



## BIOLOGY

### BOOKS - SARAS PUBLICATION

### BIOLOGY AND HUMAN WELFARE

#### Example

1. Industrial melanism observed in peppered moth proves that :

- A. Melanism is a pollution generated feature
- B. The true black melanic forms arise by a recurring random mutation
- C. The melanic form of the moth has no selective advantage over lighter form in industrial area

D. The lighter - form moth has no selective advantage either in polluted industrial area or non - polluted area

**Answer:**

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2. Which one of the following statement is correct?

- A. Ontogeny repeats phylogeny
- B. Stem cells are specialized cells
- C. There is no evidence of the existence of gills during embryogenesis of mammals
- D. All plant and animal cells are totipotent

**Answer:**

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3. Which of the following is a flowering plant with nodules containing filamentous nitrogen fixing micro-organisms?

- A. *Cicer arietinum*
- B. *Casuarina equisetifolia*
- C. *Crotalaria juncea*
- D. *Cycas revoluta*

**Answer:**

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4. Which one of the following mammalian cells is not capable of metabolising glucose to carbon - dioxide aerobically?

- A. Red blood cells

B. White blood cells

C. Unstriated muscle cells

D. Liver cells

**Answer:**



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5. A person is having problems with calcium and phosphorus metabolism in his body. Which one of the following glands may not be functioning properly?

A. Thyroid

B. Parathyroid

C. Parotid

D. pancreas

**Answer:**



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6. The length of DNA molecule greatly exceeds the dimensions of the nucleus in eukaryotic cells. How is this DNA accommodated?

- A. Through elimination of repetitive DNA
- B. Deletion of non - essential genes
- C. Super-coiling in nucleosomes
- D. DNase digestion

**Answer:**



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7. Increased asthmatic attacks in certain seasons are related to:

- A. low temperature
- B. Hot and humid environment
- C. Eating fruits preserved in tin containers
- D. In halation of seasonal pollen

**Answer:**



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**8.** Consider the following four measures (a-d) that could be taken to successfully grow chickpea in an area where bacterial blight disease is common: Spray with Bordeaux mixture, Control of the insect vector of the disease pathogen, Use of only disease - free seeds

- A. b and c
- B. a and b
- C. c and d

D. a and d

**Answer:**



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9. Which one of the following is linked to the discovery of Bordeaux mixture as a popular fungicide?

- A. Bacterial leaf blight of rice
- B. Downy mildew of grapes
- C. Loose smut of wheat
- D. Black rust of wheat

**Answer:**



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10. Which one of the following pairs of codons is correctly matched with their function or the signal for the particular amino acid?

A. GUU, GCU- Alanine

B. UAG, UGA - Stop

C. AUG, ACG - *Start*  $\frac{t}{/}$  *Methionine*  $\in e$

D. UUA, UCA - Leucine

**Answer:**

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11. Main objective production use of herbicide resistant GM crops is to:

A. eliminate weeds from the field without the use of manual labour



- B. eliminate weeds from the field without the use of herbicides
- C. ,encourage eco-friendly herbicides
- D. reduce herbicide accumulation in food articles for health safety.

**Answer:**



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**12.** Human insulin is being commercially produced from a transgenic species of .....

- A. Escherichia
- B. Mycobacterium
- C. Rhizobium
- D. Saccharomyces

**Answer:**



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**13.** Which one of the following is being tried in India as a biofuel substrate for fossil fuels?

A. Jatropha

B. Azadirachta

C. Musa

D. Aegilops

**Answer:**



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14. Alzheimer's disease in humans is associated with the deficiency of:

- A. glutamic acid
- B. acetylcholine
- C. Gamma Amino Butyric Acid(GABA)
- D. dopamine

**Answer:**

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15. Which one of the following is wrongly matched

- A. Alcohol- nitrogenase
- B. Fruit juice- pectinase

C. Textile- amylase

D. Detergents- lipase

**Answer:**

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**16.** Match column I with column II and select the correct answer from the given codes.

