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1. Vitamin B₁ can be assayed by __________.
   Vitamin B₁ can be assayed by __________.
   A: Spectrofluorimetry
      Spectrofluorimetry
   B: Turbidometry
      Turbidometry
   C: Calorimetry
      Calorimetry
   D: Gravimetry
      Gravimetry
   **Correct Alternative : - A**

2. The greatest disadvantage of Scintillation Counting is __________
   The greatest disadvantage of Scintillation Counting is __________.
   A: quenching
      quenching
   B: corrosion
      corrosion
   C: transformation
      transformation
   D: collision
      Collision
   **Correct Alternative : - A**

3. Bacterial components such as endospores and inclusion bodies containing poly β-hydroxy butyrate can be detected by __________.
   Bacterial components such as endospores and inclusion bodies containing poly β-hydroxy butyrate can be detected by __________.
   A: Dark Field Microscopy
      Dark Field Microscopy
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B: Phase Contrast Microscope
   Phase Contrast Microscope

C: Fluorescence Microscope
   Fluorescence Microscope

D: Polarised Microscope
   Polarised Microscope

Correct Alternative :- B

4. The requirement of Vitamin E increases with the intake of :
   The requirement of Vitamin E increases with the intake of :

A: Polyunsaturated fatty acids
   Polyunsaturated fatty acids

B: Saturated fatty acids
   Saturated fatty acids

C: Complex carbohydrates
   Complex carbohydrates

D: Soluble proteins
   Soluble proteins

Correct Alternative :- A

5. The tripeptide present in human red blood cells with potent antioxidant activity is :
   The tripeptide present in human red blood cells with potent antioxidant activity is :

A: glutathione
   glutathione

B: ankyrin
   ankyrin

C: bradykinin
   bradykinin

D: plasmin
   Plasmin

Correct Alternative :- A
6. The amino acid with non-α-amino group play important role in mammalian metabolism is:

A: Ornithine
   Ornithine
B: Taurine
   Taurine
C: Citrulline
   Citrulline
D: Betain
   Betain

Correct Alternative : - B

7. Heparin is not a component of:

A: Chondroitin Sulphate - A
   Chondroitin Sulphate - A
B: Dermatan Sulphate
   Dermatan Sulphate
C: Heparan Sulphate
   Heparan Sulphate
D: Heparin
   Heparin

Correct Alternative : - A

8. Which of the following enzyme catalyses the phosphorylation of substrate with the use of inorganic phosphorus?

A: Hexokinase
   Hexokinase
B: Phospho fructo kinase
   Phospho fructo kinase
C: Glyceraldehyde - 3 - phosphate dehydrogenase
   Glyceraldehyde - 3 - phosphate dehydrogenase
D: Phospho glycero mutase
   Phospho glycero mutase
Mitochondrial matrix brought to equilibrium by incubation with 0.1 M Potassium Chloride at pH 9, when resuspended in a buffer of pH 7 with valinomycin results in ________ under laboratory conditions in the presence of ADP and inorganic phosphorous.

A: formation of ATP
B: interruption of electron flow
C: prevention of phosphorylation of ADP to ATP
D: inhibition of both electron flow and phosphorylation

**Correct Alternative :- A**

The group transfer potential of phosphocreatine is:

A: 24.2 kcal/mol
   24.2 kcal/mol
B: 23.3 kcal/mol
   23.3 kcal/mol
C: 212.8 kcal/mol
   212.8 kcal/mol
D: 210.5 kcal/mol
   210.5 kcal/mol

**Correct Alternative :- D**

An individual develops haemolytic anaemia after the intake of anti-malarial drug and this reaction is likely due to:

A: Glucose 6-phosphate dehydrogenase deficiency
   Glucose 6-phosphate dehydrogenase deficiency
B: Glycogen phosphorylase deficiency
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Glycogen phosphorylase deficiency
C: Diabetes Mellitus
Diabetes Mellitus
D: Scurvy
Scurvy

Correct Alternative :- A

12

Given : A → B \( \Delta G^\circ_0 = -8 \text{ kcal/mol} \)
B \( \rightarrow C \ \Delta G^\circ_0 = +5 \text{ kcal/mol} \)

Find the standard free energy change for the overall reaction A \( \rightarrow C \)

A: 213 kcal/mol
213 kcal/mol
B: 240 kcal/mol
240 kcal/mol
C: 23 kcal/mol
23 kcal/mol
D: 13 kcal/mol
13 kcal/mol

Correct Alternative :- C

13

Most of the water soluble B complex Vitamins act as _________.
Most of the water soluble B complex Vitamins act as _________.

A: enzymes
enzymes
B: coenzymes
coenzymes
C: co-factors
co-factors
D: activation
Activation
14. ______ marker enzyme inner membrane of mitochondria.
    ______ marker enzyme inner membrane of mitochondria.

A: Cytochrome C-oxidase
   Cytochrome C-oxidase
B: Hexokinase
   Hexokinase
C: Aryl Sulphatase
   Aryl Sulphatase
D: Glutamate Dehydrogenase
   Glutamate Dehydrogenase

Correct Alternative :: B

15. In competitive inhibition $V_{max}$ is unaffected but ______ is increased.
    In competitive inhibition $V_{max}$ is unaffected but ______ is increased.

A: apparent $K_m$
   apparent $K_m$
B: $K_s$
   $K_s$
C: $S$
   $S$
D: $\frac{1}{K_m}$

Correct Alternative :: A

16. Choose the statement which is not correct.
Choose the statement which is not correct.

A: Gluco corticoids are insulin agonists.
   Gluco corticoids are insulin agonists.
B: Glucokinase is important in regulating blood glucose level after a meal.
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Glucokinase is important in regulating blood glucose level after a meal.

C: Insulin increases glucose tolerance in diabetic patients.
   Insulin increases glucose tolerance in diabetic patients.
D: Fructose 1 - 6 biphosphatase deficiency causes lactic acidosis.
   Fructose 1 - 6 biphosphatase deficiency causes lactic acidosis.

