Section : **Biology**

Q.1 **Who popularised the term 'Biodiversity'?**
1. Edward Wilson
2. Charles Darwin
3. Lamarck
4. Watson and Crick

Options 1. 1
2. 2
3. 3
4. 4

Q.2 **In gel electrophoresis, the separated DNA fragment can be visualized -**

1. When ethidium bromide exposed to UV light
2. When ethidium bromide exposed to infrared light
3. When bromophenol blue exposed to UV light
4. When acetocarmine exposed to UV light

Options 1. 1
2. 2
3. 3
4. 4

Q.3 **Which of the following components were taken by S.L. Miller in a closed flask for his experiment on the origin of life?**
(A) CH4
(B) NH3
(C) CO2
(D) Water vapours

Choose the *correct* answer from the options given below:
1. (A), (B) and (D) only
2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.4 **Identify the correct pathway for transport of sperms?**
(A) Rete testis
(B) Vasa efferentia
(C) Epididymis
(D) Vas deferens

Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (A), (C), (B), (D)
3. (B), (A), (D), (C)
4. (C), (B), (D), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.5 **Which one of the following Bt crops is being grown in India by the farmers?**
1. Brinjal
2. Maize
3. Cotton
4. Soyabean

Options 1. 1

2. 2

3. 3

4. 4

Q.6 **Which of the following features are required to facilitate cloning?**
(A) Presence of origin of replication (Ori) in the cloning vector
(B) Presence of a selectable marker in the cloning vector
(C) Presence of a single recognition site (preferably) for restriction enzyme in the cloning vector
(D) Presence of more than two promoter regions in the cloning vector

Choose the *correct* answer from the options given below:
1. (A), (B) and (D) only
2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1

2. 2

3. 3

4. 4

Q.7 **Match List-I with List-II**

List-I	**List-II**
Population interactions	**Affected species**
(A) Competition	**(I) One species is benefitted, while the other is neither benefited nor harmed**
(B) Parasitism	**(II) Both species are in loss**
(C) Amensalism	**(III) Only one species is benefitted**
(D) Commensalism	**(IV) One species is harmed, the other is unaffected**

Choose the correct answer from the options given below:
1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
3. (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options 1. 1

2. 2

3. 3

4. 4

Q.8 **Identify the incorrect fact about genetic modification.**
1. Crops are made more tolerant to abiotic stresses (cold, drought, salt, heat)
2. Increase in efficiency of mineral usage by plants
3. Help to reduce post harvest losses
4. Increase in reliance on chemical pesticides (pest-resistant crops)

Options 1. 1

2. 2

3. 3

4. 4

Q.9 **Match List-I with List-II**

List-I	**List-II**
Terms	**Examples**
(A) Chromosomal disorder	**(I) Color Blindness**
(B) Incomplete dominance	**(II) *Drosophila***
(C) Sex-linked recessive disorder	**(III) *Antirrhinum***
(D) Male heterogamety	**(IV) Down's Syndrome**

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (III), (C) - (II), (D) - (IV)
2. (A) - (IV), (B) - (III), (C) - (I), (D) - (II)
3. (A) - (IV), (B) - (II), (C) - (III), (D) - (I)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options
1. 1
2. 2
3. 3
4. 4

Q.10 GnRH is secreted by:
1. Pituitary gland
2. Hypothalamus
3. Testis
4. Ovary

Options
1. 1
2. 2
3. 3
4. 4

Q.11 Arrange the given stages involved in embryo development in a dicot angiosperm in correct sequence
(A) Globular embryo
(B) Proembryo
(C) Zygote
(D) Heart shaped embryo

Choose the correct answer from the options given below:
1. (C), (B), (D), (A)
2. (C), (B), (A), (D)
3. (B), (D), (C), (A)
4. (D), (A), (B), (C)

