

Question Paper Preview

Notations :

- Options shown in green color and with ✓ icon are correct.
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Question Paper Name :	M Sc Biotechnology 11th Aug 2025 Shift 1
Subject Name :	M.Sc. Biotechnology
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M.Sc. Biotechnology

Group Number :	1
Group Id :	73368793
Group Maximum Duration :	0
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Show Attended Group? :	No
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Group Marks :	100

PART A

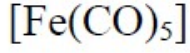
Section Id :	733687178
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	40
Number of Questions to be attempted :	40
Section Marks :	40
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Sub-Section Number :	1
Sub-Section Id :	733687213
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 7336879486 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

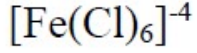
In which of the following complex pairing energy is greater than the crystal field splitting energy (Δ_o)

ఈ క్రింది వానిలో ఏ సంశ్లిష్టంనకు జత పరిచే శక్తి, స్పటిక క్షేత్ర విభజన శక్తి కన్నా అధికంగా ఉండును.

Options :



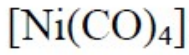
1. ✖



2. ✔



3. ✖



4. ✖

Question Number : 2 Question Id : 7336879487 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The stability of the secondary structure of proteins is due to?

ప్రోటీన్ ల యొక్క ద్వితీయ నిర్మాణ స్థిరత్వమునకు గల కారణము?

Options :

Salt bridges between charged side chains of amino acids.

అమైనో ఆమ్లాల మధ్య ఉండే లవణ వారధి .

1. ✖

Peptide bonds between amino acids.

అమైనో ఆమ్లాల మధ్య ఉండే పెప్టైడ్ బంధము .

2. ✖

Disulphide bridges between cysteine residues.

సిస్టీన్ ల మధ్య ఉండు డై సల్ఫైడ్ వారధి.

3. ✖

Hydrogen bonding between the C=O and N-H groups of peptide bonds.

C=O మరియు N-H మధ్య ఉండు హైడ్రోజన్ బంధము.

4. ✔

Question Number : 3 Question Id : 7336879488 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Diel's Alder reaction is

డిల్స్ ఆల్డర్ చర్య

Options :

Thermal [2+2]-Cycloaddition reaction.

1. ✖ [2+2] ఉష్ణ వలయ సంకలన చర్య.

Photochemical [4+2]-Cycloaddition reaction.

2. ✖ [4+2] కాంతి వలయ సంకలనచర్య .

Thermal Supra-Antara [4+2]-Cycloaddition reaction.

3. ✖ [4+2] S-A ఉష్ణ వలయ సంకలన చర్య.

Thermal Supra-Supra [4+2]-Cycloaddition reaction.

4. ✔ [4+2] S-S ఉష్ణ వలయ సంకలనము.

Question Number : 4 Question Id : 7336879489 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The smallest monosaccharide is

అతి చిన్న మోనో సాకరైడ్

Options :

1. ✖ Arabinose

2. ✖ Fructose

3. ✔ Glyceraldehyde

4. ✖ Glucose

Question Number : 5 Question Id : 7336879490 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In paracetamol synthesis from acetylation of 4-aminophenol

4-అమైన్ ఫినాల్ అసిటైలేషన్ చర్యలో పారసిటమాల్ సంశ్లేషణ ఈ క్రింది విధంగా జరుగును.

Options :

The OH group is acetylated preferentially over NH_2 .

OH గ్రూప్ NH_2 గ్రూప్ కన్న అధిక ప్రాధాన్యతతో అసిటైలేషన్ లో పాల్గొనును.

1. ✖

2. ✔

The NH_2 group is acetylated preferentially over OH.

NH_2 గ్రూప్ కన్న OH గ్రూప్ కన్న అధిక ప్రాధాన్యతతో అసిటైలేషన్ లో పాల్గొనును.

3. ✖

OH and NH_2 group are acetylated with same rate followed by deacetylation of NH_2 .

OH మరియు NH_2 రెండూ సమ ప్రాధాన్యతతో చర్యలో పాల్గొని NH_2 గ్రూప్ డి అసిటైలేషన్ చందును.

4. ✖

OH and NH_2 group are acetylated with same rate followed by deacetylation of OH.

OH మరియు NH_2 రెండూ సమ ప్రాధాన్యతతో చర్యలో పాల్గొని OH గ్రూప్ డి అసిటైలేషన్ చందును.

Question Number : 6 Question Id : 7336879491 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In which of the following reaction enantiomers are formed.

ఈ క్రింది ఏ చర్యలో ఎనాన్సియోమర్స్ ఏర్పడును.

Options :

Addition of methylmagnesium bromide to acetophenone.

మిథైల్ మెగ్నీషియం బ్రోమైడ్ మరియు అసిటోఫినోన్ ల మధ్య సంకలన చర్య.

1. ✖

Addition of methylmagnesium bromide to acetaldehyde.

మిథైల్ మెగ్నీషియం బ్రోమైడ్ మరియు అసిటాల్ డిహైడ్ ల మధ్య సంకలన చర్య.

2. ✖

Addition of methylmagnesium bromide to benzaldehyde.

