Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	BioTechnology 06th May 2025 Shift 1
Subject Name :	Biotechnology
Creation Date :	2025-05-06 14:10:30
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Change Font Color :	No
Change Background Color :	No
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BioTechnology

Group Number :	1
Group Id :	89040168
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200

Mathematics

Section Id :	890401264
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401284
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 89040113411 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, then which of the following is true?

Options :

1. ✖ *The matrix is invertible*

2. ✔ *The matrix is singular*

3. ✖ The matrix is diagonalizable

4. ✖ The matrix is symmetric.

Question Number : 2 Question Id : 89040113412 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and the determinant of A is 5, then determinant of the matrix 2A is

Options :

1. ✖ 10

2. ✔ 20

3. ✖ 5

4. ✖ 25

Question Number : 3 Question Id : 89040113413 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the matrix A is of order 3x3 and the system of equations AX = B has a unique solution,

what can be concluded about the determinant of A?

Options :

1. ✖ The determinant of A is zero

2. ✔ The determinant of A is non-zero

3. ✖ The determinant of A must be 1 only

4. ✖ The determinant of A cannot be negative

Question Number : 4 Question Id : 89040113414 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} x & 3 \\ 2 & 4 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} -2 & 1.5 \\ 1 & -0.5 \end{bmatrix}$ then the value of x is

Options :

1. ✖ -2

2. ✔ 1

3. ✖ 1.5

4. ✖ -0.5

Question Number : 5 Question Id : 89040113415 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$, then $(AB)^T =$

Options :

1. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 4 \end{bmatrix}$

2. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 7 \end{bmatrix}$

3. ✓ $\begin{bmatrix} 3 & 7 \\ 0 & 0 \end{bmatrix}$

4. ✗ $\begin{bmatrix} 3 & 6 \\ 0 & 0 \end{bmatrix}$

Question Number : 6 Question Id : 89040113416 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{2x+5}{(x-1)(x+3)} = \frac{A}{(x-1)} + \frac{B}{(x+3)}$ then A+B =

Options :

1. ✗ -2

2. ✓ 2

3. ✗ 1

4. ✗ -1

Question Number : 7 Question Id : 89040113417 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{3x-1}{(x-1)(x-2)(x-3)} = \frac{A}{(x-1)} + \frac{B}{(x-2)} + \frac{C}{(x-3)}$ then the values of (A, B, C) are

Options :

1. ✔ $(1, -5, 4)$

2. ✖ $(1, 5, 4)$

3. ✖ $(4, 5, 1)$

4. ✖ $(1, 4, 5)$

Question Number : 8 Question Id : 89040113418 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta = \frac{3}{5}$, *then* $\cos\theta =$

Options :

1. ✖ $\frac{4}{5}$ *but not* $-\frac{4}{5}$

2. ✔ $-\frac{4}{5}$ *or* $\frac{4}{5}$

3. ✖ $-\frac{4}{5}$ *but not* $\frac{4}{5}$

4. ✖ $\frac{3}{5}$ *but not* $-\frac{3}{5}$

Question Number : 9 Question Id : 89040113419 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cos\theta \operatorname{cosec}\theta = -1$ *and* θ *lies in the second quadrant then* $\cos\theta =$

Options :

1. ✖

$\frac{-\sqrt{3}}{2}$

2. ✖ $\frac{\sqrt{2}}{2}$

3. ✔ $-\frac{\sqrt{2}}{2}$

4. ✖ $-\sqrt{2}$

Question Number : 10 Question Id : 89040113420 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $5\sin\theta = 4$ *then the value of* $\frac{Cosec\,\theta - \cot\theta}{Cosec\,\theta + \cot\theta}$ *is*

Options :

1. ✖ -1/4

2. ✖ -1/2

3. ✖ 1/2

4. ✔ 1/4

Question Number : 11 Question Id : 89040113421 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For real x and if $x + \frac{1}{x} = 2\cos\theta$ *then* $\cos\theta$ *is*

Options :

1. ✔ ± 1

2. ✖ 1/2

3. ✖ 1

4. ✖ $\pm\frac{1}{2}$

Question Number : 12 Question Id : 89040113422 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$sin^6\theta + cos^6\theta + 3sin^2\theta\, cos^2\theta =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ -1

Question Number : 13 Question Id : 89040113423 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of $3\cos\theta + 4\sin\theta$ *is*

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 5

4. ✖ 1

Question Number : 14 Question Id : 89040113424 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin 5x + \sin 3x + \sin x = 0$ then the value of x other than zero lying between $0 \le x \le \frac{\pi}{2}$ is

Options :

1. ✖ $\frac{\pi}{6}$

2. ✔ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{12}$

4. ✖ $\frac{\pi}{4}$

Question Number : 15 Question Id : 89040113425 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $tan^2 x = 1$ *is*

Options :

1. ✖ $n\pi + \frac{\pi}{4}$ only

2. ✔ $n\pi \pm \frac{\pi}{4}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$

4. ✖ $n\pi - \frac{\pi}{4}$ only

Question Number : 16 Question Id : 89040113426 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\cos\frac{5\pi}{17}+\cos\frac{7\pi}{17}+2\cos\frac{11\pi}{17}\cos\frac{\pi}{17}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ -1

4. ✖ $1/2$

Question Number : 17 Question Id : 89040113427 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta-\cos\theta=4/5$ then the value of $\sin\theta+\cos\theta=$

Options :

1. ✖ $\frac{5}{\sqrt{34}}$

2. ✖ $-\frac{5}{\sqrt{34}}$

3. ✖ $-\frac{\sqrt{34}}{25}$

4. ✔ $\frac{\sqrt{34}}{5}$

Question Number : 18 Question Id : 89040113428 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The real part of $\frac{1+2i}{(2-i)^2}$ is

Options :

1. ✔ $-\frac{1}{5}$

2. ✖ $\frac{1}{5}$

3. ✖ $-\frac{2}{5}$

4. ✖ $\frac{2}{5}$

Question Number : 19 Question Id : 89040113429 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Modulus of the complex number $\frac{(1+i)^{10}}{(2i-4)^4}$ is equal to

Options :

1. ✔ $\frac{2}{25}$

2. ✖ $-\frac{2}{25}$

3. ✖ $\frac{1}{25}$

4. ✖ $-\frac{1}{25}$

Question Number : 20 Question Id : 89040113430 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a circle with center O, a 6cm long chord is at a distance 4 cm from the center.

