dx} = \frac{2y}{x}$

Question Number : 46 Question Id : 67809437298 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} + y = e^{-x}$ is

Options :

1. $(x + c)e^{-x}$

2. $(x - c)e^{x}$

3. $(x + c)e^{x}$

4. $(x + c)e^{-2x}$

Question Number : 47 Question Id : 67809437299 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The complementary function of $(D^2 + 3D + 2)y = 8sin5x$ is

Options :

1. $c_1e^{-x} + c_2e^{-2x}$

2. $c_1e^{x} + c_2e^{2x}$

3. $c_1e^{-x} + c_2e^{2x}$

4. $c_1e^{2x} + c_2e^{3x}$

Question Number : 48 Question Id : 67809437300 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of exact differential equation $2xy\,dx + x^2dy = 0$ is

Options :

1. $x^2y^2 = c$

2. $x^2y = c$

3. $x^3y = c$

4. $x^2y^3 = c$

Question Number : 49 Question Id : 67809437301 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation representing the family of curves $x^2 = 4ay$, where a is any arbitrary constant

Options :

1. $x\frac{dy}{dx} - 2y = 0$

2. $x\frac{dy}{dx} + 2y = 0$

3. $x\frac{dy}{dx} - 6y = 0$

4. $x\frac{dy}{dx} - y = 0$

Question Number : 50 Question Id : 67809437302 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} + y\cot x = \cos x$ is

Options :

1. $y\sin x = \frac{-\cos 2x}{4} + c$

2. $y\sin x = \frac{\cos 2x}{4} + c$

3. $y\sin x = \frac{-\cos 5x}{4} + c$

4. $y\cos x = \frac{-\cos 2x}{4} + c$

Physics

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 51 Question Id : 67809437303 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the equation $\frac{\alpha}{t^2} = Fv + \frac{\beta}{x^2}$ the dimensional formula for [α], [β] is (here t = time, F= force, v = velocity, x = distance)

Options :

1. $MLT^{-1},\ MLT^{-3}$

2. $ML^2T,\ ML^4T^2$

3. $ML^2T^{-1},\ ML^4T^{-3}$

4. $ML^3T^{-1},\ MLT^{-3}$

Question Number : 52 Question Id : 67809437304 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following quantities has not been expressed in proper units?

Options :

1. Young's modulus=N/m^2

2. Surface tension=N/m

3. Pressure = N/m^2

4. Energy=kg m/s

Question Number : 53 Question Id : 67809437305 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Three vectors A, B and C satisfy the relation A.B=0 and A.C=0. The vector A is parallel to

Options :

1. B

2. C

3. B.C

4. BxC

Question Number : 54 Question Id : 67809437306 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If three vectors A, B and C are 12, 5 and 13 in magnitude such that C=A+B, then the angle between A and B is

Options :

1. 60^0

2. 90^0

3. 120^0

4. 30^0

Question Number : 55 Question Id : 67809437307 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A stone dropped from a certain height, can reach the ground in 5s. It is stopped after 3 seconds of its fall and then allowed to fall again. The time taken by the stone to reach the ground for the remaining distance is

Options :

1. 2 s

2. 6 s

3. 4 s

4. 1 s

Question Number : 56 Question Id : 67809437308 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of projectile fired at an angle of 15^0 is 50m. If it is fired with the same speed at an angle of 45^0, its range will be

Options :

1. 25 m

2. 37 m

3. 50 m

4. 100 m

Question Number : 57 Question Id : 67809437309 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A freely falling body acquires a velocity 'v' m/s in falling through a distance of 80m. How much further distance should it fall, so as to acquire a velocity of '2v' m/s?(Take g=10 m/s^2)

Options :

1. 240 m

2. 200 m

3. 400 m

4. 280 m

Question Number : 58 Question Id : 67809437310 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block is projected along a rough horizontal road with a speed of 10 m/s. If the coefficient of kinetic friction is 0.10, how far will it travel before coming to rest ?