Options
1. 1
2. 2
3. 3
4. 4

Q.12 Match List-I with List-II

List-I	List-II
Types of evolution	Examples
(A) Divergent evolution	(I) Moths
(B) Adaptive radiation	(II) Eyes of octopus and mammals
(C) Convergent evolution	(III) Darwin's finches
(D) Industrial melanism	(IV) Thorn of *Bougainvillea* and tendrils of *Cucurbita*

Choose the correct answer from the options given below:
1. (A)- (I), (B)- (II), (C)- (III), (D) - (IV)
2. (A)- (IV), (B)- (III), (C)- (II), (D) - (1)
3. (A)- (I), (B) - (II), (C)- (IV), (D) - (III)
4. (A)-(III), (B) - (IV), (C)- (I), (D) - (II)

Options
1. 1
2. 2
3. 3
4. 4

Q.13 The first clinical gene therapy was given to a 4-year old girl with:
1. Insulin deficiency
2. Adenosine deaminase deficiency (ADA)
3. Chicken Pox
4. Polio

Options
1. 1
2. 2

3. 3

4. 4

Q.14 **If 4 individuals in a laboratory population of 40 fruitflies died during a specified time interval, say a week, the death rate in the population during that period is -**
1. 1 individual per fruitfly per week
2. 0.1 individual per fruitfly per week
3. 10 individuals per fruitfly per week
4. 0.4 individual per fruitfly per week

Options 1. 1

2. 2

3. 3

4. 4

Q.15 **Identify the correct sequence involved in technique of DNA fingerprinting?**
(A) Hybridisation using labelled VNTR probe, and detection of hybridised DNA fragments by autoradiography
(B) Separation of DNA fragments by electrophoresis
(C) Transferring of separated DNA fragments to synthetic membranes, such as nitrocellulose or nylon
(D) Isolation and digestion of DNA by restriction endonucleases

Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (D), (B), (C), (A)
3. (B), (A), (D), (C)
4. (C), (B), (D), (A)

Options 1. 1

2. 2

3. 3

4. 4

Q.16 **Agarose gel electrophoresis is employed to check the progression of a restriction enzyme digestion of DNA. In this technique, the movement of a DNA does not depend on -**
1. Color of DNA
2. Large size
3. Small size
4. Charge on DNA

Options 1. 1

2. 2

3. 3

4. 4

Q.17 **A medicinal plant growing in different Himalayan ranges shows different potency and concentration of the active chemical (reserpine) that the plant produces. Identify the plant:**
1. *Papaver somniferum*
2. *Rauwolfia vomitoria*
3. *Erythroxylum coca*
4. *Saccharomyces cerevisiae*

Options 1. 1

2. 2

3. 3

4. 4

Q.18 **A transcription unit in DNA is defined primarily by the following regions -**
(A) Structural gene
(B) A terminator
(C) A promoter
(D) Exon

Choose the *correct* answer from the options given below:
1. (A), (B) and (D) only

2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.19 Match List-I with List-II

List-I	List-II
Extinct species	Countries
(A) Dodo	(I) Africa
(B) Quagga	(II) Russia
(C) Thylacine	(III) Mauritius
(D) Steller's sea cow	(IV) Australia

Choose the correct answer from the options given below:
1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (IV), (B) - (III), (C) - (II), (D) - (1)
3. (A) - (III), (B) - (I), (C) - (IV), (D) - (II)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options 1. 1
2. 2
3. 3
4. 4

Q.20 Plants capture only_____of the photosynthetically active radiation (PAR) and this small amount of energy sustains the entire living world.
1. 2-5 percent
2. 2-20 percent
3. 2-10 percent
4. 5-15 percent

Options 1. 1
2. 2
3. 3
4. 4

Q.21 Which one of the given groups of structures are haploid?
1. Spermatogonia, spermatids, spermatozoids
2. Sertoli cells, sperms, secondary spermatocytes
3. Spermatogonia, primary spermatocyte, sertoli cells
4. Spermatids, spermatozoa, secondary spermatocytes