Then the length of diameter is

Options :

1. ✖ $5\ cm$

2. ✔ $10\ cm$

3. ✖ $15\ cm$

4. ✖ $8\ cm$

Question Number : 21 Question Id : 89040113431 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the tangent from the point (5, 1) to the circle $x^2 + y^2 + 6x - 4y - 3 = 0$ is

Options :

1. ✖ 81

2. ✔ 7

3. ✖ 29

4. ✖ 21

Question Number : 22 Question Id : 89040113432 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If length of the tangent is 8 cm and the distance between the center of the circle and the external point is 11 cm, then the area of the circle is

Options :

1. ✖ $100\ cm$

2. ✖ $197.14\ cm$

3. ✔ $179.14\ cm$

4. ✖ $110.14\ cm$

Question Number : 23 Question Id : 89040113433 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The equation of the parabola with focus (2, 0) and vertex (1, 0) is

Options :

1. ✖ $y^2 = 4x$

2. ✔ $y^2 = 4x - 4$

3. ✖ $y^2 = 4(x + 1)$

4. ✖ $y^2 = -4(x - 1)$

Question Number : 24 Question Id : 89040113434 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If (2,0) is the vertex and y-axis is the directrix of a parabola then its focus is

Options :

1. ✖ (2, 0)

2. ✖ (-2, 0)

3. ✔ (4, 0)

4. ✖ (-4, 0)

Question Number : 25 Question Id : 89040113435 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The *eccentricity of* the ellipse $16x^2 + 7y^2 = 112$ *is*

Options :

1. ✖ $\frac{4}{3}$

2. ✖ $\frac{7}{16}$

3. ✖ $\frac{3}{\sqrt{7}}$

4. ✔ $\frac{3}{4}$

Question Number : 26 Question Id : 89040113436 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{n\to\infty} \frac{4x^3-x+1}{x^2-4x(1-x^2)} =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ -1

4. ✖ ∞

Question Number : 27 Question Id : 89040113437 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{x\to 1}\left(\frac{x^3-1}{x-1}\right)$ is

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 3

4. ✖ Limit does not exist

Question Number : 28 Question Id : 89040113438 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The derivative of x^x with respective to x is

Options :

1. ✖ $x^x(x+logx)$

2. ✖ $x^x(x-logx)$

3. ✖ $x^x(1-logx)$

4. ✔ $x^x(1+logx)$

Question Number : 29 Question Id : 89040113439 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\frac{d}{dx}(tan^{-1}\frac{x}{a}) =$

Options :

1. ✖ $\frac{a}{a^2-x^2}$

2. ✖ $\frac{1}{a^2+x^2}$

3. ✖ $\frac{1}{a^2-x^2}$

4. ✔ $\frac{a}{a^2+x^2}$

Question Number : 30 Question Id : 89040113440 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$If\ y=\sqrt{sinx+\sqrt{sinx+\sqrt{sinx+----\infty}}}\ \text{ then } \frac{dy}{dx}=$$

Options :

1. ✖ $\frac{cosx}{1-2y}$

2. ✖ $\frac{sinx}{1-2y}$

3. ✖ $\frac{-sinx}{1-2y}$

4. ✔ $\frac{-cosx}{1-2y}$

Question Number : 31 Question Id : 89040113441 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Slope of the normal to the curve $x^{2/3}+y^{2/3}=2$ *at the point* $(1,1)$ is

Options :

1. ✖ -1

2. ✔ 1

3. ✖ $1/2$

4. ✖ $-1/2$

Question Number : 32 Question Id : 89040113442 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the curve $y = x^3$ at $(1, 1)$ is

Options :

1. ✖ $3x - y + 2 = 0$

2. ✖ $x - 10y - 50 = 0$

3. ✔ $3x - y - 2 = 0$

4. ✖ $x - 10y + 50 = 0$

Question Number : 33 Question Id : 89040113443 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For what value of x, the function $2x^3 + 3x^2 - 36x + 10$ has minimum

Options :

1. ✖ - 2

2. ✖ - 3

3. ✔

4. ✖ 1

Question Number : 34 Question Id : 89040113444 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2 - y^2$ then $\frac{1}{x}\frac{\partial z}{\partial x} + \frac{1}{y}\frac{\partial z}{\partial y} =$

Options :

1. ✖ 1

2. ✖ $2x + 2y$

3. ✔ 0

4. ✖ $2x - 2y$

Question Number : 35 Question Id : 89040113445 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = e^{xy}$, then the value of $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}$ at $(1, 1)$ is

Options :

1. ✖ e

2. ✔ $2e$

3. ✖ 1

4. ✖ 0

Question Number : 36 Question Id : 89040113446 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int (\log secx) \tan x \ dx$ *is*

Options :

1. ✖ $\sec x + c$

2. ✖ $\log \sec x + c$

3. ✔ $\frac{1}{2} (\log sec\ x)^2 + c$

4. ✖ $\log (\log \sec x)$

Question Number : 37 Question Id : 89040113447 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int sin^2 x \ dx =$

Options :

1. ✖ $\frac{x}{2} + \frac{\sin 2x}{4} + c$

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

3. ✖ $\frac{x}{2} + \frac{\cos 2x}{4} + c$

4. ✔ $\frac{x}{2} - \frac{\sin 2x}{4} + c$

Question Number : 38 Question Id : 89040113448 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int \frac{dx}{25-x^2} =$

Options :

1. ✖ $\frac{1}{5} log \left|\frac{x-5}{x+5}\right| + c$

2. ✖ $\frac{1}{5} log \left|\frac{x+5}{x-5}\right| + c$

3. ✔ $\frac{1}{10} log \left|\frac{5+x}{5-x}\right| + c$

4. ✖ $\frac{1}{10} log \left|\frac{5-x}{5+x}\right| + c$

Question Number : 39 Question Id : 89040113449 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int_0^1 x(1-x)^9 \, dx$ *is*

Options :

1. ✔ $\frac{1}{110}$

2. ✖ $\frac{1}{120}$

3. ✖ $\frac{-1}{110}$

4. ✖ $\frac{-1}{120}$

Question Number : 40 Question Id : 89040113450 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{-a}^{a}|x|\ dx\ =$

Options :

1. ✖ a

2. ✖ $2a$

3. ✖ 0

4. ✔ a^2

Question Number : 41 Question Id : 89040113451 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{0}^{\pi/2}\frac{\cos 2x}{\sin x+\cos x}\ dx\ =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ $\frac{\pi}{2}$

Question Number : 42 Question Id : 89040113452 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area bounded by the curve $y = 4x^2$, the x-axis, the line x=0 and the line x = 1 is

Options :

1. ✖ 2

2. ✖ $2/3$

3. ✖ $1/3$

4. ✔ $4/3$

Question Number : 43 Question Id : 89040113453 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The RMS value of x^2 in $[0, 1]$ is

Options :

1. ✔ $\frac{1}{\sqrt{5}}$

2. ✖ $\frac{1}{5}$

3. ✖ $\frac{1}{\sqrt{3}}$

4. ✖ $\frac{1}{3}$

Question Number : 44 Question Id : 89040113454 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The degree of the differential equation $y' + y = \frac{5}{y'}$ is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 45 Question Id : 89040113455 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The order of the differential equation whose general solution is y = a sin x + b cos x is

(where a and b are arbitrary constants)

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 1

4. ✖ 3

Question Number : 46 Question Id : 89040113456 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The differential equation $\frac{dy}{dx} = -\left(\frac{x+y}{1+x^2}\right)$ is