Options :

1. 50 m

2. 60 m

3. 40 m

4. 10 m

Question Number : 59 Question Id : 67809437311 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What force is required to push a 200 N body up a 30^0 smooth incline with an acceleration of 2 m/s^2? The force is to be applied along the plane is (Take g=10 m/s^2)

Options :

1. 40 N

2. 60 N

3. 80 N

4. 140 N

Question Number : 60 Question Id : 67809437312 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block of mass 2 kg rests on a rough inclined plane making an angle of 30^0 with the horizontal. The coefficient of static friction between the block and the plane is 0.7. The frictional force on the block is

Options :

1. 9.8N

2. 0.78 x 9.8 N

3. $9.8 \times \sqrt{3}$ N

4. $0.7 \times 9.8\sqrt{3}$ N

Question Number : 61 Question Id : 67809437313 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A man moves on a straight horizontal road with a block of mass 2 kg in his hand. If he covers a distance of 40 m with an acceleration of 0.5 m/s^2, the work done by the man on the block during the motion is (Take g=10 m/s^2)

Options :

1. 40 J

2. 1 J

3. 80 J

4. 20 J

Question Number : 62 Question Id : 67809437314 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a factory it is desired to lift 2000 kg of metal through a distance of 12 m in 1 minute. The minimum horse power of the engine to be used is

Options :

1. 3.5

2. 5.3

3. 4.3

4. 5.8

Question Number : 63 Question Id : 67809437315 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Energy harnessed from flowing water is called --------- energy

Options :

1. Hydel

2. Solar

3. Tidal

4. Geothermal

Question Number : 64 Question Id : 67809437316 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a particle executing simple harmonic motion passes through the mean position, it has

Options :

1. minimum K.E and maximum P.E.

2. maximum K.E and maximum P.E.

3. maximum K.E and minimum P.E.

4. mimimum K.E. and mimimum P.E.

Question Number : 65 Question Id : 67809437317 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A particle of mass 200 g executes a simple harmonic motion. The restoring force is provided by a spring of spring constant 80 N/m. The time period is

Options :

1. 0.2 s

2. 0.41 s

3. 0.31 s

4. 0.5 s

Question Number : 66 Question Id : 67809437318 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature at which the speed of sound will be double of its value at 0^0C is

Options :

1. 819^0 C

2. 850^0C

3. 919^0C

4. 900^0C

Question Number : 67 Question Id : 67809437319 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the source of sound moves towards an observer, then

Options :

1. The frequency of the source is increased

2. The velocity of sound in the medium is increased

3. The wavelength of sound in the medium towards the observer is decreased

4. The amplitude of vibration of the particles is increased.

Question Number : 68 Question Id : 67809437320 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cinema hall has a volume of 7500 m^3. The total absorption in the hall if the reverberation time of 1.5 s is to be maintained is

Options :

1. 800 OWU

2. 925 OWU

3. 950 OWU

4. 825 OWU

Question Number : 69 Question Id : 67809437321 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of oxygen is heated at constant pressure starting at 0^0C. The heat energy that must be supplied to the gas to double its volume is

Options :

1. 2.5 x 273 x R

2. 3.5 x 273 x R

3. 2.5 x 546 x R

4. 3.5 x 546 x R

Question Number : 70 Question Id : 67809437322 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A vessel contains a gas at a temperature of 27^0C and a pressure of 20 atm. If one half of the gas is released and the temperature of the remaining gas is raised by 50^0C, the new pressure will be

Options :

1. 12.24 atm

2. 11.67 atm

3. 13.79 atm

4. 11 atm

Question Number : 71 Question Id : 67809437323 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature of 5 gm of air is raised from 0^0 C to 1^0 C. The increase in the internal energy of air is (C_v = 0.172 cal/gm/ ^{0} C and J = 4.18 x 10^7 erg/cal)

Options :

1. 3.595 x 10^7 erg

2. 3 x 10^7 erg

3. 4.5 x 10^7 erg

4. 2.595 x 10^7 erg

Question Number : 72 Question Id : 67809437324 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In all reversible processes entropy of the system

Options :

1. decreases

2. increases

3. remains constant

4. remains zero

Question Number : 73 Question Id : 67809437325 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If one mole of a monoatomic gas ('Y'=5/3) is mixed with one mole of a diatomic gas ('Y'=7/5), the value of 'Y' for the mixture is

Options :

1. 1.40

2. 1.50

3. 1.53

4. 3.07

Question Number : 74 Question Id : 67809437326 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Electrons are emitted with zero velocity from a certain metal surface when it is exposed to radiations of wavelength 7000 A^0. The work function of the metal is

Options :

1. 1 eV

2. 1.52 eV

3. 2.52 eV

4. 1.77 eV

Question Number : 75 Question Id : 67809437327 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A superconducting material exhibits

Options :

1. zero conductivity and complete diamagnetism

2. zero resistivity and complete paramagnetism

3. infinite conductivity and complete paramagnetism

4. zero resistivity and complete diamagnetism

Display Number Panel: Yes
Group All Questions: No

Question Number : 76 Question Id : 67809437328 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The splitting of spectral lines in a strong magnetic field is called

Options :