*Column I*

A. Azolla

B. Rotenone

C. Crotonia juncea

D. Frankia

*Column II*

(i) symbiotic  $N_2$  – fixer

(ii) Symbiotic association with  $N_2$  – fixing

(iii) Natural insecticide

(iv) Green manure

A. Azotobacter

B. Frankia

C. Azolla

D. Glomus

**Answer:**



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17. Breeding of crops with high levels of minerals , vitamins and proteins is called:

- A. Somatic hybridisation
- B. Biofortification
- C. Biomagnification
- D. Micropropagation

**Answer:**



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18. The plasma membrane consists mainly of:

- A. phospholipids embedded in a protein bilayer
- B. proteins embedded in a phospholipid bilayer
- C. proteins embedded in a polymer of glucose molecules
- D. proteins embedded in a carbohydrate bilayer

**Answer:**



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**19.** Coiling of garden pea tendrils around any support is an example of :

- A. Thigmotaxis
- B. Thigmonasty
- C. Thigmotropism
- D. Thermotaxis

**Answer:**



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**20.** Stirred - tank bioreactors have been designed for:

- A. Addition of preservatives to the product
- B. Purification of the product
- C. Ensuring anaerobic conditions in the culture vessel
- D. Availability of oxygen throughout the process

**Answer:**



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**21.** An improved variety of transgenic basmati rice:

- A. does not require chemical fertilizers and growth hormones
- B. gives high yield and is rich in vitamin A
- C. is completely resistant to all insect pests and diseases of paddy
- D. gives high yield but has no characteristic aroma

**Answer:**

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**22.** Infectious proteins are present in:

- A. Gemini viruses
- B. Prions
- C. Viroids
- D. Satellite viruses



**Answer:**



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**23.** Which one of the followings is not a biofertilizer ?

A. Mycorrhiza

B. Agrobacterium

C. Rhizobium

D. Nostoc

**Answer:**



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**24.** Himagiri developed by hybridisation and selection for disease resistance against rust pathogens is a variety of \_\_\_\_

A. Wheat

B. Chilli

C. Maize

D. Sugarcane

**Answer:**



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**25.** Maximum number of existing transgenic animals is of:

A. Pig

B. Fish

C. Mice

D. Cow

**Answer:**



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**26.** Continuous addition of sugars in 'fed batch' fermentation is done to:

- A. Degrade sewage
- B. Produce methane
- C. Obtain antibiotics
- D. purify enzymes

**Answer:**



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**27.** The process of RNA interference has been used in the development of plants resistant-to:

A. Insects

B. Nematodes

C. Fungi

D. viruses

**Answer:**



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**28.** Jaya and Ratna are the semi dwarf varieties of

A. Bajra

B. Maize

C. Rice

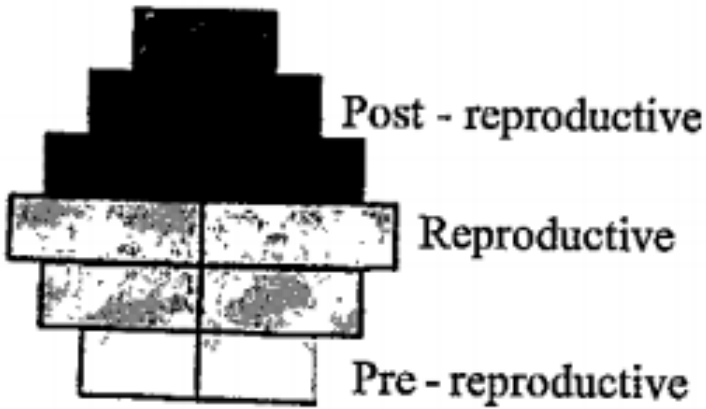
D. Wheat

**Answer:**



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29. What type of human population is represented by the following pyramid:



- A. Expanding population
- B. Vanishing population
- C. Stable population
- D. Declining population

**Answer:**



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**30.** Consider the following four, conditions (a-d) and select the correct pair of them as adaptation to environment in desert lizards: The conditions Burrowing in soil to escape high temperature, Losing heat rapidly from the body during high temperature, Bask in sun when temperature is low, Insulating body due to thick fatty dermis:

A. (a),(b)

B. (c), (d)

C. (a),( c)

D. (b), (d)

**Answer:**



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31. An organism used as biofertilizer for raising soyabean crop is:

- A. Nostoc
- B. Azotobacter
- C. Azospirillum
- D. Rhizobium

**Answer:**



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32. There is a restriction endo nuclease called EcoRI. What does “co” part in it stand for?