మిథైల్ మెగ్నీషియం బ్రోమైడ్ మరియు బెంజాల్ డిహైడ్ ల మధ్య సంకలన చర్య.

3. ✔

Addition of methylmagnesium bromide to acetonitrile.

మిథైల్ మెగ్నీషియం బ్రోమైడ్ మరియు అసిటో నైట్రైల్ ల మధ్య సంకలన చర్య.

4. ✖

Question Number : 7 Question Id : 7336879492 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Hybridization of Ni in $[\text{Ni}(\text{CO})_4]$

$[\text{Ni}(\text{CO})_4]$ లో Ni యొక్క హైబ్రైడైజేషన్

Options :

SP^3d

1. ✖

dSP^2

2. ✖

SP^3

3. ✔

SP^2d

4. ✖

Question Number : 8 Question Id : 7336879493 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Electric charge is passed through two electrolytic cells containing AgNO_3 and CuSO_4 in series, 1.08 gr of silver is deposited in AgNO_3 cell. Amount of copper deposited in CuSO_4 cell is (atomic mass of Ag is 108 amu and Cu is 63.75 amu)

శ్రేణి లో కలిపిన సిల్వర్ నైట్రేట్ మరియు కాపర్ సల్ఫేట్ ఎలెక్ట్రో లైటిక్ ద్రావణాలలోకి విద్యుత్తును పంపించి నపుడు , 1.08 గ్రా సిల్వర్ నిక్షిప్తమైనది. కాపర్ సల్ఫేట్ ఘటం లో నిక్షిప్తమయ్యే కాపర్ భారము (atomic mass of Ag is 108 amu and Cu is 63.75 amu).

Options :

- 1. ✖ 6.35g
- 2. ✖ 13.7g
- 3. ✔ 3.175 g
- 4. ✖ 1.08 g

Question Number : 9 Question Id : 7336879494 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following molecules will NOT give a Microwave spectrum?
ఈ క్రింది వానిలో ఏది మైక్రోవేవ్ వర్ణపటాన్ని ఇవ్వదు.

Options :

- 1. ✔ H_2
- 2. ✖ HBr
- 3. ✖ CO
- 4. ✖ HF

Question Number : 10 Question Id : 7336879495 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The commonly used noble gas in airships is?

వాయు నౌక లో ఉపయోగించు వాయువు.

Options :

1. ✖ Ne

2. ✖ Xe

3. ✔ He

4. ✖ Ar

Question Number : 11 Question Id : 7336879496 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The chemical formula of Brown ppt formed when ammonium salts treated with Nessler's Reagent

నెస్లర్ కారకము మరియు అమోనియం లవణం మధ్య చర్యలో ఏర్పడు అవక్షేపం
ఫార్ములా

Options :

1. ✖ $K_2HgI_4(NH_2)$

2. ✔ $HgO.Hg(NH_2)I$

3. ✖ K_2HgI_4

4. ✖ $Hg(NH_2)I$

Question Number : 12 Question Id : 7336879497 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In a first-order reaction, 50.0% of a compound decomposes in 6.93 min. What is the rate constant of the reaction in min^{-1} .

ప్రథమ క్రమాంక చర్యలో 6.93 నిమిషాలలో 50 % చర్య పూర్తయిన ఆ చర్య యొక్క రేటు స్థిరాంకం min^{-1} లో.

Options :

1. ✖ 0.02
2. ✖ 0.01
3. ✔ 0.1
4. ✖ 0.0301

Question Number : 13 Question Id : 7336879498 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

In Proton NMR spectrum of butanone contains
బ్యుటనోన్ యొక్క ప్రోటాన్ వర్ణ పటంలో ఈ క్రింది ఏ సిగ్నల్స్ ఏర్పడును.

Options :

1. ✖ Singlet (6H) and triplet (2H)
2. ✖ singlet (3H), triplet (2H) and quartet (3H)
3. ✔ singlet (3H) , quartet (2H) and triplet (3H)
4. ✖ Four singlets

Question Number : 14 Question Id : 7336879499 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The following heterocyclic compound acts as diene in Diels-Alder reaction

ఈ క్రింది ఏ సమ్మేళనం డీల్స్ ఆల్డర్ చర్యలో డైఈన్ గా పనిచేయును.

Options :

1. ✖ Pyrrole
2. ✖ Thiophene
3. ✖ Pyridine
4. ✔ Furan

Question Number : 15 Question Id : 7336879500 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following boranes is a nido-borane?

ఈ క్రింది వానిలో ఏది నైడ్ బోరేన్

Options :

1. ✔ B_5H_9
2. ✖ B_4H_{10}
3. ✖ B_2H_6
4. ✖ B_6H_{10}

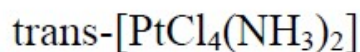
Question Number : 16 Question Id : 7336879501 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The reaction of $[PtCl_4]^{2-}$ with NH_3 gives rise to

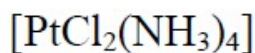
$[PtCl_4]^{2-}$ మరియు NH_3 మధ్య చర్యలో ఏర్పడునది.

