CHEMISTRY

BOOKS - BRILLIANT PUBLICATION

BIOMOLECULES, POLYMERS AND CHEMISTRY IN EVERYDAY LIFE

Level I Homework

1. Monosaccharides contain

A. Always six carbon atoms

B. Always five carbon atoms

C. Always four carbon atoms

D. May contain 3 to 7 carbon atoms

Answer:

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2. Which of the following forms osazone with phenylhydrazene?

A. Glucose

B. Fructose

C. Maltose

D. All the three above

Answer:

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3. Glycoside linkage is an

A. Amide linkage

B. Ether

C. Ester linkage

D. None of these

Answer:

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4. Which of the following is a nonreducing sugar ?

A. lactose

B. fructose

C. cellobiose

D. sucrose

Answer:

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5. The formation of furanose structure of fructose involves the interaction of functional groups present at:

A. C-1 and C-4

B. C-2 and C-6

C. C-2 and C-5

D. C-1 and C-5

Answer:

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6. The end product (B) formed in the reaction sequence Glucose $\xrightarrow[H_3O^+]{HCN} A \xrightarrow[\Delta]{HI, P} B$

A. Hexanoic acid

B. Hexane

C. Heptane

D. Heptanoic acid

Answer:

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7. Starch is made up of:

A. α-glucose pyranose

B. $\beta -$ fructose pyranose

C. β-fructose furanose

D. both 1 and 3

Answer:

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8. Haworth's projection of α-D glucose is :

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9. In the ring structure of fructose, the anomeric carbon is:

A. C-1

B. C-2

C. C-5

D. C-6

Answer:

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10. Among the following, the weakest interparticle forces of attraction are present in

A. Thermosetting polymers

B. Thermoplastic polymers

C. Fibres

D. Elastomers

Answer:

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11. Rubber latex is which type of emulsion

A. oil in oil

B. water in oil

C. oil in water

D. solid in water

Answer:

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12. The polymer used in the manufacture of electrical goods such as switches, plugs etc is.

A. Polythene

B. Bakelite

C. Neoprene

D. PHBV.

Answer:

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13. Among the following, the weakest interparticle forces of attraction are present in

A. Thermosetting polymers

B. Thermoplastic polymers

C. Fibres

D. Elastomers

Answer:

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14. In the determination of number of average molecular weight of polymers by osmotic pressure experiment, (π / C) along Y -axis and 'C' along X-axis graph, Y intercept i.e, (π / C), is equal to

A. $RT\overline{Mn}$

B. $\frac{\overline{Mn}}{RT}$

C. $\frac{RT}{\overline{Mn}}$

D. $\frac{R}{\overline{MnT}}$

Answer:

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15. Ziegler-Natta catalyst is

A. $K[PtCl_3(C_2H_4)]$

B. $\left[(Ph)_3P\right]_3RhCl$

C. $Al_2(C_2H_5)_6 + TiCI_4$

D. $Fe(C_5H_5)_2$

Answer:

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16. If $N_1, N_2, N_3 \ldots\ldots N_i$, are the number of molecules with molecular masses $M_1, M_2, M_3 \ldots\ldots M_i$ respectively, then the weight average molecular mass (MW) is expressed as

A. $\frac{\sum N_i M_i^2}{\sum N_i M_i}$

B. $\frac{\sum N_i M_i}{\sum N_i}$

C. $\frac{\sum N_i M_i^2}{\sum N_i}$

D. $\frac{\sum N_i M_i}{\sum M_i}$

Answer:

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17. Rubber latex is which type of emulsion

A. oil in oil

B. water in oil

C. oil in water

D. solid in water

Answer:

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18. If M_w is the weight-average molecular weight and M_n is the number, the poly dispersity index (PDI)of the polymer is given by

A. $\frac{\overline{M}_n}{M_w}$

B. $\frac{\overline{M}_w}{M_n}$

C. $\overline{M}_w \times \overline{M}_n$

D. $\frac{1}{\overline{M}_w \times \overline{M}_n}$

Answer:

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19. If the number average molecular weight and weight average molecular weight of a polymer are 40,000 and 60,000 respectively, the polydispersity index of the polymer will be

A. > 1

B. < 1

C. 1

D. zero

Answer:

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20. In the manufacture of tyre rubber, during vulcanisation

A. 20-25% of sulphur is used

B. 5% of sulphur is used

C. 30% of sulphur is used

D. 50% of sulphur is used

Answer:

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21. A drug which is classified on the basis of structure is

A. analgesic

B. antihistamine

C. sulphadrug

D. antipyretic

Answer:

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22. Which of the following is used as Antacid

A. $Al(OH)_2$

B. $Mg(OH)_2$

C. $NaHCO_3$

D. All

Answer:

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23. Which of the following drugs is NOT an antihistamine

A. Bromiopheniramine

B. Chloropheniramine

C. Diphenyl hyramine

D. Arsphenamine

Answer:

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24. Which of the following is not a tranquilizer

A. Veronal

B. Luminal

C. Equanil

D. Ibuprofen

Answer:

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25. Which of the following is a non-narcotic analgesic?