**Correct Alternative :- A**

17

In the homozygous individuals there is near absence of HDL and accumulation of cholesteryl esters in tissues. This clinical condition is known as :

In the homozygous individuals there is near absence of HDL and accumulation of cholesteryl esters in tissues. This clinical condition is known as :

A: Tangier's disease
   Tangier's disease
B: Abeta lipoproteinemia
   Abeta lipoproteinemia
C: Hypobeta lipoproteinemia
   Hypobeta lipoproteinemia
D: Hypo lipoproteinemia
   Hypo lipoproteinemia

**Correct Alternative :- A**

18

The normal level of creatinine clearance in male individuals given for reference is :

The normal level of creatinine clearance in male individuals given for reference is :

A: 105 6 10 ml/min
   105 6 10 ml/min
B: 10 6 2 ml/min
   10 6 2 ml/min
C: 50 6 5 ml/min
   50 6 5 ml/min
D: 200 6 20 ml/min
   200 6 20 ml/min

**Correct Alternative :- A**

19

Factor VIII related bleeding disorder is known as :

Factor VIII related bleeding disorder is known as :

Fructose 1 - 6 biphosphatase deficiency causes lactic acidosis.

Insulin increases glucose tolerance in diabetic patients.

Glucokinase is important in regulating blood glucose level after a meal.

**Correct Alternative :- A**
A researcher made an interesting observation about a protein made by the rough endoplasmic reticulum (ER) and eventually used to build a cell's plasma membrane. The protein in the membrane was slightly different from the protein made in ER. The protein was probably changed in:

A: golgi apparatus
    golgi apparatus
B: smooth ER
    smooth ER
C: mitochondria
    mitochondria
D: nucleus
    nucleus

Correct Alternative : - A

Which of the following statement is false with respect to the action of thyroid hormone?

A: Increase pentose phosphate pathway
    Increase pentose phosphate pathway
B: Increase glycogenolysis
    Increase glycogenolysis
C: Increase glycolysis
    Increase glycolysis
D: Decrease gluconeogenesis
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Decrease gluconeogenesis

**Correct Alternative :- D**

22. The first penicillin isolated by Alexander Fleming, Penicillin F is also called :
The first penicillin isolated by Alexander Fleming, Penicillin F is also called :

A: 2-pentenyl penicillin
    2-pentenyl penicillin
B:  n-heptyl penicillin
    n-heptyl penicillin
C:  phenoxy methyl penicillin
    phenoxy methyl penicillin
D:  benzyl penicillin
    benzyl penicillin

**Correct Alternative :- A**

23. Which of the following Ascomycetes are used for riboflavin production ?
Which of the following Ascomycetes are used for riboflavin production ?

A: Candida guilliermondia
    Candida guilliermondia
B: Candida flareri
    Candida flareri
C: Ashbya gossypii
    Ashbya gossypii
D: Clostridium butylicum
    Clostridium butylicum

**Correct Alternative :- C**

24. Which of the following is also called sac fungi ?
Which of the following is also called sac fungi ?

A: Zygomyctota
    Zygomyctota
B: Ascomycota
    Ascomycota
C: Basidiomycota
   Basidiomycota
D: Deuteromycota
   Deuteromycota

**Correct Alternative :- B**

DNA sequencing by Sanger's method involves the use of:
DNA sequencing by Sanger's method involves the use of:

A: Ribonucleotide
   Ribonucleotide
B: 3'-deoxyribonucleotide
   3'-deoxyribonucleotide
C: 2', 3'-dideoxyribonucleotide
   2', 3'-dideoxyribonucleotide
D: Fluorodinitrobenzene
   Fluorodinitrobenzene

**Correct Alternative :- C**

_______ is used for the detection and quantification of mRNA expression.
_______ is used for the detection and quantification of mRNA expression.

A: Multiple PCR
   Multiple PCR
B: Nested PCR
   Nested PCR
C: RT - PCR
   RT - PCR
D: Real time PCR
   Real time PCR

**Correct Alternative :- C**

27

Lysosomes function to:
Lysosomes function to:

A: Synthesize various cellular macromolecules
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Synthesize various cellular macromolecules
B: Carry out digestion of all cytosolic components
   Carry out digestion of all cytosolic components
C: Ingest material from the extracellular environment
   Ingest material from the extracellular environment
D: Recycle cellular material and digest material taken in from the environment
   Recycle cellular material and digest material taken in from the environment

Correct Alternative :- B

28

The peptidyl transferase activity resides in :
The peptidyl transferase activity resides in :
A: 18 S rRNA
   18 S rRNA
B: 5 S rRNA
   5 S rRNA
C: 16 S rRNA
   16 S rRNA
D: 23 S rRNA
   23 S rRNA

Correct Alternative :- D

29

The antigenic determinants are in the hidden state in :
The antigenic determinants are in the hidden state in :
A: Neoantigens
   Neoantigens
B: Alloantigens
   Alloantigens
C: Isoantigens
   Isoantigens
D: Cryptantigens
   Cryptantigens

Correct Alternative :- D

30

The part of an immunoglobulin which allows the two Fab arms to open and close to accommodate binding of two antigenic
During T - helper cell activation, antigen presenting macrophage secrete the signalling molecule :

A: IL - 1
B: IL - 2
C: IL - 6
D: IL - 4

Correct Alternative :- A
Correct Alternative : - A

The natural antibodies which induce antigen-antibody reactions in human red blood cells belong to the type of :

A: IgM and IgG
   IgM and IgG
B: IgG and IgE
   IgG and IgE
C: IgD and IgA
   IgD and IgA
D: IgA and IgE
   IgA and IgE

Correct Alternative : - A

The production of adventitious root, shoot and flowers from cells of tissue culture is termed :

A: Organogenesis
   Organogenesis
B: Micropropagation
   Micropropagation
C: Callus culture
   Callus culture
D: Suspension culture
   Suspension culture

Correct Alternative : - A

Which of the following is not correct in predicting ovulation time?
Which of the following is not correct in predicting ovulation time?