Options :

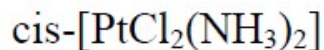
1. ✖ $[PtCl_4(NH_3)_2]^{2-}$



2. ✖



3. ✖



4. ✔

Question Number : 17 Question Id : 7336879502 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Optical activity is not exhibited by

ఈ క్రిందివానిలో దేనిలో ద్రువణ సాదృశ్యం సాధ్య పడదు.

Options :

Octahedral complexes

1. ✖

Tetrahedral complexes

2. ✖

Square planar complexes

3. ✔

Octahedral complexes and tetrahedral complexes

4. ✖

Question Number : 18 Question Id : 7336879503 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Oxidation state of iron in ferrocene

ఫెర్రోసిన్ లో ఐరన్ ఆక్సీకరణ స్థితి.

Options :

Zero

1. ✖

+3

2. ✖

+2

3. ✔

4. ✖ +1

Question Number : 19 Question Id : 7336879504 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

What is the prosthetic group present in hemoglobin?

హిమోగ్లోబిన్ లో ఉండే ప్రోస్థటిక్ గ్రూప్.

Options :

1. ✔ Heme

2. ✖ Globin

3. ✖ Phosphoric acid

4. ✖ Lipoprotein

Question Number : 20 Question Id : 7336879505 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The following process is accompanied by an increase in entropy

ఈ క్రింది వానిలో దేనిలో ఎంట్రోపి పెరుగును.

Options :

1. ✖ n-Butane → cyclobutane

2. ✔ Cyclobutane → n-Butane

3. ✖ Freezing of water at 0°C
0°C వద్ద నీటి ఘనీభవనము.

4. ✖ Compression of gas into a vessel
పాత్రలో వాయు సంకోచము

Question Number : 21 Question Id : 7336879506 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

McLafferty rearrangement is possible in
మెకలాఫార్టీ రీఅరేంజ్మెంట్ దేనిలో సాధ్యపడును.

Options :

1. ✖ Acetone
2. ✖ 2-Decanol
3. ✔ 2-Octanone
4. ✖ Benzene

Question Number : 22 Question Id : 7336879507 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Sodium Peroxide acquires yellow colour due to the presence
సోడియం పెరాక్సైడ్ పసుపు వర్ణానికి కారణము.

Options :

1. ✔ Superoxide of sodium
2. ✖ MgO
3. ✖ Oxide
4. ✖ K₂O

Question Number : 23 Question Id : 7336879508 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The shape of ClF₃
ClF₃ ఆకృతి

Options :

1. ✖ Pyramidal

2. ✓ T-shaped

3. ✗ Square pyramidal

4. ✗ Tetrahedron

Question Number : 24 Question Id : 7336879509 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Soft base among the following

క్రింది వానిలో మృదు క్షారము.

Options :

1. ✗ F^-

2. ✗ Cl^-

3. ✗ OH^-

4. ✓ CN^-

Question Number : 25 Question Id : 7336879510 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The key intermediate in the Arndt-Eistert reaction is

Arndt-Eistert చర్యలో ఏర్పడే ముఖ్య మైన మధ్యస్థ పదార్థము.

Options :

1. ✓ α -Diazoketone

2. ✗ Acid chloride

3. ✗ Ketene

Diazomethane

4. ✖

Question Number : 26 Question Id : 7336879511 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Among the following which has relatively more tendency to generate carbanion

ఈ క్రింది వానిలో ఏది సులభంగా కర్బనయాన్ ను ఏర్పరచును.

Options :

Acetaldehyde

1. ✖

Acetylacetone

2. ✔

Hexane-1,4-dione

3. ✖

Benzonitrile

4. ✖

Question Number : 27 Question Id : 7336879512 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The order of the pK_b values of methylamine, N-methylamine and N,N-dimethylamine is

మిథైల్అమైన్, N-మిథైల్అమైన్, N,N డైమిథైల్అమైన్ ల pK_b విలువల క్రమం

Options :

N,N-dimethylamine > N-methylamine > Methylamine

1. ✖

N-methylamine > Methylamine > N,N-dimethylamine

2. ✖

Methylamine > N,N-dimethylamine > N-methylamine

3. ✖

N,N-dimethylamine > Methylamine > N-methylamine

4. ✔

Question Number : 28 Question Id : 7336879513 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The peak with m/z value 91 observed in mass spectra of
ఏ సమ్మేళనం యొక్క మాస్ వర్ల పటం లో m/z 91 విలువ ఉండును.

Options :

1. ✖ Chlorobenzene
2. ✔ Benzylchloride
3. ✖ Benzamide
4. ✖ Phenol

Question Number : 29 Question Id : 7336879514 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following pair has almost equal atomic and ionic radii
ఈ క్రింది ఏ జత పరమాణువులకు ఒకే వ్యాసార్థం ఉండును.