1. Stark effect

2. Pauli Exclusion Principle

3. Zeeman effect

4. Aufbau Principle

Question Number : 77 Question Id : 67809437329 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bohr's model can explain

Options :

1. The spectrum of hydrogen atom only

2. The spectrum of hydrogen molecule

3. The solar spectrum

4. Spectrum of an atom or ion containing one electron only

Question Number : 78 Question Id : 67809437330 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum number of electrons that a d-orbital can accommodate is

Options :

1. 2

2. 6

3. 10

4. 14

Question Number : 79 Question Id : 67809437331 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Magnesium Atomic number is 12, which of the following is the electronic configuration

Options :

1. $1S^2\ 2S^1\ 2P^6\ 3S^2$

2. $1S^2\ 2S^2\ 2P^5\ 3S^2$

3. $1S^2\ 2S^2\ 2P^6\ 3S^2$

4. $1S^2\ 2S^2\ 2P^6\ 3S^1 3d^1$

Question Number : 80 Question Id : 67809437332 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

N_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 67809437333 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of any of the particles contains

Options :

1. $6.023X\ 10^{-23}$

2. $6.022X\ 10^{23}$

3. $60.23X\ 10^{23}$

4. $6.023X\ 10^{25}$

Question Number : 82 Question Id : 67809437334 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of the solution obtained by dissolving 4 gm of NaOH in 1Litre is

Options :

1. 1N

2. 0.1N

3. 0.5N

4. 0.02N

Question Number : 83 Question Id : 67809437335 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Molecular weight of H_2SO_4 is

Options :

1. 92

2. 96

3. 98

4. 99

Question Number : 84 Question Id : 67809437336 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Lewis acid is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 67809437337 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

P^H of a solution is 9.5, the solution is

Options :

1. Basic

2. Acidic

3. Neutral

4. Amphoteric

Question Number : 86 Question Id : 67809437338 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Laws of electrolysis were given by

Options :

1. Ostwald

2. Faraday

3. Arrhenius

4. Volta

Question Number : 87 Question Id : 67809437339 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. $NaCO_3$

3. KCl

4. KOH

Question Number : 88 Question Id : 67809437340 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Standard Reduction Potential of an element is equal to

Options :

1. 1 X Its reduction potential

2. -1 X Its standard oxidation potential

3. -1 X Its reduction potential

4. 1 X Its standard oxidation potential

Question Number : 89 Question Id : 67809437341 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The standard emf for the cell reaction, $Zn+Cu^{+2} \rightarrow Cu + Zn^{2+}$ is 1.10 V at 25°C. The emf of the cell reaction when 0.1 M Cu^{+2} and 0.1 M Zn^{+2} solutions are used at 25°C is

Options :

1. 1.10V
2. 0.11V
3. -1.10V
4. -0.11V

Question Number : 90 Question Id : 67809437342 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which chemical is responsible for permanent hardness of water?

Options :

1. KCl
2. $MgCl_2$
3. NaCl
4. AgCl

Question Number : 91 Question Id : 67809437343 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate
2. Aluminium Silicate
3. Hydrated Sodium alumino silicate
4. Calicium silicate

Question Number : 92 Question Id : 67809437344 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cation exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

Question Number : 93 Question Id : 67809437345 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. Fe_2O_3. FeO

3. $Fe_2O_3.XH_2O$

4. Fe_2O_3 . NH_3

Question Number : 94 Question Id : 67809437346 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanizing is the process of coating iron with

Options :

1. Mg

2. Cu

3. Au

4. Zn

Question Number : 95 Question Id : 67809437347 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a thermoplastic ?

Options :

1. Bakelite

2. Polystyrene

3. Polythene

4. Nylon

Question Number : 96 Question Id : 67809437348 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Isoprene is a monomer of

Options :

1. Starch

2. Cellulose

3. Natural rubber

4. Lignin

Question Number : 97 Question Id : 67809437349 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Buna-S is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 67809437350 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Main constituent of natural gas is

Options :

1. Ethane

2. Methane

3. Butane

4. Carbon Monoxide

Question Number : 99 Question Id : 67809437351 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3. Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 67809437352 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amount of DO required to aerobically decompose biodegradable organic matter of a given volume of water is

Options :

1. Biochemical Oxygen Demand

2. Biological Oxygen Demand

3. Chemical Oxygen demand

4. Biomagnification

Bio Technology

Number of Questions:	100
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 101 Question Id : 67809437353 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an upstream process?