A. Heroin

B. Aspirin

C. Codeine

D. Morphine

Answer:

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26. Nurologically actived drugs are

A. transquilizers and analgesics

B. analagesics and antacids

C. transquilizers and antacids

D. antacids and antihistamines

Answer:

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27. The sugar substitute especially used in cold foods and soft drinks

A. Aspartame

B. Sucralose

C. Saccharin

D. Alitame

Answer:

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28. Salts of sorbic acid and propanoic acid are

A. Antioxidants

B. Flavouring agents

C. Food preservatives

D. Nutrional suppliments

Answer:

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29. Which of the following is an example of cationic detergent

A. sodium lauryl sulphate

B. sodium dodecyl benzene sulphonate

C. cetyl trimethyl ammonium bromide

D. LAS

Answer:

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Level Ii Biomolecules

1. Which of the following statements are true?

i) Rhamnose and deoxyribose are carbohydrates by their chemical behavior but cannot represented as hydrates of carbon

ii) Formaldehyde and acetic acid do not behave like carbohydrate but can be represented by the general formula of carbohydrates, $C_x(H_2O)_y$

iii) Raffinose on hydrolysis gives glucose and galactose only

iv) Polysaccharides are also called non-sugars

v) In disaccharides, if reducing groups of monosaccharides are bonded,

they are non reducing in nature

vi) Sorbose is an example of aldose

A. All except (ii) and (v)

B. Only (i), (ii) and (iii)

C. Only (ii), (iii), (iv) and (v)

D. Only (i), (ii), (iv) and (v)

Answer:

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2. On oxidation with nitric acid, glucose as well as gluconic acid yield

A. maleic acid

B. fumaric acid

C. saccharic acid

D. aspartic acid

Answer:

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3. Fructose reduces Tollen's reagent due to

A. Enolisation of fructose followed by conversion to glucose by the base present in alkali in Tollen's reagent

B. Chiral carbon atoms

C. Two primary alcoholic groups

D. Secondary alcoholic groups

Answer:

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4. In fructose and glucose the possible optical isomers are

A. 12, 12

B. 8, 16

C. 16,8

D. 4,12

Answer:

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5. The two functional groups present in a typical carbohydrate are

A. $-OH$ and $-COOH$

B. $-CHO$and $-COOH$

C. $> C = O$ and $-OH$

D. $-OH$and CHO

Answer:

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6. The pentaacetate of glucose does not react with hydroxylamine indicating the

A. presence of -OH group

B. presence of free -CHO group

C. absence of -OH group

D. absence of free -CHO group

Answer:

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7. How many chiral carbon atoms are present in the product when glucose reacts with conc HNO_3

A. 2

B. 3

C. 4

D. 5

Answer:

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8. In lactose, reducing part is

A. $\alpha - D - (+)$ galactose

B. $\alpha - D - (+)$-glucose

C. $\beta - D - (+)$-galactose

D. $\beta - D - (+)$ glucose

Answer:

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9. Starch is changed into disaccharide in presence of

A. diastase

B. maltase

C. lactase

D. zymase

Answer:

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10. In aqueous solution, amino acid exist as

A. Cation

B. Anion

C. Dianion

D. Zwitter ion

Answer:

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11. Which of the following is not an essential amino acid

A. Phenyl alanine

B. Lysine

C. histidine

D. Glycine

Answer:

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12. Which of the following is not a globular protein

A. Fibrinogen

B. Haemoglobin

C. Antibodies

D. Fibroin

Answer:

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13. Cyanocobalamine is the chemical name of

A. Vit. B_1

B. Vit. B_2

C. Vit. B_{12}

D. Vit. B_6

Answer:

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14. Proteins are detected by

A. Xanthoproteic Test

B. Ninhydrin Test

C. Biuret Test

D. All these

Answer:

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15. Of the given hormones which are peptide hormones?

i) Testosterone ii) Estrone iii) Progesterone iv) Insulin

v) Oxytocin vi) Vasopressin vii) Adrenalin viii) Tryoxin

A. i, ii and iii

B. ii, iii & iv

C. iv, v & vi

D. vii & viii

Answer:

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16. Which of the following statements is wrong?