Options :

1. ✖ Be and Mg
2. ✖ Na and K
3. ✔ Zr and Hf
4. ✖ Cu and Au

Question Number : 30 Question Id : 7336879515 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The unit of molar absorption coefficient is
మోలార్ శోషణ గుణకం యొక్క ప్రమాణాలు

Options :

1. ✓ $\text{L} \cdot \text{mol}^{-1} \cdot \text{cm}^{-1}$

2. ✗ $\text{Mol} \cdot \text{L} \cdot \text{cm}^{-1}$

3. ✗ $\text{L} \cdot \text{cm} \cdot \text{mol}^{-1}$

4. ✗ $\text{L} \cdot \text{mol} \cdot \text{cm}$

Question Number : 31 Question Id : 7336879516 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which point group does a H_2O molecule belong to?

H_2O యొక్క పాయింట్ గ్రూప్

Options :

1. ✗ D_{2h}

2. ✗ C_{3v}

3. ✓ C_{2v}

4. ✗ D_3

Question Number : 32 Question Id : 7336879517 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following solution has relatively high vapour pressure

ఈ క్రింది వానిలో ఏ ద్రావణానికి మిగిలిన వాటితో పోల్చిన అధిక భాష్ప పీడనము ఉండును.

Options :

1. ✗ 1M NaCl solution

2. ✓ 0.5M Glucose solution

0.4M BaCl₂ solution

3. ✖

2M solution of solute undergoes dimerization

4. ✖

Question Number : 33 Question Id : 7336879518 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is aromatic

ఈ క్రింది వానిలో ఏది ఆరోమాటిక్ సమ్మేళనం

Options :

Cyclopropene

1. ✖

Cyclopropenyl anion

2. ✖

Cyclopentadienyl cation

3. ✖

Tropylium cation

4. ✔

Question Number : 34 Question Id : 7336879519 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

3⁰-butyl methyl ether can be prepared by

3⁰-బ్యుటైల్ మిథైల్ ఈథర్ ఏర్పడు చర్య

Options :

The reaction of sodium tert-butoxide with methyl iodide

సోడియం 3⁰ బ్యుటాక్సైడ్ మరియు మిథైల్ అయోడైడ్ మధ్య చర్య

1. ✔

The reaction of sodium methoxide and tert-butyl iodide

సోడియం మిథాక్సైడ్ మరియు 3⁰-బ్యుటైల్ అయోడైడ్ మధ్య చర్య

2. ✖

The reaction of tert-butylbromide with methane in presence of NaOH

3. ✖ NaOH సమక్షంలో 3⁰-బ్యుటైల్ బ్రోమైడ్ మరియు మీథేన్ మధ్య చర్య

4. ✖

The reaction of tert-butylbromide with methyl iodide in presence of NaOH

NaOH సమక్షంలో 3⁰-బ్యుటైల్ బ్రోమైడ్ మరియు మిథైల్ అయోడైడ్ మధ్య చర్య

Question Number : 35 Question Id : 7336879520 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a paramagnetic molecule

క్రింది వానిలో ఏది పారా మాగ్నెటిక్

Options :

1. ✖ N₂

2. ✖ Ne₂

3. ✔ O₂

4. ✖ CO

Question Number : 36 Question Id : 7336879521 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is chiral molecule

ఈ క్రింది వానిలో ఏది ఖైరల్ అణువు

Options :

1. ✖ Cis-1,2-dichlorocyclopropane

2. ✔ Trans-1,2-dichlorocyclopropane

3. ✖ Trans-1,3-dichlorocyclobutane

cis-1,3-dichlorocyclobutane

4. ✖

Question Number : 37 Question Id : 7336879522 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In a single-component general system, if degree of freedom is zero, maximum number of phases that can co-exist

సాధారణ ఏక ఘటక వ్యవస్థ లో $F=0$ ఉన్నప్పుడు గరిష్టంగా ఉండు ప్రావస్థల సంఖ్య

Options :

1. ✔ 3

2. ✖ 2

3. ✖ 1

4. ✖ zero

Question Number : 38 Question Id : 7336879523 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following gives positive tests with 2,4-DNP and $I_2/NaOH$

ఈ క్రింది వానిలో ఏది 2,4-DNP మరియు $I_2/NaOH$ తో చర్యలో పాల్గొనును.

Options :

1. ✖ Benzophenone

2. ✖ 3-Pentanone

3. ✔ Butanone

4. ✖ Cyclohexanone

Question Number : 39 Question Id : 7336879524 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Among the following which is relatively more reactive with nucleophile in S_N^1 reaction.

ఈ క్రింది వానిలో ఏది S_N^1 చర్యలో అధిక చర్యాశీలతను కలిగి ఉండును.

Options :

1. ✖ Vinyl chloride
2. ✖ n-Propyl chloride
3. ✖ n-Butyl chloride
4. ✔ Triphenylmethyl chloride

Question Number : 40 Question Id : 7336879525 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following colloidal system represents a gel?

ఈ క్రింది ఏ కొల్లాయిడల్ వ్యవస్థ జెల్ కు ఉదాహరణ.

Options :

1. ✖ Solid in liquid
ద్రవములో ఘనము
2. ✖ Solid in gas
వాయువులో ఘనము
3. ✔ Liquid in solid
ఘనములో ద్రవము
4. ✖ Liquid in gas
వాయువులో ద్రవము.