Options :

1. Product recovery

2. Product purification

3. Media formulation

4. Screening

Question Number : 102 Question Id : 67809437354 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Fungal strain used for the large scale production of citric acid is

Options :

1. *Penicillium chrysogenum*

2. *Aspergillus niger*

3. *Saccharomyces cerevisae*

4. *Lactobacillus*

Question Number : 103 Question Id : 67809437355 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following components is a rich source of vitamin B

Options :

1. Peptone

2. Yeast extract

3. Beef extract

4. Agar

Question Number : 104 Question Id : 67809437356 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The isolation of Cholera causing bacterium, *Vibrio cholorae* by using antibiotics in media is an example of

Options :

1. Selective media

2. Differential media

3. Enriched media

4. Assay media

Question Number : 105 Question Id : 67809437357 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following carbon sources is not used in media preparation?

Options :

1. Carbohydrates

2. Oils and fats

3. Hydrocarbons

4. Peptones

Question Number : 106 Question Id : 67809437358 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Mutant strain of a bacteria with an additional nutritional requirement that is not seen in the wild type strain is called

Options :

1. Autotroph

2. Heterotroph

3. Mixotroph

4. Auxotroph

Question Number : 107 Question Id : 67809437359 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

MacConkey agar medium inhibits the growth of Gram positive bacteria due to the presence of

Options :

1. Antibiotic

2. Phenolethanol

3. Bile salts

4. Lactose

Question Number : 108 Question Id : 67809437360 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Azolla is used as a biofertilizer as it contains

Options :

1. Mycorrhiza

2. Cyanobacteria

3. Rhizobium

4. Humus

Question Number : 109 Question Id : 67809437361 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bacteria used in a Bio gas plant are

Options :

1. Methanogens

2. Nitrifying Bacteria

3. Denitrifying bacteria

4. Ammonifying bacteria

Question Number : 110 Question Id : 67809437362 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Biofertilizer which improves the phosphorous uptake of plants is

Options :

1. Rhizobium

2. Azospirillum

3. Nostoc

4. Anabaena

Question Number : 111 Question Id : 67809437363 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Covalent bonding between two molecules requires

Options :

1. Electrons with opposite spins

2. electrons of the same spins

3. Electrons of the same orbital

4. Electrons with different orbital

Question Number : 112 Question Id : 67809437364 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Instrument used for the measurement of optical activity is

Options :

1. Spectrophotometer

2. Polarimeter

3. Infantometer

4. Calorimeter

Question Number : 113 Question Id : 67809437365 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When voltage 'V' is applied across a pair of electrode (cathode and anode), a potential gradient 'E' is created between the electrodes. 'E' can be calculated as

Options :

1. E=V/d

2. E= (1/V)xQ

3. E= (Vd)/Q

4. E=V+ d

Question Number : 114 Question Id : 67809437366 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The radio velocity 'v' of a biomolecule in a medium under constant electric field is '**E**' is called electrophoretic mobility denoted as 'μ'. Mathematical expression of μ is

Options :

1. μ = E/v

2. μ = v/E

3. μ = 1/EV

4. μ = vE

Question Number : 115 Question Id : 67809437367 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cell without a cell wall is called

Options :

1. Tonoplast

2. Amyloplast

3. Protoplast

4. Cytoplast

Question Number : 116 Question Id : 67809437368 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the power of an ocular lens is 10x and objective lens is 20x, the magnification is

Options :

1. 30 times

2. 20 times

3. 200 times

4. 2000 times

Question Number : 117 Question Id : 67809437369 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolving power of a microscope can further be enhanced by

Options :

1. Using an illumination of longer wavelength and by decreasing the numerical aperture

2. Using an illumination of longer wavelength and by increasing the numerical aperture

3. Using an illumination of shorter wavelength and by decreasing the numerical aperture

4. Using an illumination of shorter wavelength and by increasing the numerical aperture

Question Number : 118 Question Id : 67809437370 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Microscopy technique that relies on the specimen interfering with the wavelength of light to produce a high contrast image without the need for dyes or any damage to the sample is

Options :

1. Bright field light microscopy

2. Electron microscopy

3. Fluorescence microscopy

4. Phase contrast microscopy

Question Number : 119 Question Id : 67809437371 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Plasma membrane is impermeable to all molecules except

Options :

1. Glucose

2. ATP

3. Urea

4. K^+

Question Number : 120 Question Id : 67809437372 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Type of transport that induce a conformational change in proteins?

