

English

Question 1: Choose the correct verb to fill the gap. By the end of the year, she _____ with a degree in business.

1. already graduates
2. already graduated
3. will have already graduated
4. has already graduated

Question 2: Choose the synonym for the following word Hallowed

1. Sacred
2. Old
3. Inactive
4. Effective

Question 3: As _____ cuts it as well as he does, I always have my hair cut at Johnson's.

1. anyone
2. someone else's
3. no one else
4. everyone

Question 4: Mohit _____ his century before it is the end of the match.

1. will score
2. will have scored
3. has scored

4. scores

Question 5: Which word is a adverb in this sentence?

There are no interesting programmes tonight.

1. interesting
2. programmes
3. there
4. tonight

Pharmacy

Question 1 Artificial microscopic bilayer vesicles are:-

1. Liposomes
2. Implants
3. Resealed erythrocytes
4. Microcapsules

Question 2 When solid particles are up to 25% in a liquid, the preferred filter to separate particles is:-

1. Edge filter
2. Plate & frame filter
3. Leaf filter
4. Rotary filter

Question 3 A patient is renally impaired his renal function is half of the normal person. The dosing interval is:-

1. Doubled
2. Half
3. Remain same
4. All of these

Question 4 Helium pyrometer is used to measure:-

1. Particle distribution in aerosols
2. Volume of particle in powder
3. Distance between two point
4. Flash point of aerosols

Question 5 3% w/v solution contains:-

1. 3 grams of solute in 100 ml of the solvent
2. 3 grams of solute in 100 ml of the solution
3. 3 grams of solute in 1ml of the solution
4. 3 grams of solute in 1ml of the solvent

Physiotherapy

Question 1 Which primitive reflex is the first to integrate in a child?

1. Moro reflex
2. Righting reflex
3. Parachute reflex
4. Labyrinthine reflexes

Question 2 What is the main characteristic feature of a patient with Duchenne's Muscular Dystrophy?

1. Face muscle weakness
2. Tendon reflexes diminished
3. Pseudohypertrophy of calf muscles

4. Sensations impairment

Question 3 Gower's sign is used to assess which condition?

1. Myasthenia Gravis
2. Spasticity and Flaccidity
3. Multiple Sclerosis
4. Muscular Dystrophy

Question 4 Frequency range for High TENS is:-

1. 100 and 150 Hz
2. 150 and 200 Hz
3. 50 and 100 Hz
4. 100 and 200 Hz

Question 5 Jones fracture is a fracture of:-

1. Fifth metatarsal
2. Second metatarsal
3. Tarsal bones
4. Second metacarpal

Ayurveda

Question 1: Which mahabhuta combination is responsible for the formation of Kasaya Rasa?

1. Agni and Jala
2. Vayu and Prithvi

3. Agni and Vayu
4. Vayu and Akasha

Question 2: If the medicine is taken with every morsel (sagras), then it is useful for treating disease of which Vayu?

1. Apan vayu
2. Udan vayu
3. Vyan vayu
4. Pran vayu

Question 3: Which of the following carbohydrate liberates three molecules of monosaccharides on hydrolysis?

1. Glucose
2. Raffinose
3. Maltose
4. Fructose

Question 4: Which parameter is performed to check the inorganic content present in herbal drugs?

1. Foreign organic matter
2. Refractive index
3. Ash value
4. Water soluble extractive value

Question 5: Avapa is used in marana of:-

1. Copper
2. Mica
3. Copper pyrite

4. Lead

Physics

Question 1 An earthquake emits both S-waves and P-waves which travel at different speeds through the Earth. A P-wave travels at 9,000 m/s and an S-wave travels at 5,000m/s. If P-waves are received at a seismic station 1.00 minute before an S-wave arrives, how far away is the earthquake center?

1. 1,200 km
2. 675 km
3. 88.9 km
4. 240 km

Question 2 All people come very close to being able to float in water. What therefore is the volume (in cubic meters) of a 50-kg woman?

1. 0.035
2. 0.050
3. 0.007
4. 0.070

Question 3 A horizontal meter stick supported at the 50-cm mark has a mass of 0.50 kg hanging from it at the 20-cm mark and a 0.30 kg mass hanging from it at the 60-cm mark. Determine the position on the meter stick at which one would hang a third mass of 0.60 kg to keep the meter stick balanced.

1. 65 cm
2. 70 cm
3. 74 cm

4. 86 cm

Question 4 Two stars of masses M and $6M$ are separated by a distance " D ". Determine the distance (measured from M) to a point at which the net gravitational force on a third mass would be zero.