A: Plasma progesterone concentration
   Plasma progesterone concentration
B: Administration of clomiphene
   Administration of clomiphene
C: Assay of LH in urine
The resolution limit of electron microscopy is __________.

D: Changes in the level of 17 β estradiol
Changes in the level of 17 β estradiol

Correct Alternative :- D

The following conditions in cell culture promote cell differentiation.
(a) high serum
(b) high growth factor
(c) low cell density
(d) low serum
(e) high cell density
(f) appropriate hormone Select the suitable condition.

The following conditions in cell culture promote cell differentiation.
(a) high serum
(b) high growth factor
(c) low cell density
(d) low serum
(e) high cell density
(f) appropriate hormone Select the suitable condition.

A: (d), (e) and (f)
(d), (e) and (f)
B: (a), (b) and (c)
(a), (b) and (c)
C: (a), (e) and (f)
(a), (e) and (f)
D: (d), (b) and (c)
(d), (b) and (c)

Correct Alternative :- A

The resolution limit of electron microscopy is __________.

A: 0.2 μm
0.2 μm
B: 0.5 μm
0.5 μm
C: 1 nm
1 nm
D: 0.1 nm
0.1 nm
Correct Alternative :- C

38

The sensitivity of fluorescence detector in HPLC is :
The sensitivity of fluorescence detector in HPLC is :

A: \(10^{20} \text{ g cm}^{-22}\)
   \(10^{30} \text{ g cm}^{-22}\)
B: \(10^{220} \text{ mg cm}^{-23}\)
   \(10^{220} \text{ mg cm}^{-23}\)
C: \(10^{232} \text{ mg cm}^{-23}\)
   \(10^{232} \text{ mg cm}^{-23}\)
D: \(10^{232} \text{ g cm}^{-23}\)
   \(10^{232} \text{ g cm}^{-23}\)

Correct Alternative :- D

39

Ultracentrifugation can characterize biological molecules with particle concentrations of :
Ultracentrifugation can characterize biological molecules with particle concentrations of :

A: 1 - 10 mg dm\(^{-23}\)
   1 - 10 mg dm\(^{-23}\)
B: 0.01 - 1 mg dm\(^{-23}\)
   0.01 - 1 mg dm\(^{-23}\)
C: 0.1 - 1 g dm\(^{-23}\)
   0.1 - 1 g dm\(^{-23}\)
D: 0.01 - 1 g dm\(^{-23}\)
   0.01 - 1 g dm\(^{-23}\)

Correct Alternative :- D

40

The fluorophore, tetramethylrhodamine in fluorescence microscopy has an emission maximum at :
The fluorophore, tetramethylrhodamine in fluorescence microscopy has an emission maximum at :

A: 554 nm
   554 nm
B: 576 nm
   576 nm
C: 592 nm
41
High-resolution spectra of NMR can be obtained by spinning the solid sample at:
High-resolution spectra of NMR can be obtained by spinning the solid sample at :

A: 54.78
   54.78
B: 35.78
   35.78
C: 180.38
   180.38
D: 60.58
   60.58

Correct Alternative : - A

42
The common anomer of D-fructose is :
The common anomer of D-fructose is :

A: L-Fructose
   L-Fructose
B: β-D-fructofuranose
   β-D-fructofuranose
C: β-L-fructofuranose
   β-L-fructofuranose
D: D-sorbose
   D-sorbose

Correct Alternative : - B

43
The one letter code for amino acids was devised by :
The one letter code for amino acids was devised by :

A: Edman
   Edman
B: Sanger
   Sanger
C: Merrifield
   Merrifield
D: Dayhoff
   Dayhoff

Correct Alternative :- D

44
N6-methyladenosine is normally present in :
N6-methyladenosine is normally present in :

A: DNA of animals
   DNA of animals
B: DNA of bacteria
   DNA of bacteria
C: DNA of plants
   DNA of plants
D: DNA of bacteria and bacteriophages
   DNA of bacteria and bacteriophages

Correct Alternative :- B

45
All of the following are features of 2, 3 - BPG except :
All of the following are features of 2, 3 - BPG except :

A: BPG stabilizes oxygenated form.
   BPG stabilizes oxygenated form.
B: Formed from glycolytic intermediate.
   Formed from glycolytic intermediate.
C: One molecule of BPG is bound per tetramer of hemoglobin.
   One molecule of BPG is bound per tetramer of hemoglobin.
D: BPG forms salt bridges between its oxygen atoms and both beta chains.
   BPG forms salt bridges between its oxygen atoms and both beta chains.

Correct Alternative :- A

46
Carbamoyl phosphate synthase II function in :
Carbamoyl phosphate synthase II function in :
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A: pyrimidine biosynthesis
    pyrimidine biosynthesis
B: urea synthesis
    urea synthesis
C: purine biosynthesis
    purine biosynthesis
D: uric acid biosynthesis
    uric acid biosynthesis

Correct Alternative :- A

Dehydratases are major subclass of which one of the following enzyme classes?
Dehydratases are major subclass of which one of the following enzyme classes?

A: isomerases
    isomerases
B: Hydrolases
    Hydrolases
C: Lyases
    Lyases
D: Oxidoreductases
    Oxidoreductases

Correct Alternative :- C

Pick out the non-lipid cardiac risk factors from the following pair of markers.
Pick out the non-lipid cardiac risk factors from the following pair of markers.

A: Homocysteine and Homoserine
    Homocysteine and Homoserine
B: Homocysteine and Creatinine
    Homocysteine and Creatinine
C: CRP and Homoserine
    CRP and Homoserine
D: CRP and Homocysteine
    CRP and Homocysteine

Correct Alternative :- D
Which of the following protein oxidizes ferrous iron to ferric ion at the intestinal abluminal membrane?

A: Ferroportin  
  Ferroportin  
B: Hephaestin  
  Hephaestin  
C: Ceruloplasmin  
  Ceruloplasmin  
D: Transferrin  
  Transferrin

**Correct Alternative :- B**

Which of the following vitamin has been used to increase HDL cholesterol level in the blood?