Options :

1. Simple diffusion

2. Facilitated diffusion

3. Active transport

4. Ion driven transport

Question Number : 121 Question Id : 67809437373 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The geometrical device that helps in finding out all possible combinations of male and female gametes is

Options :

1. Bateson square

2. Mendel square

3. Punnete Square

4. Morgan square

Question Number : 122 Question Id : 67809437374 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Test cross is performed to determine the

Options :

1. genotype of a plant

2. phenotype of a plant

3. inbreeding of a plant

4. Allellomorphs

Question Number : 123 Question Id : 67809437375 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Genes in Drosophila males are completely linked. The reason behind this is

Options :

1. Genes are very closely located on chromosomes

2. All genes are coupled

3. No formation of synaptonemal complex

4. No crossing over

Question Number : 124 Question Id : 67809437376 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

You cross a p+/v+ p+/v+ male drosophila to a p-/v- p-/v- and obtain the F1 hybrid. Now you cross the F1 male with double recessive female. What will be the recombination phenotype in F2?

Options :

1. p+/v+ p-/v- only

2. p+/v+ p-/v- and p-/v- p-/v-

3. p+/v+ p-/v- and p-/v- p-/v- also p+/v- p-/v- and p-/v- p-/v-

4. p+/v+ p-/v- and p-/v- p-/v- also p-/v+ p-/v- and p-/v- p-/v-

Question Number : 125 Question Id : 67809437377 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chromatin fibres are observed only during

Options :

1. Interphase

2. Prophase

3. Metaphase

4. anaphase

Question Number : 126 Question Id : 67809437378 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chromosomal replication occurs during which phase of cell cycle

Options :

1. G1

2. G2

3. S

4. M

Question Number : 127 Question Id : 67809437379 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A bivalent consists of

Options :

1. Two chromatids and one centromere

2. Four chromatids and two centromeres

3. Two chromatids and two centromeres

Four chromatids and four centromeres

4.

Question Number : 128 Question Id : 67809437380 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During which stage of meiosis chaismata are first seen

Options :

1. Leptotene

2. Zygotene

3. Pachytene

4. Diplotene

Question Number : 129 Question Id : 67809437381 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cellular structures that disappear during mitosis and meiosis

Options :

1. Plasma membrane

2. Nucleolus

3. Centromere

4. Mitochondria

Question Number : 130 Question Id : 67809437382 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Balbiani rings occur in

Options :

1. Polytene chromosomes

2. Polygenic Chromosomes

3. Lampbrush chromosomes

4. B-Chromosomes

Question Number : 131 Question Id : 67809437383 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

131. A Mutation which brings about structural changes in a DNA molecule is known as

Options :

1. Somatic mutation

2. Spontaneous mutation

3. Point mutation

4. Duplication mutation

Question Number : 132 Question Id : 67809437384 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Haemophilia occurs more commonly in males because it is a

Options :

1. Y linked recessive

2. Y linked dominant

3. X-linked dominant

4. X linked recessive

Question Number : 133 Question Id : 67809437385 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A colour blind girl will be born when

Options :

1. Her mother and maternal grandfather are colour blind

2. Her father and maternal grandfather are colour blind

3. Her mother is colour blind and father has normal vision

4. Both mother and father have normal vision but grandparents are colour blind.

Question Number : 134 Question Id : 67809437386 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a nucleotide, the nitrogen base is joined to the sugar molecule by

Options :

1. Phosphodiester bond

2. Glycosidic bond

3. Hydrogen bond

4. Tripple bond

Question Number : 135 Question Id : 67809437387 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which phase of bacterial growth produces secondary metabolites

Options :

1. Lag phase

2. Log phase

3. Stationary phase

4. Death phase

Question Number : 136 Question Id : 67809437388 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

---------- method is used for the enumeration of bacteria in vaccines and cultures

Options :

1. Microscopic Count

2. Membrane filter

3. Plate count

4. Dry weight determination

Question Number : 137 Question Id : 67809437389 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

At what temperature the medium is maintained for pour plate method of bacterial culture?

Options :

1. 37 °C

2. 67 °C

3. 45 °C

4. 4 °C

Question Number : 138 Question Id : 67809437390 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Method applied for preserving the microbes in an active metabolic state is

Options :

1. Overlaying culture with mineral oil

2. Vacuum drying

3. Lyophilization

4. Cryopreservation

Question Number : 139 Question Id : 67809437391 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The term facultative anaerobe refers to an organism that

Options :

1. Does not use oxygen but tolerates it

2. Requires less oxygen than present in air

3. is killed by oxygen

4. Uses oxygen when present and grows without oxygen when absent

Question Number : 140 Question Id : 67809437392 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Disinfectants that act by disrupting the microbial membranes are

Options :

1. Halogens

2. Heavy metals

3. Cationic detergents

4. Aldehydes

Question Number : 141 Question Id : 67809437393 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a substance is added to a liquid medium for inhibiting the growth of unwanted bacteria and favoring the growth of wanted bacteria, it is known as