PART B

Section Id :

733687179

Section Number :

2

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	60
Number of Questions to be attempted :	60
Section Marks :	60
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	733687214
Question Shuffling Allowed :	Yes

Question Number : 41 Question Id : 7336879526 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not included in the three tenets of cell theory?

Options :

1. ✖ All organisms are composed of one or more cells
2. ✔ All cells are structurally alike
3. ✖ The cell is the basic organizational unit of life
4. ✖ All cells arise from preexisting cells

Question Number : 42 Question Id : 7336879527 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The middle lamella in plants is primarily composed of

Options :

1. ✖ Cellulose
2. ✖ Lignin
3. ✖ Lipid
4. ✔ Pectins

Question Number : 43 Question Id : 7336879528 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

In nucleosomal organization of chromatin, DNA is wrapped around histone core which contains

Options :

1. ✓ two each of H2A, H2B, H3, and H4
2. ✗ two each of H1, H2, H3, and H4
3. ✗ two each of H2A, H2B, H1, and H4
4. ✗ two each of H2A, H2B, H3, and H1

Question Number : 44 Question Id : 7336879529 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The correct order of stages in prophase I of meiosis is

Options :

1. ✗ Leptotene-zygotene-diplotene-diakinesis and pachytene
2. ✗ Leptotene-zygotene-diplotene-pachytene and diakinesis
3. ✗ Leptotene-pachytene- zygotene-diplotene and diakinesis
4. ✓ Leptotene-zygotene-pachytene-diplotene and diakinesis

Question Number : 45 Question Id : 7336879530 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Monohybrid cross between heterozygous (Tt) tall and homozygous dwarf (tt) will lead to which of the following genotype ratio in F1

Options :

1. ✗ TT: Tt: tt :: 1:2:1
2. ✗ TT: Tt: tt :: 0:2:1
3. ✓ TT: Tt: tt :: 0:1:1
4. ✗ TT: Tt: tt :: 1:0:1

Question Number : 46 Question Id : 7336879531 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Pair of alleles that govern a trait and remain together throughout the life of an individual, are separated (or segregated) from one another during the formation of the gametes, is an example of

Options :

1. ✖ Law of independent assortment
2. ✖ Epistasis
3. ✔ Law of segregation
4. ✖ Incomplete dominance

Question Number : 47 Question Id : 7336879532 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Barr body is an example of

Options :

1. ✔ Facultative heterochromatin
2. ✖ Constitutive heterochromatin
3. ✖ Facultative euchromatin
4. ✖ Constitutive euchromatin

Question Number : 48 Question Id : 7336879533 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the pair is incorrect?

Options :

1. ✖ Linkage- genes located on the same chromosome
2. ✖ Crossing Over- Chiasma formation

3. ✖ Genetic distance- Centimorgan

4. ✔ Color blindness- cAMP

Question Number : 49 Question Id : 7336879534 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

A ladder-like structure composed of three parallel bars with many cross fibers and holds each pair of homologous chromosomes in the proper position to allow the continuation of genetic recombination between strands of DNA is called

Options :

1. ✖ Chromatin

2. ✔ Synaptonemal complex

3. ✖ Nucleopore complex

4. ✖ Pili

Question Number : 50 Question Id : 7336879535 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is true for holandric genes?

Options :

1. ✖ They are found in the homologous region of X chromosome

2. ✖ They are found in non-homologous regions of X chromosome

3. ✖ They are found in the homologous region of Y chromosome

4. ✔ They are found in non-homologous regions of Y chromosome

Question Number : 51 Question Id : 7336879536 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is incorrect?

Options :

1. ✖ Griffith--Transforming principle
2. ✖ Hershey- Chase—DNA carries genetic information
3. ✖ Avery, MacLeod and McCarty-- DNA is responsible for bacterial transformation
4. ✔ C-value paradox—genetic distance

Question Number : 52 Question Id : 7336879537 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is true with respect to structure of double stranded DNA?

Options :

1. ✖ Linking number is independent of Twist
2. ✖ Linking number is independent of Writhe
3. ✖ Linking number is independent of Twist and Writhe both
4. ✔ Linking number is dependent on Twist and Writhe both

Question Number : 53 Question Id : 7336879538 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which pentose sugar is present in DNA?

Options :

1. ✖ Alpha-D -Ribose
2. ✖ Beta-D -Ribose
3. ✔ 2-Deoxy-Alpha-D-Ribose

4. ✖ 2-Deoxy- Beta-D-Ribose

Question Number : 54 Question Id : 7336879539 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

A circular double-stranded chromosomal DNA, lacking histone protein and showing polycistronic nature of gene clusters with no introns may suitably be a

Options :

- 1. ✖ Fungal genomic DNA
- 2. ✖ Eukaryotic animal DNA
- 3. ✖ Eukaryotic plant DNA
- 4. ✔ Bacterial DNA

Question Number : 55 Question Id : 7336879540 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

DNA polymerase I of *E. coli* has

Options :

- 1. ✖ 5'-3' polymerase, 3'-5' endonuclease and 5'-3' exonuclease activity
- 2. ✔ 5'-3' polymerase, 3'-5' exonuclease and 5'-3' exonuclease activity
- 3. ✖ 3'-5' polymerase, 3'-5' endonuclease and 5'-3' exonuclease activity
- 4. ✖ 3'-5' polymerase, 3'-5' exonuclease and 5'-3' endonuclease activity