A. Hydrolysis of maltose into glucose is catalysed by maltase

B. Chemically all enzymes are globular proteins

C. Co factor is the non-protein part associated with certain enzymes

D. Protein-cofactor complex is called apoenzyme

Answer:

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17. RNA and DNA are chiral molecules, their chitality is due to

A. D-sugar component

B. L-sugar component

C. Chiral bases

D. Chiral phosphate ester unit

Answer:

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18. The presence or absence of hydroxyl group on which carbon atom of sugar differentiates. RNA & DNA?

A. 2^{nd}

B. 3^{rd}

C. 4^{th}

D. 1^{st}

Answer:

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19. Nitrogen base that is found in RNA but absent in DNA is

A. Thymine

B. Cytocine

C. Adenine

D. Uracil

Answer:

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20. In double stranded DNA, the sequence of base pairs in one strand are 3' AGCTAAGC5': What is the complementary sequence on the other strand?

A. 3' - CGUAUUCG-5'

B. 5'- AGCTAAGC-3'

C. 3' - UAUTAUCG-5'

D. 5' - TCGATTCG-3'

Answer:

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Level Ii Polymers

1. Which of the following statements are true?

i) Starch, cellulose, resins etc are natural polymers

ii) Vulcanised rubber is a semi-synthetic polymer

iii) HDPE, PVC, Nylons, Polyesters etc are linear polymers

iv) Linear polymérs possess relatively low density, low melting point and low tensile strength

v) Amyłopectin and glycogen are naturally occuring and branched chain polymers

vi) In cross linked polymers, strong covalent bonds exist between linear polymer chains . (1) Only i, ii and iii are true (2) All except iv are true (3) Only vand vi are true (4) Only i, ii, v and vi are true

A. Only i, ii and iii are true

B. All except iv are true

C. Only vand vi are true

D. Only i, ii, v and vi are true

Answer:

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2. Match suitably and, choose the correct answer.

i) Elastomers	a. Cannot be remoulded
ii) Fibres	b. Very weak vander Waal force
iii) Thermoplastic polymers	c. Become soft on heating and hard on cooli
iv) Thermosetting polymers	d. Hydrogen bond

A. $(i) \rightarrow b, (ii) \rightarrow d, (iii) \rightarrow a, (iv) \rightarrow c$

B. $(i) \rightarrow d, (ii) \rightarrow b, (iii) \rightarrow a, (iv) \rightarrow c$

C. $(i) \rightarrow b, (ii) \rightarrow d, (iii) \rightarrow c, (iv) \rightarrow a$

D. $(i) \rightarrow a, (ii) \rightarrow c, (iii) \rightarrow d, (iv) \rightarrow b$

Answer:

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3. Which one of the following statements is not true?

A. Buna:S is a copolymer of butadiene and styrene

B. Natural rubber is a 1, 4-polymer of isoprene

C. In vulcanization, the formation of sulphur bridges between different chains make rubber harder and stronger.

D. Natural rubber has the trans-configuration at every double bond.

Answer:

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4. Dacron is an example of (1) Polyamide (2) Polypropylene (3) Polyurethane (4) Poly ester

A. Polyamide

B. Polypropylene

C. Polyurethane

D. Poly ester

Answer:

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5. Polyacrylate polymer "Orlon" is made from

A. Acrylic acid

B. Acraldehyde

C. Vinyl cyanide.

D. Vinyl chloride

Answer:

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6. Nylon-6 has the structure

A. 

B. 

C. 

D. 

Answer:

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7. Melamine formaldehyde polymer is made from melamine and formaldehyde. IUPAC name of melamine

A. 1, 3, 5-Triamino-2,4,6-triazine

B. 2-Amino-1, 3,5-triazine

C. 2, 4-Diamino-1, 3, 5-triazine

D. 2, 4, 6-Triamino-1, 3,5-triazine

Answer:

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8. Neoprene rubber is obtained by the polymerisation of

A. 1,3-butadiene

B. 2-methyl-1, 3-butadiene

C. 2-chloro-1, 3-butadiene

D. styrene and butadiene

Answer:

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9. Which of the following statements is not true? (1) Chemically, natural rubber is a linear polymer of isoprene (2) During vulcanisation, natural rubber is heated with sulphur at a temperature range between 373 K to 415 K (3) In the manufacture of tyre rubber 5% sulphur is used as cross linking agent (4) Natural rubber is crystalline