Options :

1. Differential medium

2. Enrichment medium

3. Selective medium

4. Basal medium

Question Number : 142 Question Id : 67809437394 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Microorganisms that produce antibiotics are detected by

Options :

1. Wilkins agar plate method

2. Crowded plate method

3. Enrichment method

4. Agar plug method

Question Number : 143 Question Id : 67809437395 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Process of killing and removal of microorganism is known as

Options :

1. Sterilization

2. Pasteurization

3. Disinfection

4. Destruction

Question Number : 144 Question Id : 67809437396 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Method applied for calculating the percentage similarity (%S) of each strain to every other strain is

Options :

1. Intuitive Method

2. Numerical Taxonomy

3. Genetic Relatedness

4. DNA homology

Question Number : 145 Question Id : 67809437397 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bacteria that lives in the root nodules of legumes are

Options :

1. Azotobacter

2. Pencillium

3. Rhizobium

4. Mycobacterium

Question Number : 146 Question Id : 67809437398 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the unit of influent flow rate?

Options :

1. m d

2. m/d

3. m^2/d

4. m^3/d

Question Number : 147 Question Id : 67809437399 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which type of reactor, aeration is generally accomplished in a separate vessel?

Options :

1. Fluidised bed

2. Trickle bed

3. Packed bed

4. Stirred and air-driven reactors

Question Number : 148 Question Id : 67809437400 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Penetration theory assumes that turbulent eddies travel from the bulk of the phase to the interface where they remain constant for a constant exposure time (t_e). The model correlating K_L, mass transfer coefficient and D_{AB}, diffusivity can be expressed as

Options :

1. $K_L = 2(D_{AB}/\pi t_e)^{0.25}$

2. $K_L = 2(D_{AB}/\pi t_e)^{0.5}$

3. $K_L = 2(D_{AB}/\pi t_e)^{0.75}$

4. $K_L = 2(D_{AB}/\pi t_e)$

Question Number : 149 Question Id : 67809437401 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The oxygen uptake requirements of a microbial population is characterized by the following parameters: μ_m = 0.2 h^{-1}, K_0 = 0.2 mg $O_2.l^{-1}$, Y_0 = 0.5 mg dry weight/mg O_2 and $C_{0,crit}$=0.8 $mg.l^{-1}$ The required concentration of cells is 1000 $mg.l^{-1}$ and the saturation oxygen concentration of the medium is 5.8 $mg.l^{-1}$. The required K_La must be greater than

Options :

1. 64 h^{-1}

2. 32 h^{-1}

3. $16\ h^{-1}$

4. $8h^{-1}$

Question Number : 150 Question Id : 67809437402 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If density and viscosity of the liquid remains constant, then the Reynolds number in a stirred tank reactor will vary with the

Options :

1. Diameter of the impeller

2. Square of the impeller diameter

3. Square root of the impeller diameter

4. Cube of the impeller diameter

Question Number : 151 Question Id : 67809437403 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A double spiral heat-exchanger is a

Options :

1. Direct heat exchanger

2. Indirect heat exchanger

3. Temperature controlled device

4. Thermostat

Question Number : 152 Question Id : 67809437404 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process of ethanol production by yeast cells under high glucose concentrations rather than biomass production by TCA cycle is known as

Options :

1. Warburg effect

2. Sympson's effect

3. Crabtree effect

4. Olivosky's effect

Question Number : 153 Question Id : 67809437405 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the ratio of diameter of impeller to the diameter of tank (D_a: D_t)

Options :

1. 1:3

2. 2:1

3. 4:1

4. 1:5

Question Number : 154 Question Id : 67809437406 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

At 25 °C, the saturation concentration of oxygen in water is 1.26 mmol/l and its partial pressure is 1 atm. The Henry's law constant will be

Options :

1. 0.793atml/mmol

2. 0.207atml/mmol

3. 1.26 atml/mmol

4. 8.74 atml/mmol

Question Number : 155 Question Id : 67809437407 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The volume of liquid (V_L) in a cylindrical reactor can be calculated from the liquid height (H_L) and tank diameter (D_t) using the following equation

Options :

1. $V_L = 4/3 \times \pi \times H_L \times D_t^3/8$

2. $V_L = H_L \times \pi \times D_t^2/4$

3. $V_L = H_L \times \pi \times D_t^2$

4. $V_L = 4 \times \pi \times D_t^2$

Question Number : 156 Question Id : 67809437408 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Addition of detergents in an aerated bioreactor will increase the rate of oxygen transfer due to