A: Vitamin B₁  
  Vitamin B₁  
B: Vitamin B₃  
  Vitamin B₃  
C: Vitamin B₆  
  Vitamin B₆  
D: Vitamin B₁₂  
  Vitamin B₁₂

**Correct Alternative :- B**

Most of the Bilirubin excreted in bile is in the form of:

A: Bilirubin monoglucuronide  
  Bilirubin monoglucuronide  
B: Biliverdin monoglucuronide  
  Biliverdin monoglucuronide  
C: Biliverdin diglucuronide  
  Biliverdin diglucuronide  
D: Bilirubin diglucuronide
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Bilirubin digluconoridne

Correct Alternative :- D

52

________ is due to defect in uptake of Bilirubin by liver parenchymal cells.

________ is due to defect in uptake of Bilirubin by liver parenchymal cells.

A: Crigler Najjar syndrome
   Crigler Najjar syndrome
B: Dubin Johnson syndrome
   Dubin Johnson syndrome
C: Gilbert's disease
   Gilbert's disease
D: Rotor syndrome
   Rotor syndrome

Correct Alternative :- C

53

Defect in the LDL receptor gene causes :

Defect in the LDL receptor gene causes :

A: Familial combined Hyperlipidemia
   Familial combined Hyperlipidemia
B: Familial Hypertriglyceridemia
   Familial Hypertriglyceridemia
C: Hyper chylomicronemia
   Hyper chylomicronemia
D: Familial Hyper cholesterolemia
   Familial Hyper cholesterolemia

Correct Alternative :- D

54

Which of the following amino acids would most likely be found in a membrane-spanning a helix :

Which of the following amino acids would most likely be found in a membrane-spanning a helix :

A: Lysine
   Lysine
B: Glutamine
   Glutamine
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55. Which of the following bacterial types belong to Legionellaceae family?
Which of the following bacterial types belong to Legionellaceae family?

A: Facultatively anaerobic Gram negative rods.
   Facultatively anaerobic Gram negative rods.
B: Anaerobic Gram negative, straight, curved and helical rods.
   Anaerobic Gram negative, straight, curved and helical rods.
C: Gram negative Aerobic rods and Cocci.
   Gram negative Aerobic rods and Cocci.
D: Anaerobic Gram negative Cocci
   Anaerobic Gram negative Cocci

**Correct Alternative :- C**

56. Which of the following microorganism yields highest vitamin B_{12}?
Which of the following microorganism yields highest vitamin B_{12}?

A: Pseudomonas denitrificans
   Pseudomonas denitrificans
B: Streptomyces olivaceus
   Streptomyces olivaceus
C: Propionibacterium shermanii
   Propionibacterium shermanii
D: Bacillus megaterium
   Bacillus megaterium

**Correct Alternative :- A**

57. In which of the following settling process during primary treatment of water, the concentration of particles increases from top
to bottom and resulting in the thickening of sludge:
In which of the following settling process during primary treatment of water, the concentration of particles increases from top
to bottom and resulting in the thickening of sludge:

C: Alanine
   Alanine
D: Arginine
   Arginine

**Correct Alternative :- C**
DNA glycosylases are involved in which one of the following types of DNA repair system?

A: mismatch repair
   mismatch repair
B: nucleotide-excision repair
   nucleotide-excision repair
C: base-excision repair
   base-excision repair
D: direct repair
   direct repair

Correct Alternative :: C
The antigen independent maturation of B cells in the bone marrow produces which of the following antibodies?

A: IgG and IgA
   IgG and IgA
B: IgM and IgE
   IgM and IgE
C: IgM and IgD
   IgM and IgD
D: IgA and IgD
   IgA and IgD

Correct Alternative :- C

In RIA, antigen is generally labelled with __________.

A: Gamma emitting isotopes only
   Gamma emitting isotopes only
B: Beta emitting isotopes only
   Beta emitting isotopes only
C: Both Gamma and Beta emitting isotopes are used
   Both Gamma and Beta emitting isotopes are used
D: Both Gamma and Beta emitting isotopes are not used
   Both Gamma and Beta emitting isotopes are not used

Correct Alternative :- C

Indicate which of the following statement is false.

A: Presence of HLA B27 allele is diagnostic for ankylosis spondylitis.
   Presence of HLA B27 allele is diagnostic for ankylosis spondylitis.
B: TH1 cells are not involved in the development of autoimmunity.
   TH1 cells are not involved in the development of autoimmunity.
C: TH2 cells appear to block development of autoimmune disease.
   TH2 cells appear to block development of autoimmune disease.
D: Inappropriate Class-II MHC expression on cells may induce autoimmunity.
   Inappropriate Class-II MHC expression on cells may induce autoimmunity.
Which of the following statement is false with respect to antibody isotype switching?

A: Does not affect antigen specificity of antibody.
B: Does affect antigen specificity.
C: Retains antigen affinity.
D: Allows interaction with effector molecule.

Correct Alternative :- B

When plated in nutrient medium how much time is required for the protoplast to synthesize new cell wall?

A: 5-10 days
B: 10-15 days
C: 15-17 days
D: 2-5 days

Correct Alternative :- D

Which of these established cell lines originate from a mouse embryo?

A: BHK
B: HeLa
C: Hep-2

Correct Alternative :- D
D: 3T3 A
   3T3 A

   Correct Alternative :- D

The repeating unit of starch is:
The repeating unit of starch is:

A: Maltose
   Maltose
B: Cellobiose
   Cellobiose
C: Glucose
   Glucose
D: Cellulose
   Cellulose

   Correct Alternative :- A

Reverse Phase partition HPLC is particularly useful for separation of compounds.
Reverse Phase partition HPLC is particularly useful for separation of compounds.

A: Polar
   Polar
B: Non Polar
   Non Polar
C: Neutral
   Neutral
D: Quaternary
   Quaternary

   Correct Alternative :- A

Which sub-unit of the trimeric G-protein acts as GTPase switch?
Which sub-unit of the trimeric G-protein acts as GTPase switch?