Options 1. 1
2. 2
3. 3
4. 4

Q.22 The sex determination in honey bee is based on the number of sets of chromosomes an individual receives. So, the males are_____ having_____.
1. Haploid, 32 chromosomes
2. Diploid, 16 chromosomes
3. Haploid, 16 chromosomes
4. Diploid, 32 chromosomes

Options 1. 1
2. 2
3. 3
4. 4

Q.23 Select one of the given options which includes all sexually transmitted infections.
1. Chlamydiasis, genital herpes, hepatitis B
2. Gonorrhoea, hepatitis-B, influenza

3. Trichomoniasis, HIV-infection, cancer
4. Gonorrhoea, malaria, filaria

Options 1. 1
2. 2
3. 3
4. 4

Q.24 Arrange the stages of microsporogenesis in their order of occurrence
(A) Development of pollen from microspores
(B) Formation of microspore tetrad
(C) Sporogenous tissue occupies the center of microsporangium
(D) Meiotic division in the cells of sporogenous tissue

Choose the correct answer from the options given below:
1. (D), (B), (C), (A)
2. (A), (C), (B), (D)
3. (B), (A), (D), (C)
4. (C), (D), (B), (A)

Options 1. 1
2. 2
3. 3
4. 4

Q.25 Select the seeds with perisperm from the following options.
1. Pea and groundnut
2. Maize and black pepper
3. Beet and castor
4. Beet and black pepper

Options 1. 1
2. 2
3. 3
4. 4

Q.26 Which of the following are the salient features of Human Genome project?
(A) The average gene consists of 3000 bases, but sizes vary greatly.
(B) Chromosome 1 has most genes (2968), and the Y has the fewest (231).
(C) The total number of genes is estimated at 30,000- much lower than previous estimates of 80,000 to 1,40,000 genes.
(D) Repetitive sequences are stretches of DNA sequences that are repeated many times, sometimes hundred to thousand times.

Choose the *correct* answer from the options given below:
1. (A), (B) and (D) only
2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options 1. 1
2. 2
3. 3
4. 4

Q.27 Match List-I with List-II

List-I	List-II
Terms	Explanation
(A) Secondary productivity	(I) The amount of biomass or organic matter produced per unit area over a time period by plants
(B) Net primary productivity	(II) The rate of formation of new organic matter by consumers
(C) Gross primary productivity	(III) The available biomass for the consumption to heterotrophs (herbiviores and decomposers)
(D) Primary production	(IV) The rate of production of organic matter during photosynthesis

Choose the correct answer from the options given below:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
2. (A) - (I), (B) - (III), (C) -(II), (D) - (IV)
3. (A) - (II), (B) - (III), (C) - (IV), (D) - (I)
4. (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Options
1. 1
2. 2
3. 3
4. 4

Q.28 In RNA interference (RNAi) the genes are silenced using:
1. ds-DNA
2. ds-RNA
3. ss-RNA
4. ss-DNA

Options
1. 1
2. 2
3. 3
4. 4

Q.29 The early embryos with upto 8 blastomeres are transferred into the fallopian tube in one of the assisted reproductive technologies (ART). Identify the technique.
1. GIFT
2. ZIFT
3. ICSI
4. IUT

Options
1. 1
2. 2
3. 3
4. 4

Q.30 Secretions of which one of the following structures does not help in maturation and motility of sperms?
1. Epididymis
2. Seminal vesicles
3. Urethra
4. Prostate

Options
1. 1
2. 2
3. 3
4. 4

Q.31 50,000 different strains of rice are example of:
1. Loss of biodiversity
2. Species diversity
3. Genetic diversity
4. Ecological diversity

Options
1. 1
2. 2
3. 3
4. 4

Q.32 Thalassemia is:
1. Sex-linked recessive disorder
2. Autosome-linked dominant disorder
3. Autosome-linked recessive disorder
4. Sex-linked dominant disorder

Options
1. 1
2. 2
3. 3
4. 4

Q.33 Gause's 'Competitive Exclusion Principle' states that :
1. Two closely related species competing for the same resources can co-exist indefinitely and the competitively inferior one will be eliminated eventually.
2. Two distantly related species competing for the same resources cannot co-exist indefinitely and the competitively inferior one will be eliminated eventually.
3. Two closely related species competing for the same resources cannot co-exist indefinitely and the competitively inferior one will be eliminated eventually.
4. Two closely related species competing for the different resources cannot co-exist indefinitely and the competitively inferior one will be eliminated eventually.