Options :

1. ✖ of Variable separable form

2. ✔ First order Linear equation

3. ✖ Homogeneous

4. ✖ Exact differentia Equation

Question Number : 47 Question Id : 89040113457 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} = 1 + y^2$ is

Options :

1. ✖ $y = tanx + c$

2. ✔ $y = \tan(x + c)$

3. ✖ $y = tanx$

4. ✖ $y = -\tan(x + c)$

Question Number : 48 Question Id : 89040113458 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = x^2$ under the condition that $y(1) = 1$ is

Options :

1. ✖ $4xy = x^3 + 3$

2. ✔ $4xy = x^4 + 3$

3. ✖ $4xy = x^3 - 3$

4. ✖ $4xy = x^4 - 3$

Question Number : 49 Question Id : 89040113459 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^3y}{dx^3} + 3\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$ *is*

Options :

1. ✔ $y = a + be^{-x} + ce^{-2x}$

2. ✖ $y = a + be^{x} + ce^{2x}$

3. ✖ $y = ae^{-x} + be^{-2x} + ce^{x}$

4. ✖ $y = a + be^{-2x} + ce^{-3x}$

Question Number : 50 Question Id : 89040113460 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = e^{-2x}$ is

Options :

1. ✔ $-xe^{-2x}$

2. ✖ xe^{-2x}

3. ✖ $-\frac{x}{2}e^{-2x}$

4. ✖ $\frac{x}{2}e^{-2x}$

Physics

Section Id :	890401265
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401285
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 89040113461 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If we choose velocity V, length L and force F as fundamental physical quantities then how would you express power in terms of V, L and F ?

Options :

1. ✔ $F^1 L^0 V^1$

2. ✖ $F^1 L^{-1} V^1$

3. ✖ $F^1 L^{-1} V^2$

4. ✖ $F^1 L^{-2} V^3$

Question Number : 52 Question Id : 89040113462 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which pair of physical quantities have same dimensional formula

Options :

1. ✖ Torque and momentum

2. ✖ Surface tension and tension

3. ✔ Pressure and modulus of elasticity

4. ✖ Force constant and Planck's constant

Question Number : 53 Question Id : 89040113463 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A + B = C$ and $A^2 + B^2 = C^2$ then the angle between vectors A and B is

Options :

1. ✖ $0°$

2. ✖ $60°$

3. ✔ $90°$

4. ✖ $120°$

Question Number : 54 Question Id : 89040113464 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area of rectangle with sides as $A = 3i + 4j$ and $B = i + 3j$ is

Options :

1. ✔ $5\sqrt{10}$ units

2. ✖ 10 units

3. ✖ $2\sqrt{10}$ units

4. ✖ $10\sqrt{5}$ units

Question Number : 55 Question Id : 89040113465 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a pebble is thrown vertically upwards from the top of a tower with velocity 5 m/s. It strikes the ground after 3 seconds. With what velocity the pebble strikes the ground? (take $g = 10\ ms^{-2}$)

Options :

1. ✖ 10 m/s

2. ✖ 20 m/s

3. ✔ 25 m/s

4. ✖ 30 m/s

Question Number : 56 Question Id : 89040113466 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a body released from the top of a tower of height H meter takes T seconds to reach the ground , where is the body at time T/2 seconds from the ground ?

Options :

1. ✖ $\frac{H}{2}$

2. ✖ $\frac{H}{4}$

3. ✔ $\frac{3H}{4}$

4. ✖ $\frac{2H}{3}$

Question Number : 57 Question Id : 89040113467 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body starts from rest and travels with uniform acceleration. If the distance covered in first 2 seconds is 'x' and next 2 seconds is 'y', then

Options :

1. ✗ $y = x$

2. ✗ $y = 2x$

3. ✓ $y = 3x$

4. ✗ $y = 4x$

Question Number : 58 Question Id : 89040113468 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A juggler throws ball into air. He throws one whenever the previous one is at its highest point. How high do the balls rise if he throws n balls each second ?

Options :

1. ✓ $\frac{g}{2n^2}$

2. ✗ $\frac{g}{n}$

3. ✗ $\frac{g}{2n}$

4. ✗ $\frac{n^2}{g}$

Question Number : 59 Question Id : 89040113469 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block of mass m is lying on an inclined plane. The coefficient of friction between the plane and the block is μ. The force required to move the block up the inclined plane will be

Options :

1. ✗ $mg \sin\theta - \mu mg \cos\theta$

2. ✓ $mg \sin\theta + \mu mg \cos\theta$

3. ✗ $mg \cos\theta - \mu mg \sin\theta$

4. ✗ $mg \cos\theta + \mu mg \sin\theta$

Question Number : 60 Question Id : 89040113470 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time taken by a body to slide down the smooth inclined plane is 4sec. The time taken by a body to slide $1/4^{th}$ of the length of the plane is

Options :

1. ✗ 1 sec

2. ✓ 2 sec

3. ✗ 3 sec

4. ✗ 0.5 sec.

Question Number : 61 Question Id : 89040113471 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 2 Kg changes its velocity from (3 i - 4 j) m/s to (6j + 2 k) m/s.

what is the change in kinetic energy of the body?

Options :

1. ✔ 15 J

2. ✖ 12 J

3. ✖ 18 J

4. ✖ 20 J

Question Number : 62 Question Id : 89040113472 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At her maximum height a girl in a swing is 3m above the ground and at the lowest point she is 2m above the ground. Her maximum velocity is

Options :

1. ✖ $\sqrt{29.4}$ m/s

2. ✖ $\sqrt{9.8}$ m/s

3. ✔ $\sqrt{19.6}$ m/s

4. ✖ 9.8 m/s

Question Number : 63 Question Id : 89040113473 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An engine delivers 1000 watt of power with 80% efficiency. The input power is

Options :

1. ✖ 800 W

2. ✖ 1000 W

3. ✔ 1250 W

4. ✖ 1500 W

Question Number : 64 Question Id : 89040113474 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a seconds pendulum on the earth is taken to a planet whose gravity is half of the gravity on earth , its time period on that planet is

Options :

1. ✖ 2 sec

2. ✖ 4 sec

3. ✖ $4\sqrt{2}$ sec

4. ✔ $2\sqrt{2}$ sec

Question Number : 65 Question Id : 89040113475 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amplitude of a simple harmonic oscillator is A. When the velocity of particle is half of its maximum velocity, then its position is at

Options :

1. ✖ $\frac{A}{2}$

2. ✖

$\frac{\sqrt{3}A}{4}$

3. ✖ $\frac{A}{4}$

4. ✔ $\frac{\sqrt{3}A}{2}$

Question Number : 66 Question Id : 89040113476 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing SHM is $x = 3\sin 2t + 4\cos 2t$.