Question Number : 56 Question Id : 7336879541 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Regions of DNA with inverted repeats of base sequence having twofold symmetry over two strands of DNA is called

Options :

1. ✓ ☒ palindrome
2. ✗ ☐ syndrome
3. ✗ ☐ promoter
4. ✗ ☐ terminator

Question Number : 57 Question Id : 7336879542 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Uracil–DNA glycosylase, AP endonuclease, Phosphodiesterase activity of DNA polymerase β are part of

Options :

1. ✗ ☐ Viral DNA replication
2. ✓ ☒ Base Excision Repair
3. ✗ ☐ Rolling circle mechanism of DNA replication
4. ✗ ☐ Bacterial conjugation

Question Number : 58 Question Id : 7336879543 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

PIR is a _____

Options :

1. ✗ ☐ Gene bank
2. ✗ ☐ Seed bank
3. ✓ ☒ Protein Databank
4. ✗ ☐ Nucleotide databank

Question Number : 59 Question Id : 7336879544 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

BLAST in bioinformatics usually stands for

Options :

1. ✖ Basic Length Alignment System Tool
2. ✔ Basic Local Alignment Search Tool
3. ✖ Basic Logical Alienation Search Tool
4. ✖ Biological Long Aptamer Search Tool

Question Number : 60 Question Id : 7336879545 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is true?

Options :

1. ✖ Exons are residence of highly repeated sequences of DNA
2. ✖ Introns are residence of highly coding sequences of DNA
3. ✔ Centromere is residence of highly repeated sequences of DNA
4. ✖ Centromere is residence of least repeated sequences of DNA

Question Number : 61 Question Id : 7336879546 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a disaccharide?

Options :

1. ✖ Mannose
2. ✔ Lactose
3. ✖ Xylose
4. ✖ Fructose

Question Number : 62 Question Id : 7336879547 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a linear polymer of glucose mainly linked with $\alpha(1 \rightarrow 4)$ bonds?

Options :

1. ✖ Cellulose
2. ✖ Inulin
3. ✔ Amylose
4. ✖ Pectin

Question Number : 63 Question Id : 7336879548 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

The smallest amino acid usually present in proteins has _____

Options :

1. ✖ 1 carbon atom
2. ✔ 2 carbon atoms
3. ✖ 3 carbon atoms
4. ✖ 4 carbon atoms

Question Number : 64 Question Id : 7336879549 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Ramachandran Plot indicates about structural validation of _____

Options :

1. ✖ Lipids
2. ✖ Nucleic acids

3. ✓ Proteins

4. ✗ Carbohydrates

Question Number : 65 Question Id : 7336879550 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Terpenes are composed of _____

Options :

1. ✓ Isoprene units

2. ✗ Tertiary amines

3. ✗ Tertiary alcohols

4. ✗ Tricarboxylic acids

Question Number : 66 Question Id : 7336879551 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Fat soluble vitamins are _____

Options :

1. ✗ A, B, D, K

2. ✗ A, C, D, K

3. ✗ B, D, E, K

4. ✓ A, D, E, K

Question Number : 67 Question Id : 7336879552 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is found in ground nut and is monounsaturated fatty acid?

Options :

1. ✓ Oleic acid
2. ✗ Linoleic acid
3. ✗ Arachidonic acid
4. ✗ Stearic acid

Question Number : 68 Question Id : 7336879553 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

According to Michaelis-Menton equation, K_m is _____

Options :

1. ✗ $[S]$ at V_{max}
2. ✓ $[S]$ at $\frac{1}{2} V_{max}$
3. ✗ $[S]$ at $\frac{1}{4} V_{max}$
4. ✗ $[S]$ at $2 V_{max}$

Question Number : 69 Question Id : 7336879554 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

In Uncompetitive inhibition

Options :

1. ✗
The inhibitor does not bind to the enzyme-substrate complex, decreasing only K_m and not affecting V_{max}
2. ✗
The inhibitor binds only to the enzyme-substrate complex, decreasing only K_m and not affecting V_{max}
3. ✗
The inhibitor binds only to the enzyme-substrate complex, decreasing only V_{max} and not affecting K_m

4. ✓

The inhibitor binds only to the enzyme-substrate complex, decreasing both K_m and V_{max}

Question Number : 70 Question Id : 7336879555 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In a packet of 16 seeds 10 seeds have TT genotype and 6 seeds have tt genotype. If a seed is sown at random, what is the probability that it is TT?

Options :

1. ✗ $3/5$

2. ✗ $6/10$

3. ✓ $10/16$

4. ✗ $5/16$

Question Number : 71 Question Id : 7336879556 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following methods can be used to find the hydrodynamic size of a protein?

Options :

1. ✗ SDS-PAGE

2. ✗ Ion exchange chromatography

3. ✗ Urea-PAGE

4. ✓ Gel filtration chromatography

Question Number : 72 Question Id : 7336879557 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

If the hydrolytic product of sucrose (by invertase) is processed in glycolysis, what will be the net gain of ATP?