Options
1. 1
2. 2
3. 3
4. 4

Q.34 Arrange the given organisms in the food chain starting from lower to higher trophic level?
(A) Lion
(B) Cow
(C) Grass
(D) Wolf

Choose the correct answer from the options given below:
1. (A), (B), (C), (D)
2. (A), (C), (B), (D)
3. (B), (A), (D), (C)
4. (C), (B), (D), (A)

Options
1. 1
2. 2
3. 3
4. 4

Q.35 Which one of the followings is not a method of contraception in females?
1. Diaphragms
2. Vaults
3. Vasectomy
4. Cervical caps

Options
1. 1
2. 2
3. 3
4. 4

Q.36 Which of the following statements are true with respect to the Hardy-Weinberg principle:
(A) Allele frequencies in a population are stable and are constant from generation to generation.
(B) The sum total of all the frequencies is equal to 1.
(C) Gene pool remains constant.
(D) Total genes and their alleles keep on changing in a given population.

Choose the correct answer from the options given below:
1. (A), (B) and (D) only
2. (A), (B) and (C) only
3. (A), (B), (C) and (D)
4. (B), (C) and (D) only

Options
1. 1
2. 2
3. 3
4. 4

Q.37 A single stranded DNA or RNA, tagged with a radioactive molecule is called as:
1. Primer

2. Quencher
3. Reporter
4. Probe

Options 1. 1
2. 2
3. 3
4. 4

Q.38 Which one of the following enzymes acts as molecular scissors?
1. DNA polymerase
2. RNA polymerase
3. Restriction enzymes
4. Helicase

Options 1. 1
2. 2
3. 3
4. 4

Q.39 Which one of the following techniques is used for the separation of DNA fragments?
1. Polymerase Chain Reaction (PCR)
2. MRI
3. Gel electrophoresis
4. ELISA

Options 1. 1
2. 2
3. 3
4. 4

Q.40 The negatively charged DNA is wrapped around the positively charged histone octamer and forms a structure, called:
1. Chromosome
2. Nucleosome
3. Centrosome
4. Peroxisome

Options 1. 1
2. 2
3. 3
4. 4

Q.41 Read the given passage carefully and answer the questions
Salmonella typhi is a pathogenic bacterium which causes typhoid fever in human beings. Sustained high fever (39° to 40°C), weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of this disease. Typhoid fever could be confirmed by Widal test. *Plasmodium* enters the human body as sporozoites. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days. There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called mucosa-associated lymphoid tissue (MALT). In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of regulatory mechanisms. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.

Which one of the following statements is not true?
1. Cancerous cells lose the property of contact inhibition.
2. Normal cells do not show the property of contact inhibition.
3. Cancerous cells show uncontrolled growth.
4. Benign tumors normally remain confined to their original location.

