



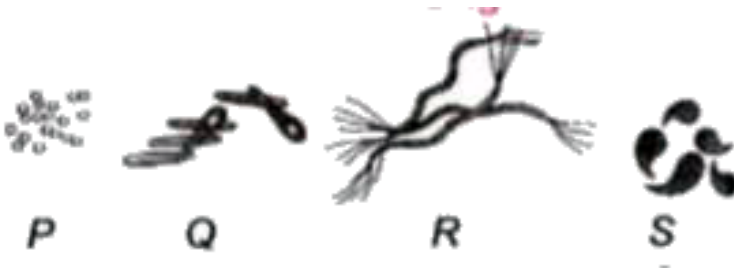
BIOLOGY

BOOKS - HT Olympiad Previous Year Paper

MICROORGANISMS

Multiple Choice Question

1. Bacteria have been grouped into four different types based on their shapes. Identify the different types and select the correct statement regarding it.



A. *Vibrio cholerae* is an example of type Q, which causes cholera.

B. Mycobacterium is an example of type S, which causes leprosy.

C. Type R bacteria are rod-shaped and are called as bacilli bacteria

D. Streptococcus is an example of type P bacteria that causes pneumonia.

Answer: D

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2. Study the following table and select the correct option for P, Q, R and S.

Disease	Causative organism	Mode of transmission
Chicken pox	Virus	P
Q	Bacterium	Water/Food
Malaria	R	Mosquito
S	Virus	Water/Air

A. P-Air / contact, Q-Cholera, R-Protozoan, S-Polio

B. P-Mosquito, Q-Measles, R-Fungi, S-Polio

C. P-Contaminated Water, Q-Polio, R-Protozoan, S-Hepatitis-B

D. P-Air, Q-Typhoid, R-Fungi, S-Measles

Answer: A



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3. Refer to the given diseases.

(i) Athlete's foot

(ii) Sleeping sickness

(iii) Hepatitis-B

(iv) Tuberculosis

(v) Malaria

(vi) Mumps

(vii) Pneumonia

(viii) Ringworm

(ix) Typhoid

(x) Tetanus

Select the option which correctly identifies bacterial diseases (P), viral

diseases (Q), protozoan diseases (R) and fungal diseases (S).

	P	Q	R	S
(A)	(iii), (iv), (vi)	(ix), (x)	(i), (ii), (v)	(vii), (viii)
(B)	(iii), (vi), (x)	(iv), (ix)	(ii), (v), (viii)	(i), (vii)
(C)	(iv), (vii) (ix), (x)	(iii), (vi)	(ii), (v)	(i), (viii)
(D)	(iv), (vi), (x)	(iii), (ix)	(ii), (v), (vii)	(i), (viii)



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4. Match different organisms in column I with their related characteristics in column II and select the correct option from the codes given below.

Column I

- (a) Entamoeba histolytica
- (b) Bacteriophage
- (c) Penicillium
- (d) Fucus

Column II

- (i) A brown alga which is a rich source of iodine
- (ii) A protozoan that inhabits human beings by living
- (iii) A virus which infects a bacterial cell
- (iv) A fungus used to obtain antibiotic

A. (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)

B. (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)

C. (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

D. (a) - (iv), (b) - (ii), (c) - (i), (d) - (iii)

Answer: A



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5. Consider the following statements and select the option which correctly identifies true (T) and false (F) ones.

(i) Diatoms float in water due to the presence of light weight lipids.

(ii) AIDS virus kills WBC and reduces immunity of the body.

(iii) Azotobacter and Clostridium are free living soil bacteria that can fix atmospheric nitrogen.

(iv) Entamoeba exhibits mixotrophic mode of nutrition

A. (i) (ii) (iii) (iv)
T F T F

B. (i) (ii) (iii) (iv)
T T T F

C. (i) (ii) (iii) (iv)
T T F F

- D. (i) (ii) (iii) (iv)
T F T T

Answer: B

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6. Select the incorrect statement.