1. 0.41 D
2. 0.37 D
3. 0.33 D
4. 0.29 D

Question 5 What is the technique used to find the age of prehistoric fossils?

1. Paleontology
2. Radio Carbon dating
3. Radio Isotope dating
4. None of these

Chemistry

Question 1 In terms of the "Collision Theory of Chemical Kinetics", the rate of a chemical reaction is proportional to:-

1. The number of product molecules
2. The number of collisions per second
3. The change in free energy per second
4. The change in temperature per second

Question 2 If a system loses 250 kJ of heat at the same time that it is doing 500 kJ of work, what is the change in the internal energy of the system?

1. +750 kJ
2. +250 kJ
3. -750 kJ
4. -250 kJ

Question 3 The compressibility factor for an ideal gas is:-

1. 2.0
2. 1.5
3. 1.0
4. Infinity

Question 4 Which statement is incorrect about zeolites?

1. No zeolites occur naturally
2. A zeolite functions as an acid catalyst, e.g. in the alkylation of aromatic compounds
3. Each zeolite contains channels of a specific size
4. Zeolites are aluminosilicates

Question 5 If a polymer sample has polydispersity index > 1 , it indicates that:-

1. The polymer chains are uniform in length
2. The number average molecular weight is equal to the weight average molecular weight of the polymer
3. The polymer chain lengths vary over a wide range of molecular masses
4. The polymer under consideration is a natural polymer

Mathematics

Question 1: The number of elements in the power set $P(S)$ of the set $S = \{2, \{1, 4\}\}$ is:-

1. 8
2. 4
3. 2
4. None of these

Question 2: If $A = \{1, 2, 3, 4\}$ and $R = \{(1, 3), (3, 4), (1, 4)\}$, then R is:-

1. Symmetric
2. Transitive
3. Reflexive
4. None of these

Question 3: If $|z| = |z - 1|$, then:-

1. $\operatorname{Re}(z) = 1$
2. $\operatorname{Im}(z) = 1$
3. $\operatorname{Re}(z) = 1/2$
4. $\operatorname{Im}(z) = 1/2$

Question 4: If the system of equations $x + 2y - 3z = 1$, $(p + 2)z = 3$, $(2p + 1)y + z = 2$ is inconsistent, then what is the value of p ?

1. $-1/2$
2. 2
3. -2

4. 0

Question 5: If $f(x) = |x + 2|$, then:-

1. $f(|x|) = |f(x)|$
2. $f(x+y) = f(x) + f(y)$
3. $f(x.y) = f(x).f(y)$
4. None of these

Biotech

Question 1 What is a smear?

1. A smear is a preparation process in which a specimen is dyed
2. A smear is a process used to identify a specimen
3. A smear is a process in which a specimen is moved beneath a microscope
4. A smear is a preparation process in which a specimen is spread on a slide

Question 2 Why is a bacterium called a prokaryotic organism?

1. A bacterium is a multicell organism that does not have a distinct nucleus
2. A bacterium is a multicell organism that has a distinct nucleus
3. A bacterium is a one-cell organism that has a distinct nucleus
4. A bacterium is a one-cell organism that does not have a distinct nucleus

Question 3 What microorganisms can use oxygen when it is present and continue to grow without it?

1. Obligate aerobes
2. Obligate anaerobes

3. Free radicals
4. Facultative anaerobes

Question 4 All of the following associations are true except one:-

1. Poliovirus can cause paralytic disease
2. Mumps virus can cause meningitis
3. Astrovirus causes gastroenteritis only in adults
4. EBV can cause nasopharyngeal carcinoma

Question 5 Which of the following is most effective for sterilizing mattresses and plastic Petri plates?

1. Ethylene oxide
2. Ultraviolet radiation
3. Autoclave
4. Chlorine

Microbiology

Question 1 Following person recognised the significance of microbes in disease for the first time:-

1. Louis Pasteur
2. Kircher
3. Robert Koch
4. None of these

Question 2 Germ Theory is:-

1. Germs cannot be killed
2. Presence of pathogen in infected animals
3. Spores
4. None of these

Question 3 Theory of fermentation says that fermentation is the:-

1. Effect of a specific microbe
2. Destruction of microbes
3. Radiation
4. None of these

Question 4 One way to determine the size, cell morphology and grouping of bacterial cells is to:-

1. Streak plate
2. Phenol red
3. Simple stain
4. None of these

Question 5 When many bacterial cells are embedded in a continuous matrix the material is called:-