Options :

- 1. ✖ 1 ATP
- 2. ✖ 2 ATP
- 3. ✔ 4 ATP
- 4. ✖ 8 ATP

Question Number : 73 Question Id : 7336879558 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not true about agarose gel electrophoresis?

Options :

- 1. ✔ DNA is negatively charged in the acidic environment during electrophoresis
- 2. ✖ DNA is negatively charged in an alkaline environment during electrophoresis
- 3. ✖ DNA binds with ethidium bromide dye
- 4. ✖ DNA migration is based on size, the smaller moves faster

Question Number : 74 Question Id : 7336879559 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

In cation exchange chromatography the matrix (resin) contains

Options :

- 1. ✖ negatively charged functional groups that attract and bind positively charged ions usually at pH above isoelectric point
- 2. ✖ positively charged functional groups that attract and bind negatively charged ions usually at pH above isoelectric point

negatively charged functional groups that attract and bind positively charged ions usually at pH below isoelectric point

3. ✓

positively charged functional groups that attract and bind negatively charged ions usually at pH below isoelectric point

4. ✗

Question Number : 75 Question Id : 7336879560 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

For reproducibility in fractionation using centrifugation, which of the following information is sufficient?

Options :

RPM, and duration

1. ✗

RPM, duration and temperature

2. ✗

RCF and duration

3. ✗

RCF, duration and temperature

4. ✓

Question Number : 76 Question Id : 7336879561 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Enzymatic oxidative deamination of amino acids in the liver and kidneys is dependent upon

Options :

Oxygen, ATP

1. ✗

Oxygen, GTP

2. ✗

Oxygen, FAD

3. ✓

FAD, ATP

4. ✗

Question Number : 77 Question Id : 7336879562 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which one is true?

Options :

1. ☒ Tetracyclines are broad-spectrum antibiotics with four-ring nucleus and they bind to the small ribosomal subunit and inhibit protein synthesis
2. ☐ Members of the penicillin family contain a imidazole ring and disrupt bacterial cell wall synthesis, resulting in cell lysis
3. ☐ Chloramphenicol is a narrow-spectrum, bacteriostatic antibiotic that inhibits replication of DNA
4. ☐ Aminoglycoside antibiotics like streptomycin and gentamicin bind to the larger ribosomal subunit and are bacteriostatic

Question Number : 78 Question Id : 7336879563 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

The concept of spontaneous generation of living organism was challenged by

Options :

1. ☐ Aristotle
2. ☒ Francesco Redi
3. ☐ Socrates
4. ☐ Girolamo Fracastoro

Question Number : 79 Question Id : 7336879564 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Credit for the discovery of blood groups goes to _____

Options :

1. ☐ Spallanzani

2. ✖ Beijerinck

3. ✔ Landsteiner

4. ✖ Louis Pasteur

Question Number : 80 Question Id : 7336879565 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Bacteria having a tuft of flagella at one end are called _____

Options :

1. ✖ Monotrichous

2. ✖ Amphitrichous

3. ✔ Lophotrichous

4. ✖ Peritrichous

Question Number : 81 Question Id : 7336879566 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

An organism that has lost the ability to synthesize any specific organic compound required for its growth, and it requires that compound to be supplied in its environment for growth

Options :

1. ✖ Amphipathic

2. ✖ Chemotrophic

3. ✔ Auxotrophic

4. ✖ Lithotrophic

Question Number : 82 Question Id : 7336879567 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Epitope is

Options :

1. ✖ the region on an antibody that binds to an antigen
2. ✖ a flexible segment of the heavy chains located between the Fab and Fc regions
3. ✖
4. ✔ large molecule, often a protein, that is used to enhance the immunogenicity of a smaller molecule
5. ✔ specific region on an antigen that an antibody or immune cell receptor recognizes and binds to, triggering an immune response

Question Number : 83 Question Id : 7336879568 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

What is true about T cells?

Options :

1. ✖ They are never subjected to apoptosis are linked to evasion of long term memory
2. ✔ They are initially formed in the bone marrow, but they mature in the thymus
3. ✖ They are not derived from hematopoietic stem cells
4. ✖ They help in the development of drug resistance in bacteria

Question Number : 84 Question Id : 7336879569 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the immunoglobulins is synthesized in early infection stage?

Options :

1. ✖ IgG
2. ✖ IgE

3. ✓ IgM

4. ✗ IgA

Question Number : 85 Question Id : 7336879570 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

RNA polymerase III of eukaryotes is

Options :

1. ✗ RNA-dependent RNA polymerase which synthesizes tRNA

2. ✓ DNA-dependent RNA polymerase which synthesizes tRNA

3. ✗ RNA-dependent RNA polymerase which synthesizes mRNA

4. ✗ DNA-dependent RNA polymerase which synthesizes mRNA

Question Number : 86 Question Id : 7336879571 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a method of transcriptional gene silencing?