A: Alpha
   Alpha
B: Beta
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The term facultative anaerobic organisms refers to those that:
Beta
C: Gamma
Gamma
D: Beta-gamma
Beta-gamma

Correct Alternative :- A

Teichoic acid contains alternating residues of D alanine and__________.
Teichoic acid contains alternating residues of D alanine and__________.
A: Glucosamine
Glucosamine
B: N-acetyl glucosamine
N-acetyl glucosamine
C: Galactosamine
Galactosamine
D: N-acetyl galactosamine
N-acetyl galactosamine

Correct Alternative :- B

The Induced fit model of enzyme action was proposed by __________.
The Induced fit model of enzyme action was proposed by __________.
A: Fischer
Fischer
B: Khoshland
Khoshland
C: Sanger
Sanger
D: Paul
Paul

Correct Alternative :- B

The term facultative anaerobic organisms refers to those that:

Correct Alternative :- B
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A: does not use oxygen but tolerate it
   does not use oxygen but tolerate it
B: is killed by oxygen
   is killed by oxygen
C: use oxygen when present or even grows without oxygen when absent
   use oxygen when present or even grows without oxygen when absent
D: requires less oxygen than is present in air
   requires less oxygen than is present in air

Correct Alternative :- C

Secondary Sewage treatment is mainly a :
Secondary Sewage treatment is mainly a :

A: Biological process
   Biological process
B: Mechanical process
   Mechanical process
C: Physical process
   Physical process
D: Chemical process
   Chemical process

Correct Alternative :- A

Which of these plant growth regulators determines callus development ?
Which of these plant growth regulators determines callus development ?

A: auxin and cytokinin
   auxin and cytokinin
B: auxin and ethylene
   auxin and ethylene
C: auxin and abscisic acid
   auxin and abscisic acid
D: cytokinins and gibberellins
   cytokinins and gibberellins

Correct Alternative :- A
DNA segments are analysed by:

A: Northern Blotting
    Northern Blotting
B: Southern Blotting
    Southern Blotting
C: Polymerase Chain Reaction
    Polymerase Chain Reaction
D: Western Blotting
    Western Blotting

Correct Alternative: - D
The most common indicator in animal cell culture medium is:

A: rose bengal
   rose bengal
B: bromocresol purple
   bromocresol purple
C: phenol red
   phenol red
D: crimson orange
   crimson orange

Correct Alternative: - B

In eukaryotes, the RNA capped in 5' terminus is:

A: tRNA
   tRNA
B: mRNA
   mRNA
C: rRNA
   rRNA

Correct Alternative: - A
D: hnRNA
   hnRNA

**Correct Alternative :- B**

Error free repair of double strand breaks in DNA is accomplished by:
Error free repair of double strand breaks in DNA is accomplished by:

A: Non-homologous end joining
   Non-homologous end joining
B: Base excision repair
   Base excision repair
C: Homologous recombination
   Homologous recombination
D: Both Non-homologous end joining and Homologous recombination
   Both Non-homologous end joining and Homologous recombination

**Correct Alternative :- D**

The region for estimating protein by Circular Dichroism is ________.
The region for estimating protein by Circular Dichroism is ________.

A: 400 nm
   400 nm
B: 200 nm
   200 nm
C: 700 nm
   700 nm
D: 500 nm
   500 nm

**Correct Alternative :- B**

The standard redox potential of few oxidants are given below. Choose their sequence of arrangement in the inner mitochondrial membrane for electron flow.
P = +0.82, Q = +0.22, R = –0.32, S = +0.10
The standard redox potential of few oxidants are given below. Choose their sequence of arrangement in the inner mitochondrial membrane for electron flow.
P = +0.82, Q = +0.22, R = –0.32, S = +0.10

A: PQRS
PQRS
B: PRQS
PRQS
C: SRQP
SRQP
D: RSQP
RSQP

Correct Alternative :- D

_________ are the two enzymes that are useful as diagnostic indicator of skeletal muscle disorders.

A: Creatine kinase; fructose bisphosphate aldolase
Creatine kinase; fructose bisphosphate aldolase
B: Hexokinase; Glucose 6' phosphatase
Hexokinase; Glucose 6' phosphatase
C: α amyrase; creatine kinase
α amyrase; creatine kinase
D: Glucokinase; hexokinase
Glucokinase; hexokinase

Correct Alternative :- A

Some amino acids which destabilize a-helix of protiens are :

A: Ala, His, Val
Ala, His, Val
B: Met, Tyr, Try
Met, Tyr, Try
C: Ser, Thr, Lys
Ser, Thr, Lys
D: Gln, Asn, Cys
Gln, Asn, Cys

Correct Alternative :- C

Lactate Dehydrogenase is a __________.

Correct Alternative :- A
Lactate Dehydrogenase is a __________.

A: Trimer
   Trimer
B: Tetramer
   Tetramer
C: Dimer
   Dimer
D: Pentamer
   Pentamer

**Correct Alternative :- B**

Artificial seeds are:

A: Seeds produced in laboratory condition.
   Seeds produced in laboratory condition
B: Somatic embryo encapsulated in a gel.
   Somatic embryo encapsulated in a gel.
C: Seeds encapsulated in a gel.
   Seeds encapsulated in a gel.
D: Zygotic embryo encapsulated in a gel.
   Zygotic embryo encapsulated in a gel.

**Correct Alternative :- B**

Urinary excretion of Bence-zone's protein is common in patients with:

A: Pheochromocytoma
   Pheochromocytoma
B: multiple myeloma
   multiple myeloma
C: kidney bladder cancer
   kidney bladder cancer
D: hypo albuminemia
   hypo albuminemia
Inherited absence of bilirubin UDP-glucuronyl transferase in hepatic tissue leads to the clinical condition in which serum bilirubin usually exceeds 20 mg/dl is:

A: Crigler-Najjar syndrome- Type I
   Crigler-Najjar syndrome- Type I
B: Crigler -Najjar syndrome - Type II
   Crigler - Najjar syndrome - Type II
C: Gilbert's disease
   Gilbert's disease
D: Dubin-Johnson syndrome
   Dubin-Johnson syndrome

Correct Alternative :- A

Which of the following steps in protein synthesis in prokaryotes is false?