Options :

1. Increase in the bubble coalescence

2. Increase in the bubbles expansion

3. Decrease in the bubble coalescence

4. increase in the surface tension of the liquid

Question Number : 157 Question Id : 67809437409 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a DNA fragment consists of 80 thymine and 80 guanine bases, what is the total number of bases in that fragment

Options :

1. 40

2. 160

3. .320

4. .640

Question Number : 158 Question Id : 67809437410 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Type of sugar present in the DNA is

Options :

1. Triose

2. Tetrose

3. Pentose

4. Hexose

Question Number : 159 Question Id : 67809437411 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Anticodon region is an important structural component of

Options :

1. DNA

2. mRNA

3. tRNA

4. SnRNA

Question Number : 160 Question Id : 67809437412 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which ratio is constant for DNA?

Options :

1. A + G / T + C

2. A + T / G + C

3. A + C / U + G

4. A + U / G + C

Question Number : 161 Question Id : 67809437413 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Segment of DNA that reads the same from forward and backward is called

Options :

1. Palindromic DNA

2. Complementary DNA

3. Plasmid DNA

4. Copy DNA

Question Number : 162 Question Id : 67809437414 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a nonsense codon

Options :

1. UAA

2. UUU

3. UAG

4. UGA

Question Number : 163 Question Id : 67809437415 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Enzyme responsible for the unwinding of the DNA during replication is

Options :

1. Polymerase

2. Topoisomerase

3. Helicase

4. primase

Question Number : 164 Question Id : 67809437416 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Mode of DNA replication in *Escherichia coli* is

Options :

1. Conservative and unidirectional

2. Semiconservative and unidirectional

3. Conservative and bidirectional

4. Semiconservative and bidirectional

Question Number : 165 Question Id : 67809437417 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

DNA and histone proteins in the nucleus of a cell are associated by

Options :

1. Covalent bonding

2. Hydrogen bonding

3. Hydrophobic bonding

4. Vander Waal's interaction

Question Number : 166 Question Id : 67809437418 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Peptide bond formation between amino acids of growing polypeptide chain is catalyzed by

Options :

1. Peptidyl transferase

2. Amino acyl t-RNA synthetase

3. Peptide polymerase

4. Peptidyl synthetase

Question Number : 167 Question Id : 67809437419 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Aminoacids are assembled into polypeptide chain on

Options :

1. Nucleus

2. Ribosome

3. Endoplasmic reticulum

4. Glogi

Question Number : 168 Question Id : 67809437420 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The sex complement of a male child suffering with Down's syndrome is

Options :

1. XO

2. XY

3. XX

4. XXY.

Question Number : 169 Question Id : 67809437421 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Albinism is an example of

Options :

1. Dominance

2. Recessiveness

3. Incomplete dominance

4. Incomplete recessiveness

Question Number : 170 Question Id : 67809437422 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following methodology can be used for the gene silencing?

Options :

1. Transposon insertion

2. PCR

3. Antisense RNA

4. Southern blot hybridization

Question Number : 171 Question Id : 67809437423 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hormone pair required for the differentiation of callus are

Options :

1. Auxin and Cytokinin

2. Auxin and Gibberellin

3. Auxin and ABA

4. Cytokinin and Gibbberellin

Question Number : 172 Question Id : 67809437424 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following plant cells will show totipotency?

Options :

1. Xylem vessels

2. Seive tubes

3. Meristem

4. Cork cells

Question Number : 173 Question Id : 67809437425 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Protoplasts are the cells devoid of

Options :

1. Cell membrane

2. Cell wall

3. Nucleus

4. Cytoplasm

Question Number : 174 Question Id : 67809437426 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cybrids are produced by

Options :

1. Fusion of two different nuclei of two different plants

2. Fusion of two same nuclei from two same plants

3. Fusion of nuclei of one species and cytoplasm of both the species

4. Fusion of two different cytoplasm of from two different plants

Question Number : 175 Question Id : 67809437427 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is required to distinguish between the cell that have taken the vector and that have not

Options :

1. Multiple cloning site

2. Origin of replication

3. High copy number

4. Selection marker

Question Number : 176 Question Id : 67809437428 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Agrobacterium tumefaciens **is a**

Options :

1. Gram (+) Bacteria

2. Gram (-) Bacteria

3. Fungi

4. Virus

Question Number : 177 Question Id : 67809437429 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Biological nitrogen fixation is the conversion of

Options :

1. N_2 to NO_3^- and NH_3

2. N_2 to N

3. N_2 to Urea

4. N_2 to NH_3

Question Number : 178 Question Id : 67809437430 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following organisms fix the nitrogen in water logged soil