The amplitude of particle is

Options :

1. ✖ 7

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 67 Question Id : 89040113477 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The beats are produced by two sound sources of same amplitude and of nearly equal frequencies. The maximum intensity of beats will be _____ when compared to that of one source is

Options :

1. ✖ Same

2. ✖ Double

3. ✔ Four times

4. ✖ Eight times

Question Number : 68 Question Id : 89040113478 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A siren emitting sound of frequency 800 Hz is going away from a static listener with a speed of 30 m/s. Frequency of sound heard by the listener is (Velocity of sound in air = 340 m/s)

Options :

1. ✖ 286.5 Hz

2. ✖ 418.2 Hz

3. ✔ 733.3 Hz

4. ✖ 644.5 Hz

Question Number : 69 Question Id : 89040113479 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the melting of a slab of ice at 273K at atmospheric pressure

Options :

1. ✖ Positive work is done by the ice-water system on the atmosphere

2. ✔ Positive work is done on the ice-water system by the atmosphere

3. ✖ Negative work is done on the ice-water system by the atmosphere

4. ✖ The internal energy of the ice-water system decreases

Question Number : 70 Question Id : 89040113480 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A gas is compressed at a constant pressure of 50 N/m^2 from a volume of 10 m^3 to a volume of 4 m^3. Energy of 100 J is then added to the gas by heating. Its internal energy is

Options :

1. ✔ Increases by 400 J

2. ✖ Increases by 200 J

3. ✖ Increases by 100 J

4. ✖ Decreases by 200 J

Question Number : 71 Question Id : 89040113481 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A vessel containing 10 liters of an ideal gas at a pressure of 760 mm of Hg is connected to an evacuated 9 liter vessel. The resultant pressure is

Options :

1. ✔ 400 mm of Hg

2. ✖ 1440 mm of Hg

3. ✖ 40 mm of Hg

4. ✖ 760 mm of Hg

Question Number : 72 Question Id : 89040113482 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A sealed glass jar is full of water. When its temperature is decreased to 0° C

Options :

1. ✖ The glass jar remains as it is with ice

2. ✖ The glass jar remains as it is with water

3. ✖ Glass jar contains half the amount of ice mixed with water

4. ✔ The glass jar breaks due to the formation of ice

Question Number : 73 Question Id : 89040113483 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bubble rises from the bottom of a lake 90 m deep on reaching the surface,
its volume becomes (Atmospheric pressure is 10 m of water)

Options :

1. ✖ 4 times

2. ✖ 8 times

3. ✔ 10 times

4. ✖ 3 times

Question Number : 74 Question Id : 89040113484 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An endoscope is employed by a physician to view the internal parts of a body organ.
It is based on the principle of

Options :

1. ✖ Refraction

2. ✖ Reflection

3. ✖ Dispersion

4. ✔ Total internal reflection

Question Number : 75 Question Id : 89040113485 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Light of wavelength 5000 A° falls on a sensitive plate with photo electric work function of 1.9 eV. The kinetic energy of the emitted photoelectron will be

Options :

1. ✔ 0.58 eV

2. ✖ 2.48 eV

3. ✖ 1.24 eV

4. ✖ 1.16 eV

Chemistry

Section Id :	890401266
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401286

Question Shuffling Allowed : Yes

Question Number : 76 Question Id : 89040113486 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 1 to Z=20. The number of

elements with only one unpaired electron in their ground state is

Options :

1. ✖ 10

2. ✖ 6

3. ✔ 8

4. ✖ 12

Question Number : 77 Question Id : 89040113487 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the orbital which has lobes not orienting on the axis

Options :

1. ✖ P_x

2. ✖ P_y

3. ✖ $d_{x^2-y^2}$

4. ✔ d_{yz}

Question Number : 78 Question Id : 89040113488 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If n, l, m and s represent the symbols of quantum numbers, the impossible quantum number set for the electron in terms of n, l, m and s respectively is

Options :

1. ✔ 2, 0, -1, +1/2

2. ✖ 3, 0, 0, -1/2

3. ✖ 4, 1, +1, +1/2

4. ✖ 3, 2, -1, -1/2

Question Number : 79 Question Id : 89040113489 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 8, 9, 11, 19 and 20. The number of ionic compounds possible with the elements having these atomic numbers is

Options :

1. ✔ 6

2. ✖ 5

3. ✖ 10

4. ✖ 8

Question Number : 80 Question Id : 89040113490 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In which of the molecules lone pair, bond pair of electrons ratio is 2:3 ?

Options :

1. ✖ Cl_2

2. ✖ O_2

3. ✖ HCl

4. ✔ N_2

Question Number : 81 Question Id : 89040113491 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

How many moles of urea is present in 250 ml of 0.2 M solution of it?

Options :

1. ✖ 0.03

2. ✖ 0.04

3. ✔ 0.05

4. ✖ 0.06

Question Number : 82 Question Id : 89040113492 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

x ml of 0.1 M NaOH solution is diluted with distilled water to get 250 ml of 0.01 M solution.

The value of x (in ml) is

Options :

1. ✖ 12.5

2. ✔ 25

3. ✖ 37.5

4. ✖ 50

Question Number : 83 Question Id : 89040113493 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

3×10^{22} molecules of Na_2CO_3 (molecular weight = 106) present in 500 ml of solution.

The normality of the solution formed is ($N = 6 \times 10^{23}$ mol^{-1})

Options :

1. ✖ 0.1 N

2. ✔ 0.2 N

3. ✖ 0.4 N

4. ✖ 0.05 N

Question Number : 84 Question Id : 89040113494 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair containing only Lewis acids

Options :

1. ✔ BF_3, NH_3

2. ✖ H^+, BF_3

3. ✖ F^-, H_2O

4. ✖ NH_4^+, NH_3

Question Number : 85 Question Id : 89040113495 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

4 g of NaOH is dissolved in 1.0 L solution. The pH of solution is

Options :

1. ✔ 13

2. ✖ 1

3. ✖ 12

4. ✖ 7.4

Question Number : 86 Question Id : 89040113496 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Number of coulombs corresponding to 1 mol of electrons approximately is equal to

Options :

1. ✖ 1.93×10^5

2. ✔ 9.65×10^4

3. ✖ 1.93×10^4

4. ✖ 9.65×10^5

Question Number : 87 Question Id : 89040113497 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Aqueous solution of which of the following does not act as electrolyte?

Options :

1. ✔ Urea

2. ✖ Copper Sulphate

3. ✖ Silver Nitrate

4. ✖ Sodium Chloride

Question Number : 88 Question Id : 89040113498 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of silver (in mg) deposited when 9.65 coulombs of electricity is passed through an aqueous solution of silver nitrate is (Ag=108 u) (1F=96500 C mol^{-1})

Options :

1. ✖ 16.2

2. ✖ 21.2

3. ✔ 10.8

4. ✖ 6.4

Question Number : 89 Question Id : 89040113499 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The standard electrode potentials of Zn, Ag and Cu are -0.76, +0.80 and +0.34 V respectively. Identify the correct statement from the following.