1. Capsule
2. Microcapsule
3. Slime
4. Spore

Botany

Question 1: A medullated protostele is

1. Dictyostele
2. Siphonostele
3. Solenostele
4. Protostele

Question 2: The closed ascocarp is termed:-

1. Apothecium
2. Cleistothecium
3. Perithecium
4. Hysterothecium

Question 3: In Gymnosperms the only mode of pollination is:-

1. Anemophily
2. Hydrophily
3. Zoophily
4. Entomophily

Question 4: Double fertilization in angiosperms was discovered by:-

1. J.C. Bose
2. Strasburger
3. Maheshwari
4. Nawaschin

Question 5: Before a carbohydrate is utilized as an energy source, it gets first converted into:-

1. Oligosaccharide

2. Triose sugars
3. Monosaccharide
4. Disaccharide

Biochemistry

Question 1 Two sugars which differ from one another only in configuration around a single carbon atom are termed as:-

1. Optical isomers
2. Stereoisomers
3. Epimers
4. Anomers

Question 2 In EM pathway enolase converts 2-phosphoglycerate to:-

1. Phospho enol pyruvate
2. Enol pyruvate
3. 1,3 bisphosphoglycerate
4. Dihydroxy acetone phosphate (DHAP)

Question 3 The standard free energy of hydrolysis of terminal phosphate group of ATP is:-

1. - 7,300 cal/mol
2. +7,300 cal/mol
3. 10,000 cal/mol
4. - 8,300 cal/mol

Question 4 Tertiary structure of a protein describes:-

1. Loop regions of proteins
2. The ways of protein folding
3. Location of disulphide bonds
4. The order of amino acids

Question 5 The enzymes of urea synthesis are found in:-

1. Both mitochondria and cytosol
2. Mitochondria only
3. Cytosol only
4. Nucleus

Zoology

Question 1 The Sol-gel nature of protoplasm is due to:-

1. Its colloidal nature
2. Presence of living cell inclusions
3. Pressure of inorganic salts
4. Presence of water

Question 2 What is the latest model that is proposed to explain the structure of plasma membrane or the latest view of molecular organization of biomembrane is based on?

1. Fluid mosaic model
2. Unit membrane model
3. Thin lipid layer concept

4. Artificial model systems

Question 3 The number of autosomes in a human male is:-

1. 43
2. 22 pair
3. 45
4. 46

Question 4 The snakes living in the deserts are mainly:-

1. Aminotelic
2. Uricotelic
3. Ammonotelic
4. Ureotelic

Question 5 Genes are involved in turning on or off the transcription of set of structural genes are called:-

1. Operator genes
2. Redundant genes
3. Polymorphic genes
4. Regulatory genes

Agriculture

Question 1 Farming System Research is not:-

1. Farmer participatory
2. System oriented

3. Client non-specific
4. Gender sensitive

Question 2 Actual mechanism of processes is not disclosed in which Crop Modeling?

1. Stochastic model
2. Statistical empirical model
3. Dynamic model
4. Mechanistic model

Question 3 Glyphosate herbicide trade name is:-

1. Killer
2. Captain
3. Round Up
4. Maxim

Question 4 The botanical name of 6 row barley is:-

1. *Hordeum distichon*
2. *Hordeum vulgare*
3. *Hordeum plantae*
4. *Hordeum irregulare*

Question 5 Legume is characteristic of:-

1. Fabaceae
2. Euphorbiaceae
3. Malvaceae
4. Musaceae

Environmental Sciences

Question 1 Which among of the following is a Sedimentary type of cycle?

1. Nitrogen cycle
2. Carbon cycle
3. Sulphur cycle
4. Oxygen cycle

Question 2 The number of species in a community is called the?

1. Species richness
2. Diversity of species
3. Equal diversity of species
4. Species abundance

Question 3 Environmental disaster that occurred because of release of energy from earth are termed as:

1. Metrological disasters
2. Hydrological disasters
3. Man-made disasters
4. Geophysical disasters

Question 4 The number of Bio-geographical Zones in India:

1. 10
2. 7
3. 9

4. 11

Question 5 Acid rain has pH equal or below:

1. 6
2. 6.5
3. 5.5
4. 7

Forensic Sciences

Question 1 Hair can be used for analysis of Metallic poison:

1. Arsenic
2. Antimony
3. Phosphorus
4. Sodium

Question 2 CODIS is:

1. Combined DNA index system
2. Combined Digital Identification system
3. Combined Digital interpretation system
4. None

Question 3 Temporo-parietal suture is found in

1. Pelvis

2. Mandible
3. Long bones
4. Skull

Question 4 Hydrocarbons can be detected by in arson cases.