A. Chemically, natural rubber is a linear polymer of isoprene

B. During vulcanisation, natural rubber is heated with sulphur at a temperature range between 373 K to 415 K

C. In the manufacture of tyre rubber 5% sulphur is used as cross linking agent

D. Natural rubber is crystalline

Answer:

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10. A polymer which is commercially called “Dextron" is

A. Poly (Glycolic acid) poly (Lactic acid)

B. PHBV

C. Nylon-2-Nylon-6

D. PMMA

Answer:

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11. Which one of the following sets forms the biodegradable polymer? :

$CH_2 = CH - CN$ and $CH_2 = CH - CH = CH_2$,

$H_2N - CH_2 - COOH$ and $H_2N - (CH_2)_5 - COOH$

A. $CH_2 = CH - CN$ and $CH_2 = CH - CH = CH_2$

B. $H_2N - CH_2 - COOH$ and $H_2N - (CH_2)_5 - COOH$

C. 

D.

Answer:

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Level Ii Chemistry In Everyday Life

1. Proteins which perform the role of biological catalyst in the body are called

A. Enzymes

B. Receptors

C. Enzyme inhibitors

D. Neurotransmitters

Answer:

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2. Aspirin is also known as

A. Methyl salicyclic acid

B. acetyl salicylate

C. Methyl salicylate

D. Acetyl salicylic acid

Answer:

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3. Which of the following is used as Antacid

A. $Al(OH)_3$

B. $Mg(OH)_2$

C. $NaHCO_3$

D. All these

Answer:

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4. Which of the following drugs is NOT an antihistamine

A. Bromopheniramine

B. Chloropheniramine

C. Diphenyl hydramine

D. Arsphenamine

Answer:

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5. Which one fo the following is employed as a tranquilizer?

A. Chlorpheninamine

B. Equanil

C. Naproxen

D. Tetracycline

Answer:

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6. Which of the following is a non-narcotic analgesic?

A. Heroin

B. Aspirin

C. Codeine

D. Morphine

Answer:

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7. Chloroamphenicol is an

A. Antiseptic and disinfectant

B. Antibiotic broad spectrum

C. Antifertility drug

D. Antihistaminie

Answer:

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8. Which of the following is NOT a broad spectrum antibiotic?

A. Pencillin

B. Ampicillin

C. Amoxicilin

D. Chloramphenicol

Answer:

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9. Which of the following is used as antiseptic as well as disinfectant depending upon concentration

A. Dettol - dilute

B. Savlon

C. phenol solution in water

D. Iodoform/H_2O_2 dilute / H_2BO_3 dilute / $KMnO_4$-3%

Answer:

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10. The artificial sweetener containing chlorine that has the appearance and taste as that of sugar and is stable at cooking temperature is

A. Aspartamen

B. Saccharine

C. Alitane

D. Sucralose

Answer:

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11. Salts of sorbic acid and propanoic acid are

A. Antioxidants

B. Flavouring agents

C. Food preservatives

D. Nutritional suppliments

Answer:

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12. Which of the following is an example of cationic detergent

A. sodium lauryl sulphate

B. sodium dodecyl benzene sulphonate

C. cetyl trimethyl ammonium bormide

D. LAS

Answer:

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Level Ii Assertion Reason Type Questions

1. Assertion : Glucose gives a reddish brown precipitate with Fehling's solution.

Reason : Reaction of glucose with Fehling's solution gives CuO and gluconic acid.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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2. Assertion : D-(+) Glucose and L-(-) -fructose are enantiomers.

Reason : Glucose molecule is mirror image of fructose molecule.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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3. Assertion : Teflon has high thermal stability and chemical inertness.

Reason : Teflon is highly cross-linked polymer.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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4. Assertion : Antiseptics are not injected into the body.

Reason : Antiseptics are intravenus drugs.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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5. Assertion : Aspirin can cause ulcer in the stomach.

Reason : The ester group in aspirin get hydrolysed to acid group in the stomach where pH is 2.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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6. Assertion : Saccharin is excreated through urine.

Reason : Saccharin is not used by diabetic patients.

A. If both Assertion & Reason are true & the Reason is a correct explanaiton of the Assertion

B. If both Assertion & Reason are True but Reason is not a correct explanaiton of the Assertion

C. If Assertion is True but the Reason is false

D. If both Assertion & Reason are false

Answer:

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