Options :

1. ✖ Ag can oxidize Zn and Cu

2. ✖ Ag can reduce Zn^{2+} and Cu^{2+}

3. ✔ Zn can reduce Ag^{+} and Cu^{2+}

4. ✖ Cu can oxidize Zn and Ag

Question Number : 90 Question Id : 89040113500 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In the removal of permanent hardness of water by permutit process, Na^{+} ions of permutit are exchanged with which ions of water ?

Options :

1. ✖ K^{+}, Ba^{2+}

2. ✖ Fe^{2+}, K^{+}

3. ✔ Ca^{2+}, Mg^{2+}

4. ✖ Zn^{2+}, Cu^{2+}

Question Number : 91 Question Id : 89040113501 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the degree of hardness (in ppm) of a sample containing 19 mg of $MgCl_2$ (Molecular Weight = 95) in 2 kg water sample? (express it in terms of equivalents of $CaCO_3$)

Options :

1. ✔ 10

2. ✖ 20

3. ✖ 30

4. ✖ 40

Question Number : 92 Question Id : 89040113502 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of chlorides responsible for permanent hardness of water.

Options :

1. ✖ NaCl, KCl

2. ✖ $CaCl_2$, KCl

3. ✖ $AlCl_3$, $MgCl_2$

4. ✔ $MgCl_2$, $CaCl_2$

Question Number : 93 Question Id : 89040113503 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The cell formed in bent pipes is an example of

Options :

1. ✖ Concentration Cell

2. ✖ Composition Cell

3. ✔ Stress Cell

4. ✖ Electrolytic Cell

Question Number : 94 Question Id : 89040113504 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Tarnishing of silver is due to formation of

Options :

1. ✖ Its sulphate layer

2. ✖ Its nitrate layer

3. ✔ Its sulphide layer

4. ✖ Its chloride layer

Question Number : 95 Question Id : 89040113505 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a co-polymer?

Options :

1. ✖ Buna-S rubber

2. ✔ Neoprene rubber

3. ✖ Bakelite

4. ✖ Urea – Formaldehyde

Question Number : 96 Question Id : 89040113506 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The monomer involved in the formation of polystyrene is

Options :

1. ✖ $CH_2 = CH - Cl$

2. ✖ $CH_2 = CH - CN$

3. ✔ $CH_2 = CH - C_6H_5$

4. ✖ $CH_2 = CH - CH_3$

Question Number : 97 Question Id : 89040113507 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

We can overcome the undesirable properties of natural rubber by heating natural rubber with

Options :

1. ✖ Carbon

2. ✔ Sulphur

3. ✖ Phosphorus

4. ✖ Silicon

Question Number : 98 Question Id : 89040113508 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Liquefied petroleum gas (LPG) mainly contains

Options :

1. ✖ Methane, Ethane

2. ✖ Ethane, Propane

3. ✔ Butane, Isobutane

4. ✖ Ethene, Ethyne

Question Number : 99 Question Id : 89040113509 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Greenhouse effect is caused by

Options :

1. ✖ NO_2

2. ✖ CO

3. ✖ NO

4. ✔ CO_2

Question Number : 100 Question Id : 89040113510 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which compound is mainly responsible for the depletion of ozone layer?

Options :

1. ✖ CO_2

2. ✖ CH_4

3. ✖ CH_3OH

4. ✔ CF_2Cl_2

BioTechnology

Section Id : 890401267

Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401287
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 89040113511 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The permeability of a membrane is largely dependent on:

Options :

1. ✔ Phospholipid composition

2. ✖ Cell wall thickness

3. ✖ Mitochondrial DNA

4. ✖ Nucleosome structure

Question Number : 102 Question Id : 89040113512 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Crabtree effect in yeast occurs due to:

Options :

1. ✖ High oxygen concentration

2. ✔ High glucose concentration

3. ✖ Low pH

4. ✖ Presence of antibiotics

Question Number : 103 Question Id : 89040113513 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a dihybrid cross, the phenotypic ratio of the F2 generation follows:

Options :

1. ✔ 9:3:3:1

2. ✖ 3:1

3. ✖ 1:1:1:1

4. ✖ 1:2:1

Question Number : 104 Question Id : 89040113514 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which enzyme is used to break hydrogen bonds during DNA replication?

Options :

1. ✖ Ligase

2. ✔ Helicase

3. ✖ Polymerase

4. ✖ Exonuclease

Question Number : 105 Question Id : 89040113515 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Gram-positive bacteria differ from Gram-negative bacteria in having:

Options :

1. ✔ More peptidoglycan in their cell wall

2. ✖ Lipopolysaccharide layer

3. ✖ No plasma membrane

4. ✖ Two nuclei

Question Number : 106 Question Id : 89040113516 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The most heat-resistant bacterial spores are produced by:

Options :

1. ✖ Clostridium

2. ✖ Pseudomonas

3. ✔ Bacillus

4. ✖

Escherichia

Question Number : 107 Question Id : 89040113517 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The function of a sparger in a bioreactor is to:

Options :

1. ✖ Remove heat

2. ✔ Provide aeration

3. ✖ Maintain pH

4. ✖ Control pressure

Question Number : 108 Question Id : 89040113518 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

BLAST is a tool used for:

Options :

1. ✖ DNA sequencing

2. ✖ Protein modelling

3. ✔ Sequence alignment

4. ✖ 3D structural prediction

Question Number : 109 Question Id : 89040113519 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Hybridoma technology is widely used to produce:

Options :

1. ✖ Hormones

2. ✖ Antibiotics

3. ✔ Monoclonal antibodies

4. ✖ Vaccines

Question Number : 110 Question Id : 89040113520 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which parameter is most critical for scaling up a bioreactor?

Options :

1. ✔ Oxygen transfer rate

2. ✖ Medium viscosity

3. ✖ Shape of impeller

4. ✖ Size of inlet pipes

Question Number : 111 Question Id : 89040113521 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The role of Taq polymerase in PCR is to:

Options :

1. ✖ Synthesize primers

2. ✖ Cut DNA strands

3. ✔ Amplify DNA

4. ✖ Synthesize mRNA

Question Number : 112 Question Id : 89040113522 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the function of a nucleolus?

Options :

1. ✖ DNA replication

2. ✔ Ribosome production

3. ✖ Protein modification

4. ✖ ATP synthesis

Question Number : 113 Question Id : 89040113523 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The catalytic efficiency of an enzyme is measured by:

Options :

1. ✖ Km/Vmax

2. ✔ Vmax/Km

3. ✖ Vmax * Km

4. ✖ Km – Vmax

Question Number : 114 Question Id : 89040113524 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The oxygen uptake requirements of a microbial population are characterized by:

Options :

1. ✖ Yield coefficient

2. ✖ Km value

3. ✖ Saturation concentration

4. ✔ KLa coefficient

Question Number : 115 Question Id : 89040113525 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The term 'totipotency' refers to the ability of:

Options :

1. ✔ A single cell to regenerate a whole organism

2. ✖ A plant to fix nitrogen

3. ✖ A cell to perform photosynthesis

4. ✖ A plant to tolerate high temperatures

Question Number : 116 Question Id : 89040113526 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which technique is used for inserting genes into plant cells?