- A. coli
- B. colon

C. coelom

D. coenzyme

**Answer:**



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**33.** Motile zygote of plasmodium occurs in:

A. Gut of female Anopheles

B. Salivary glands of Anopheles

C. Human RBCs

D. Human liver

**Answer:**



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**34.** Widal Test is carried out of test :

- A. Malaria
- B. Diabetes mellitus
- C. HIV/ AIDS
- D. Typhoid fever

**Answer:**



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**35.** Common cold is differs from the pneumonia in , that:

- A. Pneumonia is communicable disease whereas the common cold is a nutritional deficiency disease

- B. Pneumonia can be prevented by a live attenuated bacterial vaccine whereas the common cold has no effective vaccine
- C. Pneumonia is caused by a virus while the common cold is caused by the bacterium *Haemophilus influenzae*
- D. Pneumonia pathogen infects alveoli whereas the common cold affects nose and respiratory passage but not the lungs

**Answer:**



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**36.** In which one of the following option the two example are correctly matched with their particular type of immunity:

- A. Polymorphonuclear leukocytes and monocytes- Cellular barriers

B. Anti - tetanus and anti - snake bite injection - Active immunity

C. Saliva in mouth and Tears in eyes - Physical barriers

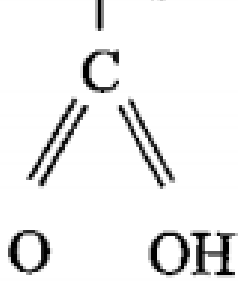
D. Mucus coating of epithelium lining the urinogenital tract and the HCl in stomach Physiological barriers

**Answer:**

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37. Which one out of A-D given below correctly represents the structural formula of the basic amino acid:

A	B
$\begin{array}{c} \text{NH}_2 \\   \\ \text{H}-\text{C}-\text{COOH} \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \\   \\ \text{CH}_2 \end{array}$	$\begin{array}{c} \text{NH}_2 \\   \\ \text{H}-\text{C}-\text{COOH} \\   \\ \text{CH}_2 \\   \\ \text{OH} \end{array}$



C	D
$  \begin{array}{c}  \text{CH}_2\text{OH} \\    \\  \text{CH}_2 \\    \\  \text{CH}_2 \\    \\  \text{NH}_2  \end{array}  $	$  \begin{array}{c}  \text{NH}_2 \\    \\  \text{H-C-COOH} \\    \\  \text{CH}_2 \\    \\  \text{CH}_2 \\    \\  \text{CH}_2 \\    \\  \text{NH}_2  \end{array}  $

A. C

B. D

C. A

D. B

**Answer:**



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**38.** A nitrogen-fixing microbe associated with *Azolla* in rice fields is

A. *Spirulina*

B. *Anabaena*

C. *Frankia*

D. *Tolypothrix*

**Answer:**



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39. which one of the following is an example of carrying out biological control of *pests / diseases* using microbes?

- A. Trichoderma sp. against certain plant pathogens
- B. Nucleopolyhedrovirus against white rust in Brassica
- C. Bt - cotton to increase cotton yield
- D. Lady bird beetle against aphids in mustard

**Answer:**

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40. Besides paddy fields, cyanobacteria are also found inside vegetative part of

- A. Pinus
- B. Cycas

C. Equisetum

D. Psilotum

**Answer:**



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**41.** The eyes of octopus and eyes of cat show different patterns of structure, yet they perform similar function .This is an example of

A. Homologous organs that have evolved due to convergent evolution

B. Homologous organs that have evolved due to divergent evolution

C. Analogous organs that have evolved due to convergent evolution

D. Analogous organs that

**Answer:**



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**42.** Select the taxon mentioned that represents both marine and freshwater species

- A. Echinoderms
- B. Ctenophora
- C. Cephalochordata
- D. Cnidaria

**Answer:**



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43. Planaria possesses high capacity of:

- A. Metamorphosis
- B. Regeneration
- C. Alteration of generation
- D. Bioluminescence

**Answer:**

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44. Choose the correctly high capacity of:

- A. Tendon Specialized connective tissue
- B. Adipose tissue - Dense connective tissue
- C. Areolar tissue - Loose connective tissue

D. Cartilage -Loose connective tissue

**Answer:**

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**45.** Forelimbs of cat, lizard used in walking forelimbs of whale used swimming and forelimbs of bats used in flying are an example of:

- A. Analogous organs
- B. Adaptive radiation
- C. Homologous organs
- D. Convergent evolution

**Answer:**

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46. Which one of the following are analogous structures?

- A. Wings of Bat and wings of Pigeon
- B. Gills of Prawn and Lungs of Man
- C. Thorns of Bougainvillea and Tendrils of Cucurbita
- D. Flippers of Dolphin and Legs of Horse

**Answer:**



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47. At which stage of HIV infection does not usually shows symptoms of AIDS?

- A. Within 15 days of sexual contact with an infected person
- B. When the infected retro virus enters host cells
- C. When HIV damages large number of helpers T. Lymphocytes

D. When the viral DNA is produced by reverse transcriptase

**Answer:**

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**48.** To obtain virus- free healthy plants from a diseased one by tissue culture technique , which part / parts of the diseased plant eill be taken:

- A. Apical meristem only
- B. Palisade parenchyma
- C. Both apical and axillary meristem
- D. Epidermis only

**Answer:**

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49. A scrubber in the exhaust of a chemical industrial plant removes:

- A. Gases like sulphur dioxide
- B. Particulate matter of the size 5 micrometer or above
- C. Gases like ozone and methane
- D. Particulate matter of the size 2.5 micrometer or less.