Options 1. 1
2. 2
3. 3
4. 4

Q.42 **Read the given passage carefully and answer the questions**

***Salmonella typhi* is a pathogenic bacterium which causes typhoid fever in human beings. Sustained high fever (39° to 40°C), weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of this disease. Typhoid fever could be confirmed by Widal test. *Plasmodium* enters the human body as sporozoites. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days. There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called mucosa-associated lymphoid tissue (MALT). In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of regulatory mechanisms. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.**

The rupture of RBCs is associated with release of a toxic substance_____, which is responsible for the chill and high fever recurring every three to four days.
1. Haeme
2. Haemozoin
3. Haemoglobin
4. Heparin

Options 1. 1
2. 2
3. 3
4. 4

Q.43 **Read the given passage carefully and answer the questions**

***Salmonella typhi* is a pathogenic bacterium which causes typhoid fever in human beings. Sustained high fever (39° to 40°C), weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of this disease. Typhoid fever could be confirmed by Widal test. *Plasmodium* enters the human body as sporozoites. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days. There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called mucosa-associated lymphoid tissue (MALT). In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of regulatory mechanisms. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.**

Which one of the following structures constitute about 50 percent of the lymphoid tissue in the human body?
1. Mucosa associated lymphoid tissue
2. Bone marrow
3. Thymus
4. Lymph node

Options 1. 1
2. 2
3. 3

4. 4

Q.44 **Read the given passage carefully and answer the questions**
***Salmonella typhi* is a pathogenic bacterium which causes typhoid fever in human beings. Sustained high fever (39° to 40°C), weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of this disease. Typhoid fever could be confirmed by Widal test. *Plasmodium* enters the human body as sporozoites. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days. There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called mucosa-associated lymphoid tissue (MALT). In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of regulatory mechanisms. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.**

Widal test is used to diagnose
1. Malaria
2. Dengue
3. Typhoid
4. Chikungunya

Options 1. 1

2. 2

3. 3

4. 4

Q.45 **Read the given passage carefully and answer the questions**
***Salmonella typhi* is a pathogenic bacterium which causes typhoid fever in human beings. Sustained high fever (39° to 40°C), weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of this disease. Typhoid fever could be confirmed by Widal test. *Plasmodium* enters the human body as sporozoites. The parasites initially multiply within the liver cells and then attack the red blood cells (RBCs) resulting in their rupture. The rupture of RBCs is associated with release of a toxic substance, haemozoin, which is responsible for the chill and high fever recurring every three to four days. There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called mucosa-associated lymphoid tissue (MALT). In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of regulatory mechanisms. Normal cells show a property called contact inhibition by virtue of which contact with other cells inhibits their uncontrolled growth. Cancerous cells just continue to divide giving rise to masses of cells called tumors. Tumors are of two types: benign and malignant. Cannabinoids are a group of chemicals, which interact with cannabinoid receptors present principally in the brain. Generally taken by inhalation and oral ingestion, these are known for their effects on cardiovascular system of the body.**

In which organ of the human body, cannabinoid receptors are principally present?
1. Kidney
2. Lungs
3. Heart
4. Brain

Options 1. 1

2. 2

3. 3

4. 4

Q.46 **Read the given passage carefully and answer the questions**
Antibiotics have greatly improved our capacity to treat deadly diseases such as plague, whooping cough (kali khansi), diphtheria (gal ghotu) and leprosy (kusht rog), which used to kill millions all over the globe.

Streptokinase produced by the bacterium *Streptococcus* and modified by genetic engineering is used as a 'clot buster' for removing clots from the blood vessels of patients who have undergone myocardial infarction leading to heart attack. Microbes are diverse-protozoa, bacteria, fungi and microscopic animal and plant viruses, viroids and also prions that are proteinacious infectious agents. The puffed-up appearance of dough is due to the production of CO2 gas. Similarly the dough, which is used for making bread, is fermented using baker's yeast (*Saccharomyces cerevisiae*). Primary sewage treatment basically involve physical removal of particles - large and small from the sewage through filtration and sedimentation. These are removed in stages; initially, floating debris is removed by sequential filtration. Then the grit (soil and small pebbles) are removed by sedimentation. All solids that settle form the primary sludge, and the supernatant forms the effluent. The effluent from the primary settling tank is taken for secondary treatment. The primary effluent is passed into large aeration tanks, where it is constantly agitated mechanically and air is pumped into it. This allows vigorous growth of useful aerobic microbes into flocs. While growing, these microbes consume the major part of the organic matter in the effluent.