Options :

1. ✖ Electroporation

2. ✖ Lipofection

3. ✔ Ti plasmid transformation

4. ✖ Microinjection

Question Number : 117 Question Id : 89040113527 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following microscopes has the highest resolution?

Options :

1. ✖ Light microscope

2. ✔

Electron microscope

3. ✖ Fluorescence microscope

4. ✖ Phase-contrast microscope

Question Number : 118 Question Id : 89040113528 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main purpose of a FASTA file format is to store:

Options :

1. ✔ DNA and protein sequences

2. ✖ Protein structures

3. ✖ Drug interactions

4. ✖ Metabolic pathways

Question Number : 119 Question Id : 89040113529 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The catalytic efficiency of an enzyme is

Options :

1. ✖ Km/Vmax

2. ✔ Vmax/Km

3. ✖ Vmax * Km

4. ✖ Km – Vmax

Question Number : 120 Question Id : 89040113530 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Immobilized enzymes have advantages over free enzymes because they:

Options :

1. ✖ Increase substrate specificity

2. ✔ Are more stable

3. ✖ Need cofactors

4. ✖ Are non-selective

Question Number : 121 Question Id : 89040113531 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In large-scale bioprocessing, which type of bioreactor is widely used for continuous culture?

Options :

1. ✔ Stirred tank bioreactor

2. ✖ Bubble column reactor

3. ✖ Fluidized bed reactor

4. ✖ Packed bed reactor

Question Number : 122 Question Id : 89040113532 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is commonly used as a nitrogen source in microbial fermentation?

Options :

1. ✔ Ammonium sulfate

2. ✖ Sucrose

3. ✖ Lactic acid

4. ✖ Propanol

Question Number : 123 Question Id : 89040113533 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A DNA segment that reads the same forward and backward is called:

Options :

1. ✖ Complementary DNA

2. ✔ Palindromic DNA

3. ✖ Plasmid DNA

4. ✖

Question Number : 124 Question Id : 89040113534 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The process of nitrogen fixation is primarily carried out by:

Options :

1. ✖ Fungi

2. ✔ Cyanobacteria

3. ✖ Algae

4. ✖ Yeast

Question Number : 125 Question Id : 89040113535 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ XO

2. ✖ XY

3. ✖ XX

4. ✔ XXY

Question Number : 126 Question Id : 89040113536 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In bioleaching, which microorganism is used?

Options :

1. ✖ Pseudomonas aeruginosa

2. ✖ Bacillus subtilis

3. ✔ Thiobacillus ferrooxidans

4. ✖ Clostridium botulinum

Question Number : 127 Question Id : 89040113537 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a nonsense codon?

Options :

1. ✖ UAA

2. ✔ UUU

3. ✖ UAG

4. ✖ UGA

Question Number : 128 Question Id : 89040113538 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which enzyme is responsible for the unwinding of DNA during replication?

Options :

1. ✖ Polymerase

2. ✖ Topoisomerase

3. ✔ Helicase

4. ✖ Primase

Question Number : 129 Question Id : 89040113539 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ Covalent bonding

2. ✔ Hydrogen bonding

3. ✖ Hydrophobic bonding

4. ✖ Van der Waals interactions

Question Number : 130 Question Id : 89040113540 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The term "auxotroph" refers to a:

Options :

1. ✔ Bacterium with additional nutritional requirements

2. ✖ Self-sufficient organism

3. ✖ Microbe capable of fixing nitrogen

4. ✖ Fungi that grow on dead organic matter

Question Number : 131 Question Id : 89040113541 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The Crabtree effect leads to:

Options :

1. ✖ Increased oxygen consumption

2. ✔ Alcohol fermentation under aerobic conditions

3. ✖ Reduced ATP production

4. ✖ Excessive protein degradation

Question Number : 132 Question Id : 89040113542 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The resolving power of a microscope is enhanced by:

Options :

1. ✖ Increasing the wavelength of illumination

2. ✔ Using shorter wavelength light and increasing the numerical aperture

3. ✖ Decreasing the numerical aperture

4. ✖ Using longer wavelength light

Question Number : 133 Question Id : 89040113543 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following methods is used to transfer genes into plant cells?

Options :

1. ✖ Lipofection

2. ✖ Microinjection

3. ✔ Ti plasmid transformation

4. ✖ Conjugation

Question Number : 134 Question Id : 89040113544 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A medium designed to inhibit unwanted bacteria while promoting the growth of desired bacteria is known as:

Options :

1. ✖ Differential medium

2. ✖ Enrichment medium

3. ✔ Selective medium

4. ✖ Basal medium

Question Number : 135 Question Id : 89040113545 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a characteristic of facultative anaerobes?

Options :

1. ✖ They require oxygen at all times

2. ✖ They grow better without oxygen

3. ✔ They can use oxygen when present but also grow in its absence

4. ✖ They die in the presence of oxygen

Question Number : 136 Question Id : 89040113546 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The enzyme responsible for peptide bond formation during translation is:

Options :

1. ✔ Peptidyl transferase

2. ✖ Peptide polymerase

3. ✖ Peptidyl synthetase

4. ✖ Aminoacyl tRNA synthetase

Question Number : 137 Question Id : 89040113547 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The recommended aspect ratio for Air Lift Bioreactor (ALB) is

Options :

1. ✖ 10 – 15

2. ✖ 16 – 20

3. ✖ 0 – 1

4. ✔ 6 – 7

Question Number : 138 Question Id : 89040113548 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The unit of influent flow rate in wastewater treatment is:

Options :

1. ✖ m^2/d

2. ✔ m^3/d

3. ✖ m/s

4. ✖

Question Number : 139 Question Id : 89040113549 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A major advantage of immobilized enzymes is:

Options :

1. ✖ Their inability to be reused

2. ✖ Decreased stability

3. ✔ Greater resistance to denaturation

4. ✖ Increased reaction rates

Question Number : 140 Question Id : 89040113550 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which phase of bacterial growth is associated with the production of secondary metabolites?

Options :

1. ✖ Lag phase

2. ✖ Log phase

3. ✔ Stationary phase

4. ✖ Death phase

Question Number : 141 Question Id : 89040113551 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process by which genetic information is copied from DNA to RNA is called:

Options :

1. ✖ Replication

2. ✔ Transcription

3. ✖ Translation

4. ✖ Reverse transcription

Question Number : 142 Question Id : 89040113552 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The enzyme responsible for the synthesis of mRNA is:

Options :

1. ✖ DNA polymerase

2. ✔ RNA polymerase

3. ✖ Ligase

4. ✖ Primase

Question Number : 143 Question Id : 89040113553 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a function of ribosomes?