Options :

1. ✗ Antisense RNA

2. ✗ dsRNA synthesis

3. ✓ Promoter methylation

4. ✗ RNA interference

Question Number : 87 Question Id : 7336879572 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In the Lac Operon, the correct sequence of segments is

Options :

1. ✓ Promoter-Operator-galactosidase- permease-transacetylase

2. ✖ Operator-Promoter-galactosidase-transacetylase- permease
3. ✖ Promoter-Operator-transacetylase- galactosidase-permease
4. ✖ Promoter-Operator-galactosidase-transacetylase- permease

Question Number : 88 Question Id : 7336879573 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

In an open reading frame, if a nucleotide is deleted from the middle region, it will lead to

Options :

1. ✖ Shift of reading frame to the left, upstream to the point of deletion
2. ✖ Shift of reading frame to the left, downstream to the point of deletion
3. ✖ Shift of reading frame to the right, upstream to the point of deletion
4. ✔ Shift of reading frame to the right, downstream to the point of deletion

Question Number : 89 Question Id : 7336879574 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following pairs is correct?

Options :

1. ✖ Single-strand cut and supercoil relaxing in DNA- Topoisomerase II
2. ✔ Prokaryotic RNA polymerase- core enzyme + sigma factor
3. ✖ Operator region- RNA polymerase binding
4. ✖ Pribnow Box- Initiation of translation

Question Number : 90 Question Id : 7336879575 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Stability, nuclear export and processing of Pre-mRNA in eukaryotes is related to

Options :

1. ✖ 3' polyadenylation
2. ✖ Presence of U instead of T
3. ✖ Single stranded form of pre-mRNA
4. ✔ 5' m⁷G cap

Question Number : 91 Question Id : 7336879576 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not true about type II restriction endonucleases?

Options :

1. ✖ They cut double stranded DNA close to or within a defined sequence
2. ✔ They were identified in viruses while their genome was explored
3. ✖ Their frequency of cut in a random DNA can be calculated by formula $1 \text{ in } 4^n$, where n = number of nucleotides in recognition sequence
4. ✖ They usually recognize nucleotide sequences which are palindromic with rotation symmetry

Question Number : 92 Question Id : 7336879577 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Taq DNA polymerase used in polymerase chain reaction exhibits

Options :

1. ✖ 5'-3' polymerase; 5'-3' exonuclease; 5'-3' exonuclease; 3' single A- tailing
2. ✖ 5'-3' polymerase; 3'-5' exonuclease; 3' single A- tailing

3. ✓ 5'-3' polymerase; 5'-3' exonuclease; 3' single A- tailing

4. ✗

3'-5' polymerase; 5'-3' exonuclease; 5'-3' exonuclease; 3' single A- tailing

Question Number : 93 Question Id : 7336879578 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Acetosyringone is helpful in

Options :

1. ✗ Physical gene transfer using electroporation

2. ✗ Physical gene transfer using gene gun

3. ✓ *Agrobacterium* mediated gene transfer

4. ✗ Microinjection mediated gene transfer

Question Number : 94 Question Id : 7336879579 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following primers will have the maximum frequency of complementary base pairing in a random template DNA in PCR during RAPD?

Options :

1. ✓ AGAGATTGA

2. ✗ AGTTGACATAGA

3. ✗ AATGGATGACACCG

4. ✗ AGGTAAAGTGCCCGGGGG

Question Number : 95 Question Id : 7336879580 Question Type : MCQ Option Shuffling : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following vectors usually has the largest cloning capacity

Options :

1. ✖ Plasmid
2. ✖ Phagemid
3. ✖ Lambda Phage
4. ✔ Cosmid

Question Number : 96 Question Id : 7336879581 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the pairs is correctly matched?

Options :

1. ✖ Monoclonal antibody : multiple epitopes
2. ✔ Humulin : Recombinant biotherapeutic
3. ✖ Lag phase : doubling of the number in the generation time
4. ✖ Fermentation : Aerobic reaction

Question Number : 97 Question Id : 7336879582 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Organism used in citric acid production at the industrial level is

Options :

1. ✖ *Lactobacillus delbrueckii*
2. ✖ *Penicillium notatum*
3. ✖ *Rhizopus nigrificians*
4. ✔ *Aspergillus niger*

Question Number : 98 Question Id : 7336879583 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following pairs is incorrect?

Options :

1. ✖ Yoghurt : *Streptococcus thermophilus*
2. ✖ Cheese : *Lactococcus lactis*
3. ✖ Curd : *Lactobacillus*
4. ✔ Beer : *Escherichia coli*

Question Number : 99 Question Id : 7336879584 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

What is not true about Aspartic acid?

Options :

1. ✖ It is synthesized in two forms L-Aspartic acid and D-Aspartic acid
2. ✔ It is essential amino acid synthesized in humans
3. ✖ Its derivative acetyl aspartic acid is used in cosmetics
4. ✖ It helps in liver detoxification

Question Number : 100 Question Id : 7336879585 Question Type : MCQ Option Shuffling : Yes
Correct Marks : 1 Wrong Marks : 0

Production of Vitamin K2 in the industry is through this bacterium

Options :

1. ✔ *Bacillus subtilis*
2. ✖ *Xanthomonas citri*
3. ✖ *Streptococcus*
4. ✖ *Pseudomonas putida*