**Answer:**

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50. The guts cow and buffalo possess:

- A. Fucus sp.
- B. Chlorella sp

C. Methanogens

D. Cyanobacteria

**Answer:**



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51. Which of the following enhances or induces fusion of protoplasts?

A. Sodium chloride and potassium chloride

B. Polyethylene glycol and sodium nitrate

C. IAA and kinetin

D. IAA and gibberellins

**Answer:**



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52. Which one of the following cells during gametogenesis is normally diploid?

- A. Primary polar body
- B. Spermatid
- C. Spermatogonia
- D. Secondary polar body

**Answer:**

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53. Which of the following is not sexually transmitted disease?

- A. Syphilis
- B. Acquired Immune deficiency syndrome (AIDS)

C. Trichomoniasis

D. Encephalitis

**Answer:**



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**54.** HIV that causes AIDS first starts destroying:

A. B - lymphocytes

B. Leucocytes

C. Helper T - lymphocytes

D. Thrombocytes

**Answer:**



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**55.** The active form of *Entamoeba histolytica* feeds upon:

- A. Erythrocytes, mucosa upon and submucosa of colon
- B. Mucosa and submucosa of colon only
- C. Food and intestine
- D. Blood only

**Answer:**



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**56.** High value of BOD (biochemical oxygen demand ) indicates that:

- A. Water is pure
- B. Water is highly polluted
- C. Water is less polluted

D. Consumption of organic matter in the water is higher by the microbes

**Answer:**

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57. Most animals are tree dwellers in a:

- A. Coniferous forest
- B. Thorn woodland
- C. Temperature deciduous forest
- D. Tropical rain forest

**Answer:**

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58. Rachel Carson's famous book 'Silent spring' is related to:

- A. Pesticide pollution
- B. Noise pollution
- C. Population explosion
- D. Ecosystem management

**Answer:**



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59. Match the following list of microbes and their importance:

List - I (Microbes)	List - II (Importance)
(a) <i>Saccharomyces cerevisiae</i>	(i) Production of immuno suppressive agents
(b) <i>Monascus purpureus</i>	(ii) Ripening of Swiss cheese
(c) <i>Trichoderma polysporum</i>	(iii) Commercial production of ethanol
(d) <i>Propionibacterium shermanii</i>	(iv) Production of blood cholesterol lowering agents

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

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

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

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

**Answer:**



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**60.** Filiform apparatus is characteristic feature of:

A. Nucellar embryo

B. Aleurone cell

C. Synergids

D. Generative cell

**Answer:**



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61. The wings of a bird and the wings of an insect are:

- A. analogous structures and represent convergent evolution
- B. phylogenetic structures and represent divergent evolution
- C. homologous structures and represent convergent evolution
- D. homologous structures and represent divergent evolution

**Answer:**



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62. Grafted kidney may be rejected in a patient due to:

- A. Cell - mediated immune response

- B. Passive immune response
- C. Innate immune response
- D. Humoral immune response

**Answer:**

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**63.** In which group of organisms the cell walls form two thin overlapping shells which fit together ? r together?

- A. Euglenoids
- B. Dinoflagellates
- C. Slime moulds
- D. Chrysophytes

**Answer:**



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64. Identify the wrong statements from the below.

- A. Neurospora is used in the study of biochemical genetics
- B. Morels and truffles are poisonous mushrooms
- C. Yeast is unicellular and used in fermentation
- D. Penicillium is multicellular and produces antibiotics

**Answer:**



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65. Eutrophication of water bodies leading to killing of fishes is mainly due to non-availability:

- A. light

B. essential minerals

C. oxygen

D. food

**Answer:**

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**66.** A plant in your garden avoids photorespiratory losses , has improved water use efficiency , shows high rates of photosynthesis at high temperatures and has improved efficiency of nitrogen utilisation . In which of the following physiological groups would you assign this plant?

A. Nitrogen fixer

B.  $C_3$

C.  $C_4$



D. CAM

**Answer:**



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**67.** Which one of the following statement is wrong?