Options :

1. ✖ Protein synthesis

2. ✖ mRNA binding

3. ✔ DNA replication

4. ✖ Polypeptide chain elongation

Question Number : 144 Question Id : 89040113554 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The major difference between prokaryotic and eukaryotic mRNA is:

Options :

1. ✖ Prokaryotic mRNA undergoes splicing

2. ✔ Eukaryotic mRNA has a 5' cap and poly-A tail

3. ✖ Prokaryotic mRNA contains introns

4. ✖ Eukaryotic mRNA lacks a ribosome binding site

Question Number : 145 Question Id : 89040113555 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following statements about plasmids is TRUE?

Options :

1. ✖ They are always linear DNA molecules

2. ✖ They are found only in eukaryotic cells

3. ✔ They replicate independently of chromosomal DNA

4. ✖ They cannot be transferred between bacteria

Question Number : 146 Question Id : 89040113556 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The function of restriction enzymes in bacteria is to:

Options :

1. ✖ Synthesize DNA

2. ✔ Degrade foreign DNA

3. ✖ Synthesize RNA

4. ✖ Repair mutations

Question Number : 147 Question Id : 89040113557 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which method is commonly used to insert foreign DNA into animal cells?

Options :

1. ✖ Ti plasmid transformation

2. ✔ Electroporation

3. ✖ Heat shock

4. ✖ Conjugation

Question Number : 148 Question Id : 89040113558 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a component of PCR?

Options :

1. ✖ Primers

2. ✖ DNA polymerase

3. ✔ Ribosomes

4. ✖ Nucleotides

Question Number : 149 Question Id : 89040113559 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a major application of Southern blotting?

Options :

1. ✖ DNA sequencing

2. ✖ Protein identification

3. ✔ DNA fingerprinting

4. ✖ RNA expression analysis

Question Number : 150 Question Id : 89040113560 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The enzyme responsible for linking Okazaki fragments is:

Options :

1. ✔ DNA ligase

2. ✖ DNA polymerase

3. ✖ Helicase

4. ✖ Gyrase

Question Number : 151 Question Id : 89040113561 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In plant tissue culture, which of the following is used to induce root formation?

Options :

1. ✖

Cytokinin

2. ✖ Gibberellin

3. ✔ Auxin

4. ✖ Abscisic acid

Question Number : 152 Question Id : 89040113562 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following techniques is used to create a genetically identical copy of an organism?

Options :

1. ✖ Genetic engineering

2. ✔ Cloning

3. ✖ PCR

4. ✖ Gene silencing

Question Number : 153 Question Id : 89040113563 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Ames test is used to determine:

Options :

1. ✔ Mutagenicity of a chemical

2. ✖ Antibiotic resistance

3. ✖ Viral infection

4. ✖ Genetic linkage

Question Number : 154 Question Id : 89040113564 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main advantage of monoclonal antibodies over polyclonal antibodies is:

Options :

1. ✖ They are more expensive to produce

2. ✖ They bind multiple epitopes

3. ✔ They are highly specific for a single epitope

4. ✖ They are less stable

Question Number : 155 Question Id : 89040113565 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What type of fermentation is used for the production of beer and wine?

Options :

1. ✖ Lactic acid fermentation

2. ✔ Alcoholic fermentation

3. ✖ Acetic acid fermentation

4. ✖ Mixed acid fermentation

Question Number : 156 Question Id : 89040113566 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which enzyme is responsible for the conversion of pyruvate to ethanol in yeast?

Options :

1. ✖ Pyruvate kinase

2. ✔ Alcohol dehydrogenase

3. ✖ Acetyl-CoA synthetase

4. ✖ ATP synthase

Question Number : 157 Question Id : 89040113567 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The main function of mitochondria in eukaryotic cells is:

Options :

1. ✖ DNA replication

2. ✖ Protein synthesis

3. ✔ Energy production

4. ✖ Photosynthesis

Question Number : 158 Question Id : 89040113568 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a primary metabolite?

Options :

1. ✖ Antibiotics

2. ✖ Pigments

3. ✔ Ethanol

4. ✖ Toxins

Question Number : 159 Question Id : 89040113569 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The optimum temperature for most mesophilic bacteria is:

Options :

1. ✖ 0-10°C

2. ✖ 15-25°C

3. ✔ 25-40°C

4. ✖

50-60°C

Question Number : 160 Question Id : 89040113570 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a common cryoprotectant used in cell preservation?

Options :

1. ✖ Ethanol

2. ✔ Dimethyl sulfoxide (DMSO)

3. ✖ Acetone

4. ✖ Ammonia

Question Number : 161 Question Id : 89040113571 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which enzyme catalyzes the formation of peptide bonds during translation?

Options :

1. ✔ Peptidyl transferase

2. ✖ DNA polymerase

3. ✖ Ligase

4. ✖

Helicase

Question Number : 162 Question Id : 89040113572 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a step in recombinant DNA technology?

Options :

1. ✖ Gene isolation

2. ✖ Vector insertion

3. ✔ Protein folding

4. ✖ Transformation

Question Number : 163 Question Id : 89040113573 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the function of a selectable marker in genetic engineering?

Options :

1. ✔ To enable identification of transformed cells

2. ✖ To cut DNA fragments

3. ✖ To enhance protein expression

4. ✖

To bind RNA molecules

Question Number : 164 Question Id : 89040113574 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The primary function of the Golgi apparatus is:

Options :

1. ✖ ATP production

2. ✔ Protein modification and sorting

3. ✖ DNA replication

4. ✖ Lipid degradation

Question Number : 165 Question Id : 89040113575 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a characteristic of lysosomes?

Options :

1. ✖ They synthesize proteins

2. ✔ They contain hydrolytic enzymes

3. ✖ They store genetic material

4. ✖

They generate ATP

Question Number : 166 Question Id : 89040113576 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which type of bacteria can survive in extremely high temperatures?

Options :

1. ✖ Psychrophiles

2. ✖ Mesophiles

3. ✔ Thermophiles

4. ✖ Halophiles

Question Number : 167 Question Id : 89040113577 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which phase of bacterial growth is characterized by rapid cell division?

Options :

1. ✖ Lag phase

2. ✔ Log phase

3. ✖ Stationary phase

4. ✖

Death phase

Question Number : 168 Question Id : 89040113578 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which nitrogenous base is NOT found in RNA?

Options :

1. ✖ Adenine

2. ✖ Uracil

3. ✔ Thymine

4. ✖ Cytosine

Question Number : 169 Question Id : 89040113579 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The codon UGA is a:

Options :

1. ✖ Start codon

2. ✔ Stop codon

3. ✖ Codon for methionine

4. ✖ Codon for arginine

Question Number : 170 Question Id : 89040113580 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which technique is commonly used to separate proteins based on their size?

Options :

1. ✔ Gel filtration chromatography

2. ✖ Ion exchange chromatography

3. ✖ Affinity chromatography

4. ✖ Thin-layer chromatography

Question Number : 171 Question Id : 89040113581 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT an example of a post-translational modification?