1. ECD
2. FID
3. PMT
4. None

Question 5 Tongue Flutter is seen in:

1. Drowning cases
2. Throttling cases
3. Hanging cases
4. All of above

Statistics and Data Analytics

Question 1 The value of $\lim_{(x,y) \rightarrow (0,1)} \frac{(y-1)\tan^2 x}{x^2(y^2-1)}$ is equal to:

1. -1
2. -1/2
3. 1/2
4. 12

Question 2 If $f(x,y)$ is a homogeneous function of degree n in x and y having continuous first and second order partial derivatives, then:

1. $x \frac{\partial f}{\partial y} + y \frac{\partial f}{\partial x} = 0$
2. $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = nf$
3. $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = 0$
4. $x \frac{\partial f}{\partial y} + y \frac{\partial f}{\partial x} = nf$

Question 3 If $r=f_{xx}(a,b)$, $s=f_{xy}(a,b)$, $t=f_{yy}(a,b)$ at a point $P(a,b)$, then the point $P(a,b)$ is said to be point of maxima if and only if:

1. $(rt-s^2) > 0, r > 0$
2. $(rt-s^2) > 0, r < 0$
3. $(rt-s^2) = 0$
4. $(rt-s^2) < 0$

Question 4 If A and B are two independent events, then by law of probability:

1. $P(A \cup B) = P(A) \cdot P(B)$
2. $P(A \cup B) = 1$
3. $P(A \cap B) = P(A) \cdot P(B)$
4. $P(A \cap B) = 0$

Question 5 For a Poisson distribution:

1. Mean $>$ Variance
2. Mean $<$ Variance
3. Mean $-$ Variance $= 1$

4. Mean = Variance

Clinical Microbiology

Question 1: The capacity of a given strain of microbial species to produce disease is known as

1. Pathogen
2. Virulence
3. Infection
4. None of these

Question 2: Factors on which disinfectivity of a disinfectant depends

1. Concentration of substance
2. Time of action
3. pH of medium and temperature suitable for chemical
4. All of the above

Question 3: Complement based agglutination reaction is known as

1. Haeme agglutination
2. Complement fixation
3. Conglutination
4. Schultz Dale phenomenon

Question 4: Which of the following is a true statement regarding purified protein derivative (PPD) used in tuberculin test?

1. Prepared from tubercle bacilli
2. It is inferior to old tuberculin
3. Consist of filtrate of glycerol broth
4. None of the above

Question 5: The event that triggered the development and establishment of microbiology as a science is

1. Germ theory of disease
2. Development of microscope
3. Time of action
4. Use of disinfectant

Clinical Biochemistry

Question 1: Normality of 1M sulfuric acid is

1. 1.0
2. 0.5
3. 4.0
4. 2.0

Question 2: Glucose 6-phosphatase is not present in

1. Kidneys and liver

2. Kidneys and muscles
3. Muscles and adipose tissue
4. Muscles and liver

Question 3: Enzymes catalyzing electron transport are present mainly in the

1. Ribosomes
2. Endoplasmic reticulum
3. Lysosomes
4. Inner mitochondrial membrane

Question 4: A coenzyme required for synthesis of glycine from serine is

1. Vitamin B6
2. ATP
3. NAD
4. Tetrahydrofolate

Question 5: Tertiary structure of a protein describes the

1. Specific peptide linkage
2. Location of disulfide bonds
3. Specific way of protein folding and according to the order of amino acids
4. Specific loops

Nutrition and Dietetics

Question 1: Which of the following is not an external source of recruitment?

1. Walk-ins
2. Professional agencies
3. Word-of-mouth
4. Transfer

Question 2: Light emitted when a substance is heated is called as

1. Incandescence
2. Lightening
3. Combustion
4. None of these

Question 3: ICDS was launched in ----- in India

1. 1955
2. 1965
3. 1975
4. 1985

Question 4: Due to altered renal function, which of the following production increases during pregnancy

1. Urea
2. Creatinine
3. GFR
4. All of the above

Question 5: Which one of the following statements is incorrect?

1. Introduction of complementary foods too early may give rise to allergic reactions
2. Delayed introduction of complementary foods may give rise to growth faltering
3. Breastfeeding should continue to the age of 2 years or beyond
4. Low-fat and high-fiber diets are appropriate for infants under the age of 2