The puffed-up appearance of dough in the baking industry is due to the production of -
1. Carbon dioxide
2. Methane
3. Carbon monoxide
4. Lactic acid

Options 1. 1
2. 2
3. 3
4. 4

Q.47 Read the given passage carefully and answer the questions
Antibiotics have greatly improved our capacity to treat deadly diseases such as plague, whooping cough (kali khansi), diphtheria (gal ghotu) and leprosy (kusht rog), which used to kill millions all over the globe. Streptokinase produced by the bacterium *Streptococcus* and modified by genetic engineering is used as a 'clot buster' for removing clots from the blood vessels of patients who have undergone myocardial infarction leading to heart attack. Microbes are diverse-protozoa, bacteria, fungi and microscopic animal and plant viruses, viroids and also prions that are proteinacious infectious agents. The puffed-up appearance of dough is due to the production of CO2 gas. Similarly the dough, which is used for making bread, is fermented using baker's yeast (*Saccharomyces cerevisiae)*. Primary sewage treatment basically involve physical removal of particles - large and small from the sewage through filtration and sedimentation. These are removed in stages; initially, floating debris is removed by sequential filtration. Then the grit (soil and small pebbles) are removed by sedimentation. All solids that settle form the primary sludge, and the supernatant forms the effluent. The effluent from the primary settling tank is taken for secondary treatment. The primary effluent is passed into large aeration tanks, where it is constantly agitated mechanically and air is pumped into it. This allows vigorous growth of useful aerobic microbes into flocs. While growing, these microbes consume the major part of the organic matter in the effluent.

Primary sludge treatment involves-
1. Treatment of sewage by the heterotrophic microbes naturally
2. Biologically removal of small and large particles from the sewage
3. Chemically removal of small and large particles from the sewage
4. Physically removal of small and large particles from the sewage

Options 1. 1
2. 2
3. 3
4. 4

Q.48 Read the given passage carefully and answer the questions
Antibiotics have greatly improved our capacity to treat deadly diseases such as plague, whooping cough (kali khansi), diphtheria (gal ghotu) and leprosy (kusht rog), which used to kill millions all over the globe. Streptokinase produced by the bacterium *Streptococcus* and modified by genetic engineering is used as a 'clot buster' for removing clots from the

blood vessels of patients who have undergone myocardial infarction leading to heart attack. Microbes are diverse-protozoa, bacteria, fungi and microscopic animal and plant viruses, viroids and also prions that are proteinacious infectious agents. The puffed-up appearance of dough is due to the production of CO2 gas. Similarly the dough, which is used for making bread, is fermented using baker's yeast (*Saccharomyces cerevisiae*). Primary sewage treatment basically involve physical removal of particles - large and small from the sewage through filtration and sedimentation. These are removed in stages; initially, floating debris is removed by sequential filtration. Then the grit (soil and small pebbles) are removed by sedimentation. All solids that settle form the primary sludge, and the supernatant forms the effluent. The effluent from the primary settling tank is taken for secondary treatment. The primary effluent is passed into large aeration tanks, where it is constantly agitated mechanically and air is pumped into it. This allows vigorous growth of useful aerobic microbes into flocs. While growing, these microbes consume the major part of the organic matter in the effluent.

Antibiotics work against?
1. Viral disease
2. Bacterial disease
3. Bacterial and Viral disease
4. Fungal disease

Options 1. 1

2. 2

3. 3

4. 4

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Genetically modified Streptokinase is used as a 'clot buster' for removing clots from the blood vessels is produced by:
1. *Staphylococcus*
2. *Aspergillus niger*
3. *Streptococcus*
4. *Penicillium notatum*

Options 1. 1

2. 2

3. 3

4. 4

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Prions are made up of:
1. RNA
2. DNA
3. Protein
4. Both RNA and Protein

Options 1. 1

2. 2

3. 3

4. 4