Options :

1. ✖ Phosphorylation

2. ✖ Glycosylation

3. ✖ Protein splicing

4. ✔ Transcription

Question Number : 172 Question Id : 89040113582 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A non-competitive inhibitor binds to:

Options :

1. ✖ The active site of an enzyme

2. ✖ The substrate directly

3. ✔ An allosteric site of the enzyme

4. ✖ The product of the reaction

Question Number : 173 Question Id : 89040113583 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The energy currency of the cell is:

Options :

1. ✖ DNA

2. ✖ RNA

3. ✔ ATP

4. ✖ Glucose

Question Number : 174 Question Id : 89040113584 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In anaerobic respiration, the final electron acceptor is:

Options :

1. ✖ Oxygen

2. ✔ Nitrate or sulfate

3. ✖ Water

4. ✖ NADH

Question Number : 175 Question Id : 89040113585 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the main role of tRNA in translation?

Options :

1. ✖ Catalyzing peptide bond formation

2. ✔ Carrying amino acids to ribosomes

3. ✖ Synthesizing mRNA

4. ✖ Regulating DNA replication

Question Number : 176 Question Id : 89040113586 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The function of a ribozyme is to:

Options :

1. ✔ Act as a biological catalyst

2. ✖ Replicate DNA

3. ✖ Encode proteins

4. ✖ Regulate RNA splicing

Question Number : 177 Question Id : 89040113587 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The most commonly used model organism in molecular biology is:

Options :

1. ✖ Arabidopsis thaliana

2. ✔ Escherichia coli

3. ✖ Saccharomyces cerevisiae

4. ✖ Drosophila melanogaster

Question Number : 178 Question Id : 89040113588 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In gene therapy, a viral vector is used to:

Options :

1. ✖ Transmit a disease

2. ✔ Deliver genetic material into cells

3. ✖ Destroy foreign cells

4. ✖ Induce mutations

Question Number : 179 Question Id : 89040113589 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following elements is a micronutrient essential for enzyme function?

Options :

1. ✖ Sodium

2. ✔ Zinc

3. ✖ Carbon

4. ✖ Oxygen

Question Number : 180 Question Id : 89040113590 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The process of cell differentiation is controlled by:

Options :

1. ✔ Gene expression

2. ✖ DNA replication

3. ✖ Osmotic pressure

4. ✖ Mitochondrial division

Question Number : 181 Question Id : 89040113591 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following vaccines was the first to be developed using animal cell culture?

Options :

1. ✖ Hepatitis B vaccine

2. ✖ Influenza vaccine

3. ✔ Polio vaccine

4. ✖ Smallpox vaccine

Question Number : 182 Question Id : 89040113592 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

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 : 89040113593 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the main function of cytokines in cell signaling?

Options :

1. ✖ Inhibiting cell communication

2. ✖ Promoting bacterial infections

3. ✔ Regulating immune responses

4. ✖ Suppressing protein synthesis

Question Number : 184 Question Id : 89040113594 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Hybridoma cells are primarily used for the production of:

Options :

1. ✖ Enzymes

2. ✔ Monoclonal antibodies

3. ✖ Cytotoxic drugs

4. ✖ Recombinant proteins

Question Number : 185 Question Id : 89040113595 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Gene knockout refers to the:

Options :

1. ✔ Inactivation of a specific gene

2. ✖ Removal of an entire chromosome

3. ✖ Overexpression of a gene

4. ✖ Transcriptional silencing of mRNA

Question Number : 186 Question Id : 89040113596 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a non-coding RNA involved in gene regulation?

Options :

1. ✖ rRNA

2. ✖ tRNA

3. ✔ miRNA

4. ✖

mRNA

Question Number : 187 Question Id : 89040113597 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The enzyme responsible for copying RNA into DNA is called:

Options :

1. ✖ RNA polymerase

2. ✔ Reverse transcriptase

3. ✖ DNA ligase

4. ✖ Endonuclease

Question Number : 188 Question Id : 89040113598 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a method used to analyze protein expression?

Options :

1. ✖ Northern blot

2. ✔ Western blot

3. ✖ Southern blot

4. ✖ PCR

Question Number : 189 Question Id : 89040113599 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an example of a secondary metabolite?

Options :

1. ✖ Ethanol

2. ✔ Antibiotics

3. ✖ Glucose

4. ✖ Amino acids

Question Number : 190 Question Id : 89040113600 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The GenBank database is primarily used for storing:

Options :

1. ✖ Protein sequences

2. ✖ Metabolic pathways

3. ✔ DNA sequences

4. ✖ Chemical structures

Question Number : 191 Question Id : 89040113601 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following best describes a facultative anaerobe?

Options :

1. ✖ Requires oxygen to survive

2. ✔ Can grow with or without oxygen

3. ✖ Dies in the presence of oxygen

4. ✖ Uses only anaerobic respiration

Question Number : 192 Question Id : 89040113602 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The role of a chemostat in a bioreactor is to:

Options :

1. ✖ Remove toxic by-products

2. ✔ Maintain a constant culture environment

3. ✖ Prevent contamination

4. ✖ Increase mutation rates

Question Number : 193 Question Id : 89040113603 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a major advantage of immobilized enzymes?

Options :

1. ✖ They are cheaper than free enzymes

2. ✔ They can be reused multiple times

3. ✖ They require more cofactors

4. ✖ They have reduced specificity

Question Number : 194 Question Id : 89040113604 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the purpose of using a fusion protein tag in recombinant protein production?

Options :

1. ✖ To break down the protein

2. ✖ To inhibit gene expression

3. ✔ To facilitate purification

4. ✖ To degrade unwanted proteins

Question Number : 195 Question Id : 89040113605 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is responsible for the inhibition of enzyme activity in feedback inhibition?

Options :

1. ✖ Enzymes

2. ✔ End product

3. ✖ Temperature

4. ✖ Substrate concentration

Question Number : 196 Question Id : 89040113606 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the function of a promoter region in a gene?

Options :

1. ✖ To terminate transcription

2. ✖ To enhance DNA replication

3. ✔ To initiate transcription

4. ✖ To degrade RNA

Question Number : 197 Question Id : 89040113607 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the main advantage of using bacterial expression systems for protein production?

Options :

1. ✖ High post-translational modification

2. ✔ Fast growth rate and high yield

3. ✖ Large genome size

4. ✖ High energy requirements

Question Number : 198 Question Id : 89040113608 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A mutation that does not change the amino acid sequence of a protein is called a:

Options :

1. ✖ Frameshift mutation

2. ✖ Nonsense mutation

3. ✔ Silent mutation

4. ✖ Missense mutation

Question Number : 199 Question Id : 89040113609 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process of introducing foreign DNA into bacterial cells using heat shock or electroporation is called:

Options :

1. ✖ Transduction

2. ✔ Transformation

3. ✖ Conjugation

4. ✖ Transcription

Question Number : 200 Question Id : 89040113610 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT a component of a plasmid cloning vector?

Options :

1. ✖ Origin of replication

2. ✖ Selectable marker

3. ✔ Ribosome binding site

4. ✖ Multiple cloning site