A: Binding of tRNA to a 30S particle
   Binding of tRNA to a 30S particle
B: Binding of tRNA to a 70S particle
   Binding of tRNA to a 70S particle
C: Coupling of an amino acid to ribosome by an amino acyl synthetase
   Coupling of an amino acid to ribosome by an amino acyl synthetase
D: Separation of the 70S ribosomes to form 30S and 50S particles
   Separation of the 70S ribosomes to form 30S and 50S particles

Correct Alternative :- C

Immunological precipitation reaction takes place when homologous antibodies are made to react with:

A: Insoluble antigens
   Insoluble antigens
B: Soluble antigens
   Soluble antigens
The enzyme deficiency in phenylketonuria is _______.
The enzyme deficiency in phenylketonuria is _______.

A: Glucose 6-phosphatase
Glucose 6-phosphatase
B: Alkaline phosphatase
   Alkaline phosphatase
C: Phenylalanine 4-monoxygenase
   Phenylalanine 4-monoxygenase
D: Glucocerebrosidase
   Glucocerebrosidase

**Correct Alternative :- C**

The inhibitor of translation which is analogous to amino acyl tRNA and inhibits elongation process:

A: Puromycin
   Puromycin
B: Tetracycline
   Tetracycline
C: Streptomycin
   Streptomycin
D: Fusidic acid
   Fusidic acid

**Correct Alternative :- A**

Eadie-Hofstee plot is obtained by plotting:

A: 

B: 

C: 

**Correct Alternative :- A**
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D: $\mathbb{S} \lor \mathbb{S} \lor \mathbb{S}$

Correct Alternative :: B

The polysaccharide found in tubers and roots of dahlias is:
The polysaccharide found in tubers and roots of dahlias is:

A: Cellulose
   Cellulose
B: Chitin
   Chitin
C: Glycogen
   Glycogen
D: Inulin
   Inulin

Correct Alternative :: D

The hybridoma technique of antibody production was developed by:
The hybridoma technique of antibody production was developed by:

A: Kohler and Milestone
   Kohler and Milestone
B: Onchterlony
   Onchterlony
C: Edwar Jenner
   Edwar Jenner
D: Berson and Yallow
   Berson and Yallow

Correct Alternative :: A

Macrophage-like cells present in connective tissue are called as:
Macrophage-like cells present in connective tissue are called as:

A: Kupffer cells
   Kupffer cells
To identify carboxy terminal aminoacids in peptides, the reagent used is:

B: Histiocytes
C: Mesangial cells
D: Microglial cells

Correct Alternative :- B

Riboflavin is a by-product of ________ fermentation carried out by clostridium spp.

A: citric acid
B: acetone butanol
C: ethanol
D: streptomycin

Correct Alternative :- B

The maximum concentration of ethanol that is achieved by successive distillation of fermentation broth in continuous stills is:

A: 70%
B: 95%
C: 60%
D: 99%

Correct Alternative :- B
A: Hydrazine
   Hydrazine
B: Dansyl chloride
   Dansyl chloride
C: 1-fluro-2, 4 dinitro benzene
   1-fluro-2, 4 dinitro benzene
D: Phenyl Isothiocyanate
   Phenyl Isothiocyanate

**Correct Alternative :- A**

The cytosolic NADH transported by Aspartate-Malate shuttle enters the respiratory chain at the level of:

A: NADH-Q reductase
   NADH-Q reductase
B: Ubiquione
   Ubiquione
C: Cytochrome - C
   Cytochrome - C
D: Cytochrome C-oxidase
   Cytochrome C-oxidase

**Correct Alternative :- A**

Catalytic antibodies with structural complementerity for enzyme catalysed reaction is ________.
Catalytic antibodies with structural complementerity for enzyme catalysed reaction is ________.

A: Ribozymes
   Ribozymes
B: Abzymes
   Abzymes
C: Liposomes
   Liposomes
D: Isoenzymes
   Isoenzymes

**Correct Alternative :- B**
Which of these statement is incorrect with respect to epigenetic changes during somoclonal variation?
Which of these statement is incorrect with respect to epigenetic changes during somoclonal variation?

A: alteration in chromosome number
B: alteration in DNA sequence
C: alteration in the expression of genome
D: alteration in the chromosome structure

**Correct Alternative :- B**

Analogous of lactose, which are effective inducer without being the substrate for $\beta$-galactosidase are called:

A: gratuitous inducers
B: activators
C: inducers
D: co-activators

**Correct Alternative :- A**

Which of the following is not a condition that leads to ketosis?
Which of the following is not a condition that leads to ketosis?

A: Starvation
B: Uncontrolled Diabetes Mellitus
C: High carbohydrate diet
D: Von-Gierke's disease
Von-Gierke's disease

**Correct Alternative :- C**

The antigens with molecular weight greater than 6000 daltons:

A: are not immunogenic
   are not immunogenic
B: are generally immunogenic
   are generally immunogenic
C: may or may not be immunogenic
   may or may not be immunogenic
D: act as haptns
   act as haptns

**Correct Alternative :- B**

Which of the following hormone exert a lipotropic effect in liver?

- A: Estrogen
  Estrogen
- B: Thyroid hormone
  Thyroid hormone
- C: Insulin
  Insulin
- D: ACTH
  ACTH

**Correct Alternative :- A**

The reason urine does not seep out of the bladder is due to the role of:

A: adherens junctions
   adherens junctions
B: hemidesmosomes
   hemidesmosomes
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C: gap junction
   gap junction
D: tight junction
   tight junction

**Correct Alternative :- D**

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If sheep red blood cells coated with IgG antibodies are mixed with _______ cells, Rosette formation occurs.

If sheep red blood cells coated with IgG antibodies are mixed with _______ cells, Rosette formation occurs.

