

CUET MCQ Questions and Solutions from UNIT 3 (1)

1. Which parasite causes malaria?

- A) *Ascaris lumbricoides*
- B) Plasmodium
- C) *Wuchereria bancrofti*
- D) *Entamoeba histolytica*

Answer: B) Plasmodium

Solution: Malaria is caused by the protozoan parasite *Plasmodium*, transmitted by female *Anopheles* mosquitoes. Common species include *Plasmodium falciparum* and *Plasmodium vivax*.

2. What is the vector for filariasis?

- A) Housefly
- B) Mosquito (*Culex* species)
- C) Sandfly
- D) Tick

Answer: B) Mosquito (*Culex* species)

Solution: Filariasis is caused by *Wuchereria bancrofti* or *Brugia malayi* and is transmitted by *Culex* mosquitoes during their blood meal.

3. Ascariasis is caused by which organism?

- A) Virus
- B) Bacteria
- C) Nematode
- D) Protozoa

Answer: C) Nematode

Solution: Ascariasis is caused by the roundworm *Ascaris lumbricoides*, a type of nematode, and spreads through contaminated food or water.

4. Which bacteria is responsible for typhoid?

- A) *Salmonella typhi*
- B) *Vibrio cholerae*
- C) *Streptococcus pneumoniae*
- D) *Mycobacterium tuberculosis*

Answer: A) *Salmonella typhi*

Solution: Typhoid is caused by *Salmonella typhi*, which is transmitted through contaminated water and food, leading to high fever and abdominal pain.

5. What is the causative agent of pneumonia?

- A) *Escherichia coli*
- B) *Streptococcus pneumoniae*
- C) *Entamoeba histolytica*
- D) *Salmonella typhi*

Answer: B) *Streptococcus pneumoniae*

Solution: Pneumonia is caused by bacteria like *Streptococcus pneumoniae* or *Haemophilus influenzae* and affects the lungs, leading to breathing difficulty.

6. Which pathogen causes common cold?

- A) Rhinovirus
- B) Coronavirus
- C) Influenza virus
- D) Dengue virus

Answer: A) Rhinovirus

Solution: The common cold is caused by Rhinoviruses and is highly contagious, spreading through air or contact with infected surfaces.

7. Amoebiasis is caused by which organism?

- A) *Ascaris lumbricoides*
- B) *Entamoeba histolytica*
- C) *Wuchereria bancrofti*
- D) *Plasmodium vivax*

Answer: B) *Entamoeba histolytica*

Solution: Amoebiasis is caused by *Entamoeba histolytica*, a protozoan parasite, and spreads through contaminated water or food, leading to dysentery.

8. What is the causative agent of ringworm?

- A) Bacteria
- B) Fungi
- C) Protozoa
- D) Virus

Answer: B) Fungi

Solution: Ringworm is caused by dermatophyte fungi like *Trichophyton* and spreads through direct contact or contaminated surfaces.

9. The vector for malaria is:

- A) Male *Anopheles* mosquito
- B) Female *Anopheles* mosquito
- C) *Culex* mosquito

D) Sandfly

Answer: B) Female *Anopheles* mosquito

Solution: Only female *Anopheles* mosquitoes can transmit *Plasmodium* parasites, as they feed on blood for egg production.

10. Which disease is caused by *Wuchereria bancrofti*?

A) Malaria

B) Filariasis

C) Typhoid

D) Ascariasis

Answer: B) Filariasis

Solution: Filariasis, also known as elephantiasis, is caused by the parasitic worms *Wuchereria bancrofti* and spreads through mosquito bites.

11. Ascariasis primarily affects which organ?

A) Liver

B) Intestine

C) Lungs

D) Brain

Answer: B) Intestine

Solution: The roundworm *Ascaris lumbricoides* resides in the intestine, leading to malnutrition and intestinal obstruction.

12. Which symptom is not associated with typhoid?

A) High fever

B) Rash on abdomen

C) Joint pain

D) Severe diarrhea

Answer: C) Joint pain

Solution: Typhoid symptoms include prolonged fever, abdominal pain, and rash but do not typically involve joint pain.

13. What is a symptom of amoebiasis?

A) Bloody stool

B) Cough

C) High fever

D) Rash

Answer: A) Bloody stool

Solution: Amoebiasis affects the intestine, leading to dysentery characterized by bloody stools and abdominal pain.

14. Pneumonia affects which body part?

- A) Lungs
- B) Liver
- C) Kidneys
- D) Intestine

Answer: A) Lungs

Solution: Pneumonia is an infection that inflames the air sacs in the lungs, causing difficulty in breathing and fluid accumulation.

15. Common cold spreads primarily through:

- A) Airborne droplets
- B) Water
- C) Mosquito bites
- D) Contaminated food

Answer: A) Airborne droplets

Solution: The common cold spreads through respiratory droplets released when an infected person sneezes or coughs.

16. Which disease is also called "elephantiasis"?

- A) Ascariasis
- B) Filariasis
- C) Malaria
- D) Typhoid

Answer: B) Filariasis

Solution: Filariasis is referred to as elephantiasis due to the extreme swelling of limbs caused by lymphatic blockage.