- A. Anthrax is a bacterial disease that affects humans and cattle.
- B. Clostridium botulinum causes a serious type of food poisoning.
- C. Citrus canker is a viral disease that affects citrus fruits.
- D. Yellow vein mosaic is a viral disease that affects bhindi.

Answer: C

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7. Read the given statements and select the correct option.

Statement 1: Viruses are also called as obligate parasite.

Statement 2: Viruses cannot reproduce by themselves but they are able to reproduce when they enter the living cell of an organism.

- A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
- B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1
- C. Statement 1 is true but statement 2 is false
- D. Both statements 1 and 2 are false

Answer: A



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8. Study the given figures and select the correct statements regarding these



P



Q

- (i) Organism P is a multicellular filamentous alga.
- (ii) Organism Q is a parasitic protozoan.
- (iii) Organism Q causes sleeping sickness.
- (iv) Both the organisms P and Q cannot synthesise their own food.

- A. (i) and (ii) only
- B. (ii), (iii) and (iv) only
- C. (i), (ii) and (iii) only
- D. (i), (ii), (iii) and (iv)

Answer: C



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9. How many of the following are fungal diseases of plants?

Citrus canker, Late blight of potato, Mosaic disease of mustard, Downy mildew of grapes, Leaf curl of cotton, Rust of wheat, Tobacco mosaic disease, Loose smut of wheat, Leaf curl of tomato

A. 6

B. 7

C. 4

D. 5

Answer: C



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10. Study the given correlation.

Heat treatment : Sterilisation :: Vaccination : X

Here, X refers to

- A. Pasteurisation
- B. Immunisation
- C. Fertilisation
- D. Inoculation

Answer: B



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11. Select the mismatched pair.

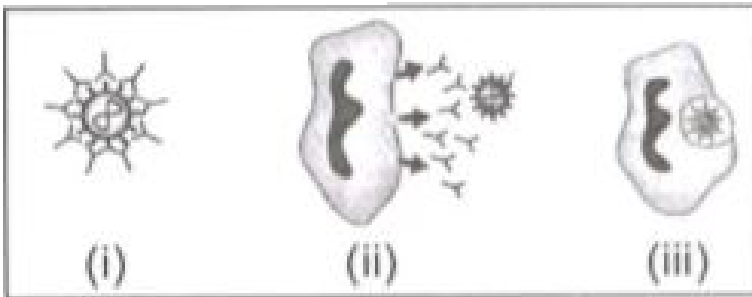
- A. Pseudomonas - Denitrifying bacteria
- B. Rhizopus - Bread mould
- C. Rhizobium - Used for making idli and dosa

D. Nitrosomonas - Nitrifying bacteria

Answer: C

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12. Refer to the given figure showing different steps regarding antibodies fighting against a disease.



Arrange them in a correct sequence

- A. (ii) - (i) - (iii)
- B. (i) - (ii) - (iii)
- C. (i) - (iii) - (ii)
- D. (iii) - (i) - (ii)

Answer: A



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13. Read the given passage and select the correct option for X and Y.

Microorganisms are used for the large scale production of alcohol, wine and acetic acid. X is used for commercial production of alcohol and wine.

The process of conversion of sugar into alcohol is known as Y.

- A. X: Streptococcus, Y: Aerobic respiration
- B. X: Saccharomyces, Y: Fermentation
- C. X: Lactobacillus, Y: Fermentation
- D. X: Saccharomyces, Y: Aerobic respiration

Answer: B



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14. Match column with column II and select the correct option from the codes given below. (There can be more than one match for column 1.)