A: Plasma cells
   Plasma cells
B: T-helper cells
   T-helper cells
C: T - suppressor cells
   T - suppressor cells
D: B - cells
   B - cells

**Correct Alternative :- D**

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Which one of the following planets rises few hours before Sunrise?
Which one of the following planets rises few hours before Sunrise?

A: Jupiter
   Jupiter
B: Mars
   Mars
C: Venus
   Venus
D: Uranus
   Uranus

**Correct Alternative :- C**

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Bokaro Steel Plant is located in:
Bokaro Steel Plant is located in:

A: Jharkhand
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Jharkhand
B: Odisha
   Odisha
C: West Bengal
   West Bengal
D: Bihar
   Bihar

Correct Alternative :- A

Which gas is present more in air ?
Which gas is present more in air ?

A: Oxygen
   Oxygen
B: Carbon-di-oxide
   Carbon-di-oxide
C: Nitrogen
   Nitrogen
D: Hydrogen
   Hydrogen

Correct Alternative :- C

Leakage of LPG gas in our homes can be detected by mixing it with __________.
Leakage of LPG gas in our homes can be detected by mixing it with __________.

A: Methane
   Methane
B: Methane + little ethane
   Methane + little ethane
C: Propane + butane
   Propane + butane
D: Ethyl mercaptan
   Ethyl mercaptan

Correct Alternative :- D

Which of the following process, does not require a medium ?
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Which of the following process, does not require a medium?

A: Convection
   Convection
B: Conduction
   Conduction
C: Radiation
   Radiation
D: All of these
   All of these

Correct Alternative : - C

During the period of ________ the Nalanda University was established.

During the period of ________ the Nalanda University was established.

A: Samudra Gupta
   Samudra Gupta
B: Chandra Gupta Maurya
   Chandra Gupta Maurya
C: II Chandra Gupta
   II Chandra Gupta
D: Samudra Gupta
   Samudra Gupta

Correct Alternative : - A

What is the full form of ‘RIELIT’?

What is the full form of ‘RIELIT’?

A: Regional Institute for English Language and Information Technology
   Regional Institute for English Language and Information Technology
B: Rehabilitation and Training
   Rehabilitation and Training
C: Regional Institute of e-learning and Information Technology
   Regional Institute of e-learning and Information Technology
D: Research Institute for English Literature
   Research Institute for English Literature
Correct Alternative :- C

During Second Carnatic War whom the French supported?

A: Muza Far Sung, Muhammed Ali
   Muza Far Sung, Muhammed Ali
B: Nazirsung, Anwaruddin
   Nazirsung, Anwaruddin
C: Muzafar Sung, Chandasaheeb
   Muzafar Sung, Chandasaheeb
D: Muzafar Sung, Anwaruddin
   Muzafar Sung, Anwaruddin

Correct Alternative :- C

Expansion of VVPAT

Expansion of VVPAT

A: Voters Verified Paper Audit Trail
   Voters Verified Paper Audit Trail
B: Voters Verified Paperless Audit Trail
   Voters Verified Paperless Audit Trail
C: Voters Verified Paperless Account Trail
   Voters Verified Paperless Account Trail
D: Voters Verified Paper Audit Trail
   Voters Verified Paper Audit Trail

Correct Alternative :- D

The country which is called the "Museum of Human Race":

A: Malaysia
   Malaysia
B: Switzerland
   Switzerland
C: India
   India
The name Stephen M. Corey is associated with _______.
The name Stephen M. Corey is associated with _______.

A: Action Research
Action Research
B: Instructional designing
Instructional designing
C: e-content designing and development
e-content designing and development
D: Mobile learning
Mobile learning

Correct Alternative :- A

Difficulty in learning and remembering names, telephone numbers, multiplication tables but possible good performances in analytic and intuitive tasks that do not involve memory, these can be categorized under _______.
Difficulty in learning and remembering names, telephone numbers, multiplication tables but possible good performances in analytic and intuitive tasks that do not involve memory, these can be categorized under _______.

A: Poor ability to combine movement and vision
Poor ability to combine movement and vision
B: Poor grasp of sequence
Poor grasp of sequence
C: Gaps in general knowledge
Gaps in general knowledge
D: Problems in style of learning
Problems in style of learning

Correct Alternative :- D

_______ denotes the law or science of work. The study of a specific kind of behaviour : that of a man making a programmed physical or mental effort in return for some remuneration.
_______ denotes the law or science of work. The study of a specific kind of behaviour : that of a man making a programmed physical or mental effort in return for some remuneration.

A: Cybernetics
In the skill of probing questions ________ component represents that, 'questions which seek from the pupil to compare the phenomenon with other phenomenon for similarity or contrast or for any other relationship'.

A: Prompting (P)

B: Seeking Further Information (SFI)

C: Re-Focussing (RF)

D: Increasing Critical Awareness (ICA)

Correct Alternative :- C

The Government of India appointed a committee on Correspondence Courses and evening colleges in 1961 under the chairmanship of__________.

A: K.L. Shrimali

B: V.V. Giri

C: D.S. Kothari

D: Prof. M.V. Mathur

Correct Alternative :- D
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**Correct Alternative :- A**

Which concept will be mostly formed when celebration of festivals is taught in class?
Which concept will be mostly formed when celebration of festivals is taught in class?

A: Number
   Number
B: Social environment
   Social environment
C: Physical environment
   Physical environment
D: Colour
   Colour

**Correct Alternative :- B**

In ______ reinforcement schedule the organism is rewarded for a response made only after a span of time.
In ______ reinforcement schedule the organism is rewarded for a response made only after a span of time.

A: Continuous
   Continuous
B: Fixed interval
   Fixed interval
C: Fixed ratio
   Fixed ratio
D: Variable
   Variable

**Correct Alternative :- B**

_______ has coined the phrase "learning set" to describe the phenomenon of learning how to learn.
_______ has coined the phrase "learning set" to describe the phenomenon of learning how to learn.

A: Harry Harlow
   Harry Harlow
B: Charles Judd
   Charles Judd
C: Ivan Pavlov
   Ivan Pavlov
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In retrieval tasks, the tendency for items at the beginning and at the end of a list to be recalled more readily is called as __________.