Options :

1. Azotobacter

2. Nitrobactor

3. Nostoc

4. Clostridium

Question Number : 179 Question Id : 67809437431 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Insecticides that act by permeating the entire plant are called as

Options :

1. Penetrating pesticides

2. Porous insecticides

3. Contact poisons

4. Systemic insecticides

Question Number : 180 Question Id : 67809437432 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Pesticides that are used to control plant pest are

Options :

1. Toxicols

2. Weed agents

3. Herbicides

4. Fungicides

Question Number : 181 Question Id : 67809437433 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The first vaccine developed from the animal cell culture was

Options :

1. Hepatitis B Vaccine

2. Influenza vaccine

3. Polio vaccine

4. Pox vaccine

Question Number : 182 Question Id : 67809437434 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a source of energy in active muscle cells?

Options :

1. Lactic acid

2. ATP

3. Creatine Phosphate

4. Glucose

Question Number : 183 Question Id : 67809437435 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What are the main constituents needed in the culture for the animal cell Growth?

Options :

1. Glucose and glutamine

2. Lactate

3. Cytokines

4. Growth factors

Question Number : 184 Question Id : 67809437436 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Application of Hybridoma cells is to produce

Options :

1. Antigens

2. Antibodies

3. Cancer cells

4. Cell lines

Question Number : 185 Question Id : 67809437437 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gene therapy is a technique for _____ the defective genes responsible for disease development

Options :

1. Altering

2. Replacing

3. Correcting

4. Analysing

Question Number : 186 Question Id : 67809437438 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The onco mouse is also known as

Options :

1. Phidelphia mouse

2. Ohio mouse

3. Smart mouse

4. Harvard mouse

Question Number : 187 Question Id : 67809437439 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Eggs in mammals are

Options :

1. Alecithal

2. Microlecithal

3. Mesolecithal

4. Macrolecithal

Question Number : 188 Question Id : 67809437440 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gene knockout means _____ of a specific gene

Options :

1. Removal

2. Purification

3. Inactivation

4. transfection

Question Number : 189 Question Id : 67809437441 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

BLAST programme is used for

Options :

1. DNA sequencing

2. DNA identification

3. DNA barcoding

4. DNA alignment

Question Number : 190 Question Id : 67809437442 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

GeneBank and SWISSPORT are examples of

Options :

1. Primary Databases

2. Secondary Databases

3. Composite Databases

4. Tertiary Databases

Question Number : 191 Question Id : 67809437443 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

BLOSUM matrix is used in

Options :

1. Single sequence alignment

2. Pairwise sequence alignment

3. Multiple sequence alignment

4. Phylogenetic analysis

Question Number : 192 Question Id : 67809437444 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Enzyme which helps in changing shape of molecule is called

Options :

1. Ligases

2. Dehydrogenases

3. Hydrolases

4. Isomerases

Question Number : 193 Question Id : 67809437445 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Proteases are commonly rich in

Options :

1. Pineapple

2. Papaya

3. Paprika

4. Pomegranate

Question Number : 194 Question Id : 67809437446 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is produced with the combination of apoenzyme and coenzyme?

Options :

1. Holoenzyme

2. Enzyme substrate complex

3. Prosthetic group

4. Enzyme product complex

Question Number : 195 Question Id : 67809437447 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Zymogen is a

Options :

1. Hormone

2. Modulator

3. Vitamin

4. Enzyme precursor

Question Number : 196 Question Id : 67809437448 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Immobilized enzyme produced by micro encapsulation technique provides

Options :

1. Large surface area

2. Small surface area

3. High amount of solvent

4. Low amount of solvent

Question Number : 197 Question Id : 67809437449 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of substrate transfer during the enzymatic reaction of an immobilized enzyme is

Options :

1. equal to that of substrate consumption

2. more than that of substrate consumption

3. Lesser than that of substrate consumption

4. . is nothing to do with the substrate consumption

Question Number : 198 Question Id : 67809437450 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a steady state condition, the change of substrate concentration (dC_s/dt) is

Options :

1. Zero

2. 1

3. >1

4. <1

Question Number : 199 Question Id : 67809437451 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The catalytic efficiency of two different enzymes can be compared by

Options :

1. Formation of a product

2. Km value

3. Molecular size of the enzymes

4. pH of the optimum value

Question Number : 200 Question Id : 67809437452 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following factors is responsible for the inhibition of the enzymatic process during feedback inhibition?

Options :

1. Enzymes

2. End Product

3. Temperature

4. Substrate