Column I

(a) Green algae

(b) Red algae

(c) Blue-green algae

(d) Brown algae

(d) Brown algae

Column II

(i) Gracilaria

(ii) Chara

(iii) Nostoc

(iv) Polysiphonia

(v) Ulothrix

(vi) Anabaena

(vii) Sargassum

(viii) Laminaria

A. (a)-(ii, v), (b)-(i, vi), (c)-(iii, iv), (d)-(vii, viii)

B. (a)-(ii, v), (b)-(i, iv), (c)-(iii, vi), (d)-(vii, viii)

C. (a)-(ii, vii), (b)-(i, iv), (c)-(iii, vi), (d)-(v, viii)

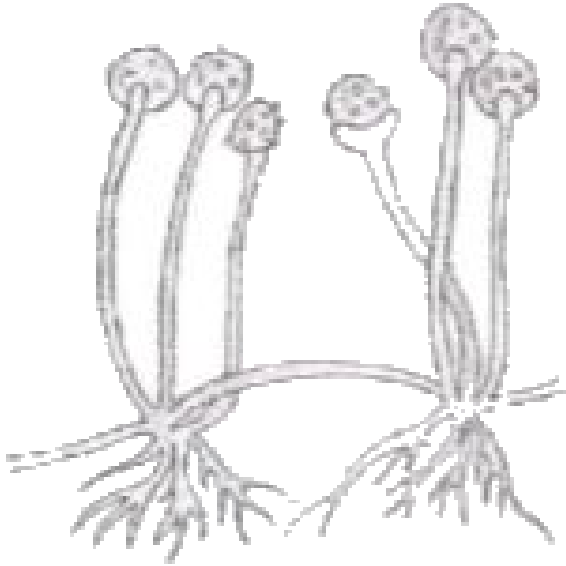
D. (a)-(ii, v), (b)-(iii, iv), (c)-(i, vi), (d)-(vii, viii)

Answer: B



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15. Identify the given microorganism and select the incorrect statement regarding it.



- A. It is a saprophyte commonly called as black bread mould.
- B. It reproduces by means of spores.
- C. It results in the spoilage of food materials.
- D. It is a parasitic fungus that causes various diseases in plants, animals and humans.

Answer: D



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1. Refer to the given passage. The mosquito P is a carrier of virus that spreads a disease Q. Another mosquito R is a carrier of protozoan S that spreads a disease called T.

Select the option which correctly identifies P, Q, R, S and T.

- A. P-Aedes, Q-Dengue, R-Anopheles, S-Plasmodium, T-Malaria
- B. P-Tse-tse fly, Q-Dengue, R-Anopheles, S-Plasmodium, T-Malaria
- C. P-Aedes, Q-Dengue, R-Tse-tse fly, S-Entamoeba, T-Amoebic dysentery
- D. P-Tse-tse fly, Q-Dengue, R-Aedes,

Answer: A



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2. Refer to the given figures P, Q, R and S.



Which of the following statements are correct regarding them?

P is the mould from which penicillin is made.

(ii) R is considered as connecting link between plants and animals.

(iii) Q and S are parasites which live in the bodies of other organisms including human beings.

(iv) R and S bear chlorophyll and prepare food in the presence of sunlight.

(v) S is colonial form of algae.