- A. Phycomycetes are also called algal fungi
- B. Cyanobacteria are also called blue - green algae
- C. Golden algae are also called desmids
- D. Eubacteria are also called false bacteria

**Answer:**



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68. A river with an inflow-of domestic sewage rich in organic-waste may result in:

- A. Death of fish due to lack of oxygen
- B. Drying of the river very soon due to algal bloom
- C. Increased population of aquatic food web organisms
- D. An increased production of fish due to biodegradable nutrients

**Answer:**

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69. Which of the following is wrongly matched in the given table?

A. Microbe: Clostridium butylicum, Product: Lipase,

Application: removal of oil stains.

B. Microbe: Trichoderma polysporum, Product: Cyclosporin A,

Application: immunosuppressive drug

C. Microbe: Monascus purpureus, Product: Statins,

Application: lowering of blood cholesterol

D. Microbe: Streptococcus, Product: Streptokinase, Application: removal

of clot from blood vessel.

**Answer:**

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**70.** Gause's principle of competitive exclusion states that:

A. Larger organisms exclude smaller ones through competition

- B. More abundant species will exclude the less abundant species through competition
- C. Competition for the same resources excludes species having different food preferences
- D. No two species can occupy the same niche indefinitely for the same limiting resources

**Answer:**



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71. It is much easier for a small to run uphill than for a large animal, because:

- A. the efficiency of muscles in large animals is less than in the small animals

- B. It is easier to carry a small body weight
- C. Smaller animals have a higher metabolic rate
- D. Small animals have a lower  $O_2$  requirement

**Answer:**

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**72.** Which of the following is not a component of downstream processing?

- A. Preservation
- B. Expression
- C. Separation
- D. Purification

**Answer:**



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**73.** Red list contains data or information on:

- A. threatened species
- B. marine vertebrates only
- C. all economically important plants
- D. plants whose products are in international trade

**Answer:**



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**74.** Phytochrome is

- A. Lipoprotein

B. Chromoprotein

C. Flavoprotein

D. Glycoprotein

**Answer:**

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**75.** A lake which is rich in organic waste may result in:

A. Increased population of fish due to lots of nutrients

B. Mortality of fish due to lack of oxygen

C. Increased population of aquatic organisms due to minerals

D. Drying of the lake due to algal bloom

**Answer:**

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76. The highest DDT concentration in aquatic food chain shall occur in :

- A. Crab
- B. Eel
- C. Phytoplankton
- D. Sea gull

**Answer:**

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77. Which of the following sets of diseases is caused by bacteria?

- A. Tetanus and mumps



B. Herpes and influenza

C. Cholera and tetanus

D. Typhoid and smallpox

**Answer:**

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**78.** Which of the following is the least likely to be involved in stabilizing the three dimensional folding of most proteins?

A. Hydrophobic interaction

B. Ester bonds

C. Hydrogen bonds

D. Electrostatic interaction

**Answer:**



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79. Which of the following are not polymeric?

- A. Proteins
- B. Polysaccharides
- C. Lipids
- D. Nucleic acids

**Answer:**



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80. Artificial selection to obtain cows yielding higher milk output represents:

- A. directional : as it pushes the mean of the character in one direction
- B. disruptive : as it splits the population into two, one yielding higher output and the other lower output
- C. stabilizing : followed by disruptive as it stabilizes the population to produce higher yielding cows
- D. stabilizing selection : as it stabilizes this character in the population

**Answer:**

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**81.** Select the mismatch:

A. Rhodospirillum- Mycorrhiza

B. Anabaena- Nitrogen fixer

C. Rhizobium - Alfalfa

D. Frankia - Alnus

**Answer:**

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**82.** Match the following sexually transmitted diseases (Column-I) with their causative agent (Column-II) and select the correct option:

Column-I	Column - II
(a) Gonorrhoea	(i) HIV
(b) Syphilis	(ii) Neisseria
(c) Genital Warts	(iii) Treponema
(d) AIDS	(iv) Human Papilloma-virus

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

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

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

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

**Answer:**



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**83.** Alexander Von humboldt describe for the first time:

A. Laws of limiting factor

B. species relationships

C. population equation

D. Ecological biodiversity

**Answer:**



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**84.** Transplantation of tissues organs fails often due to non-acceptance by the patient's body. Which type of immune response is responsible for such rejections?

- A. Cell - mediated immune response
- B. Hormonal immune response
- C. Physiological immune response
- D. Autoimmune response

**Answer:**



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85. Which of the following is correctly matched for the product produced by them?

- A. Methanobacterium Lactic acid
- B. Penicillium notatum :Acetic acid
- C. Saccharomyces cerevisiae : Ethanol
- D. Acetobacter aceti: Antibiotics

**Answer:**

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86. Spliceosomes are not found in cells of

- A. Fungi
- B. Animals

C. Bacteria

D. Plants

**Answer:**



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