Correct Alternative :- B

A: Recency effect
B: Serial position effect
C: Primacy effect
D: Latency effect

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Which theory emphasized in its hypothesis the role of the hippocampal formation and its close association with the amygdala?

Correct Alternative :- A

A: Maclean's theory of emotions
B: Papez's theory of emotions
C: Arnold's theory of emotions
D: Schachter's theory of emotions

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_________ of the Indian Constitution deals with the promotion of educational and economic interest of the scheduled castes, scheduled tribes and other weaker sections.

Correct Alternative :- A

A: Article 42
Howard Gardner's Multiple Intelligence Theory describes ______ types of intelligence.

A: 6
B: 7
C: 8
D: 10

Correct Alternative :- C

_________ popularized teaching machines in learning.

A: Spearman
B: Skinner
C: Thorndike
D: Piaget

Correct Alternative :- B
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_______ is an example of instrumental conditioning based on negative reinforcement.

A: Concept based learning
   Concept based learning
B: Lateral learning
   Lateral learning
C: Insightful learning
   Insightful learning
D: Trial and error learning
   Trial and error learning

**Correct Alternative :- C**

_______ interest indicates a preference for meeting and dealing with people and promoting projects for things to sell.
_______ interest indicates a preference for meeting and dealing with people and promoting projects for things to sell.

A: Scientific
   Scientific
B: Literary
   Literary
C: Social service
   Social service
D: Persuasive
   Persuasive

**Correct Alternative :- D**

NCERT conducted the second All India Educational Survey in the year ________.

A: 1965
   1965
B: 1971
   1971
C: 1972
   1972
D: 1969
   1969
The chief principle of __________ philosophy is that man creates his own values; there are no fixed eternal truths.

A: Realism
   Realism
B: Existentialism
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Existentialism
C: Naturalism
D: Pragmatism

Correct Alternative :- D

_________ is a type of fixation in which an individual tries to solve a problem in a particular way that has worked in the past.
_________ is a type of fixation in which an individual tries to solve a problem in a particular way that has worked in the past.

A: Apperception
B: Assimilation
C: Shaping
D: Mental Set

Correct Alternative :- D

This test is used as an indicator of aptitude for bench work which involves rapid manipulation of objects:

A: Finger Dexterity Test
B: Clerical Ability Test
C: Mechanical Aptitude Test
D: O’Connor's Wiggly Block Test

Correct Alternative :- A

In Herbartian approach to lesson planning _________ step is related with the task of strengthening the acquisition of new learning material.

In Herbartian approach to lesson planning _________ step is related with the task of strengthening the acquisition of new learning material.
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A: Presentation  
   Presentation  
B: Comparison (or) Association  
   Comparison (or) Association  
C: Generalization  
   Generalization  
D: Application  
   Application  

Correct Alternative :- B

The Constitution (86th amendment) Act of __________ year inserted _________ Article in the Constitution of India to provide free and compulsory education of all children in the age group of 6 to 14 years as a Fundamental right.

A: 2001, Article 46  
   2001, Article 46  
B: 2010, Article 12-A  
   2010, Article 12-A  
C: 2009, Article 45-A  
   2009, Article 45-A  
D: 2002, Article 21-A  
   2002, Article 21-A  

Correct Alternative :- D

Based on Gagne's hierarchy of learning, in _________ learning the learner acquires the ability to understand the common properties of a group of substances that might still vary from one another.

A: Verbal association  
   Verbal association  
B: Multiple discrimination  
   Multiple discrimination  
C: Concept learning  
   Concept learning  
D: Rule learning
Rule learning

**Correct Alternative :- C**

The policy statement was made in Parliament on April 5, 1977 declaring that along with UEE, highest priority in educational planning would be accorded to ________.

The policy statement was made in Parliament on April 5, 1977 declaring that along with UEE, highest priority in educational planning would be accorded to ________.

A: UPE  
   UPE  
B: Secondary Education  
   Secondary Education  
C: Higher Education  
   Higher Education  
D: Adult Education  
   Adult Education  

**Correct Alternative :- D**

The teacher must provide identity between historical and present-day events is an example of:

The teacher must provide identity between historical and present-day events is an example of:

A: The principle of multiple response  
   The principle of multiple response  
B: The principle of mental set  
   The principle of mental set  
C: The principle of partial activity  
   The principle of partial activity  
D: The principle of assimilation  
   The principle of assimilation  

**Correct Alternative :- D**

UGC launched the ________ project on August 15, 1984.

UGC launched the ________ project on August 15, 1984.

A: CIET  
   CIET  
B: CWCR
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The ________ is a technique that provides the counsellor with an opportunity to understand a client's knowledge regarding a topic such as career information.
The ________ is a technique that provides the counsellor with an opportunity to understand a client's knowledge regarding a topic such as career information.
A: In take interviews
   In take interviews
B: Guess who
   Guess who
C: Sociometric
   Sociometric
D: Card sort
   Card sort

Correct Alternative :- D

"Behaviour that occurs at a naturally high rate of frequency may be used to reinforce behaviour that occurs at a naturally low rate of frequency" is :
"Behaviour that occurs at a naturally high rate of frequency may be used to reinforce behaviour that occurs at a naturally low rate of frequency" is :
A: Programmed instruction
   Programmed instruction
B: Operant conditioning
   Operant conditioning
C: Halo effect
   Halo effect
D: Premack principle
   Premack principle

Correct Alternative :- D
The Central Hindu College at Benaras was founded by _______ in ________.
The Central Hindu College at Benaras was founded by _______ in ________.

A: Ishwar Chandra Vidyasagar, 1901
   Ishwar Chandra Vidyasagar, 1901
B: Swami Dayanand Saraswathi, 1875
   Swami Dayanand Saraswathi, 1875
C: Sri Ramakrishna Mission, 1915
   Sri Ramakrishna Mission, 1915
D: Annie Besant, 1898
   Annie Besant, 1898

Correct Alternative :- D