A. (ii), (iv) and (v) only

B. (i), (ii), (iv) and (v) only

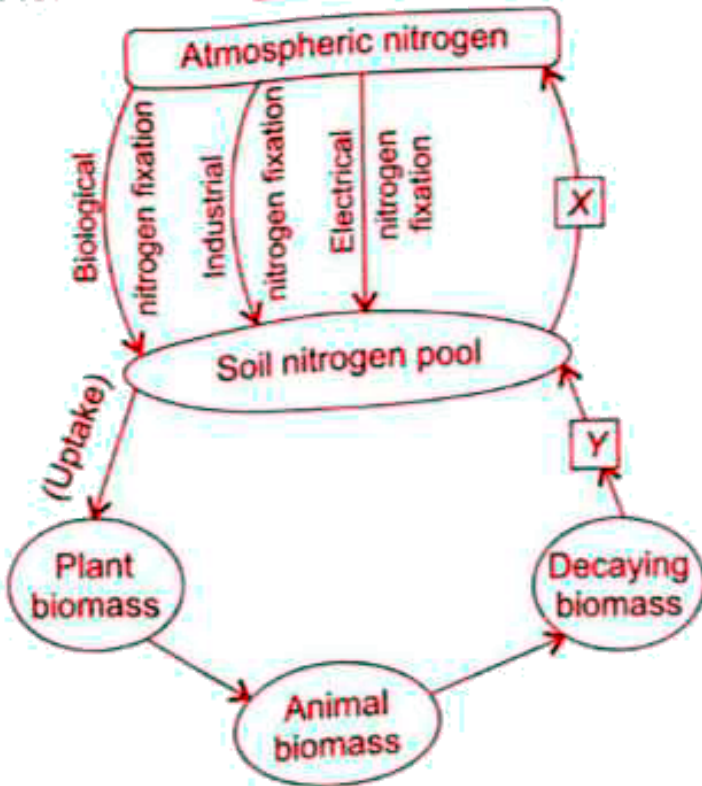
C. (i), (iii) and (iv) only

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

Answer: A

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3. Refer to the given outline of N_2 cycle



Identify X and Y and select the correct statement regarding this.

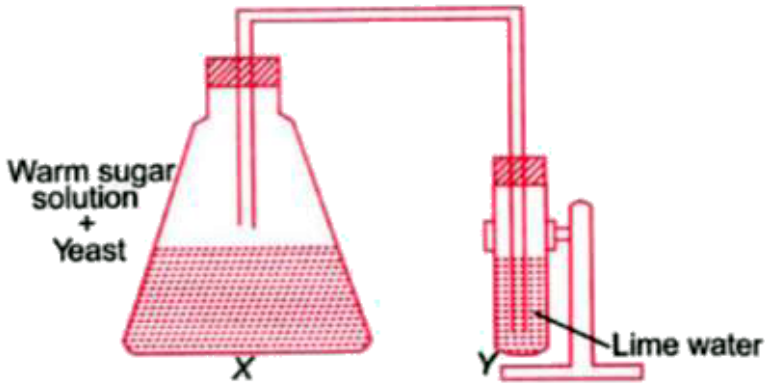
- A. In the process X, protein is converted into ammonia by the action of bacteria while in the process Y nitrates present in the decaying remains get converted into free nitrogen gas
- B. In the process X, nitrates present in the soil get converted into free nitrogen gas while in the process Y, protein is converted into ammonia by the action of bacteria.
- C. Process X represents the conversion of ammonia into nitrates while process Y represents the conversion of nitrates into the free nitrogen gas
- D. Process X represents the conversion of ammonia into nitrites while process Y represents the conversion of complex organic compound like proteins into ammonia

Answer: B



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4. Refer to the given experimental set up as shown in the given figure and select the correct option regarding it



- A. In X, yeast causes fermentation which converts sugar into lactic acid and carbon dioxide.
- B. In Y, oxygen gas is released while carbon dioxide gas is absorbed.
- C. In Y, lime water turns milky
- D. Both (B) and (C)

Answer: C

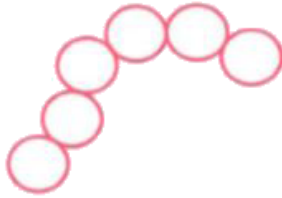


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5. Refer to the given figures of bacteria (X, Y and Z) and read the statements (i), (ii) and (iii) regarding them. Based on the given information, identify the bacteria and select the correct option.



X



Y



Z

- (i) Bacteria X causes cholera.
- (ii) Bacteria Y causes a disease which disrupts proper exchange of gases.
- (iii) Bacteria Z converts lactose sugar of milk into lactic acid.

- A. X is *Vibrio cholerae*.
- B. Y is *Salmonella typhi*.
- C. Z is *Lactobacillus*.
- D. Both (A) and (C)

Answer: D



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