17. What is the main symptom of ringworm?

- A) Cough
- B) Circular rash
- C) Fever
- D) Diarrhea

Answer: B) Circular rash

Solution: Ringworm presents as a circular, itchy rash on the skin caused by fungal infection.

18. Which stage of Plasmodium enters the human bloodstream during a mosquito bite?

- A) Trophozoite

- B) Merozoite
- C) Sporozoite
- D) Gametocyte

Answer: C) Sporozoite

Solution: When an infected female *Anopheles* mosquito bites a human, sporozoites from its salivary glands are injected into the bloodstream, initiating malaria infection.

19. Which parasite causes lymphatic filariasis?

- A) *Taenia solium*
- B) *Wuchereria bancrofti*
- C) *Entamoeba histolytica*
- D) *Plasmodium vivax*

Answer: B) *Wuchereria bancrofti*

Solution: Lymphatic filariasis is caused by *Wuchereria bancrofti*, which leads to swelling in the lymphatic system, primarily in the lower limbs.

20. Typhoid fever is transmitted through:

- A) Contaminated food and water
- B) Mosquito bites
- C) Direct contact with infected persons
- D) Airborne droplets

Answer: A) Contaminated food and water

Solution: *Salmonella typhi*, the causative agent of typhoid, spreads through consumption of contaminated food or water.

21. Pneumonia caused by *Streptococcus pneumoniae* is commonly spread by:

- A) Vector transmission
- B) Airborne droplets
- C) Contaminated food
- D) Fecal contamination

Answer: B) Airborne droplets

Solution: Pneumonia spreads when an infected person coughs or sneezes, releasing bacteria into the air.

22. Common cold primarily infects which part of the body?

- A) Lungs
- B) Nose and throat
- C) Stomach

D) Intestine

Answer: B) Nose and throat

Solution: The common cold affects the upper respiratory tract, especially the nose and throat, causing congestion and irritation.

23. The characteristic symptom of amoebiasis is:

A) High fever

B) Severe diarrhea with mucus and blood

C) Swollen lymph nodes

D) Intense itching

Answer: B) Severe diarrhea with mucus and blood

Solution: Amoebiasis caused by *Entamoeba histolytica* leads to dysentery, with blood and mucus in stools.

24. What is the primary treatment for typhoid fever?

A) Antiviral medication

B) Antibiotics

C) Vaccination

D) Antifungal medication

Answer: B) Antibiotics

Solution: Typhoid fever, caused by *Salmonella typhi*, is treated effectively with antibiotics like ciprofloxacin or azithromycin.

25. Which of the following is not a fungal disease?

A) Ringworm

B) Athlete's foot

C) Amoebiasis

D) Candidiasis

Answer: C) Amoebiasis

Solution: Amoebiasis is a protozoan disease caused by *Entamoeba histolytica*, while the others are fungal infections.

26. Ringworm spreads through:

A) Airborne droplets

B) Contaminated food

C) Direct contact or contaminated objects

D) Mosquito bites

Answer: C) Direct contact or contaminated objects

Solution: Fungal spores that cause ringworm spread through skin-to-skin contact or shared items like towels or clothes.

27. Which of the following is not a symptom of filariasis?

- A) Lymph node swelling
- B) Fever
- C) Severe cough
- D) Thickened skin in affected areas

Answer: C) Severe cough

Solution: Filariasis mainly causes swelling in the lymph nodes and skin thickening, but not respiratory symptoms like severe cough.

28. The most effective way to prevent malaria is:

- A) Consuming antibiotics
- B) Avoiding stagnant water
- C) Vaccination
- D) Avoiding physical contact with infected individuals

Answer: B) Avoiding stagnant water

Solution: Preventing mosquito breeding by removing stagnant water and using insecticide-treated nets are the best ways to control malaria.

29. What is the characteristic symptom of typhoid?

- A) Swelling in limbs
- B) Intermittent fever with abdominal pain
- C) Severe headache
- D) Difficulty in breathing

Answer: B) Intermittent fever with abdominal pain

Solution: Typhoid fever is characterized by high fever, abdominal discomfort, and sometimes a rash on the abdomen.

30. Which of these diseases is caused by a protozoan?

- A) Filariasis
- B) Ringworm
- C) Amoebiasis
- D) Pneumonia

Answer: C) Amoebiasis

Solution: Amoebiasis is caused by the protozoan *Entamoeba histolytica*, which affects the intestine.

31. Which microorganism is commonly used in the production of bread and beer?

- A) *Lactobacillus acidophilus*
- B) *Saccharomyces cerevisiae*

- C) *Rhizobium*
- D) *Penicillium*

Answer: B) *Saccharomyces cerevisiae*

Solution: *Saccharomyces cerevisiae* (yeast) is used in fermentation to produce bread, beer, and wine by converting sugars into alcohol and carbon dioxide.

32. Curd is prepared with the help of which bacteria?

- A) *Rhizobium*
- B) *Lactobacillus*
- C) *Saccharomyces*
- D) *Clostridium*

Answer: B) *Lactobacillus*

Solution: *Lactobacillus* bacteria convert milk into curd by fermenting lactose into lactic acid, which coagulates milk proteins.

33. Which microorganism is used in the production of citric acid?

- A) *Aspergillus niger*
- B) *Penicillium*
- C) *Rhizobium*
- D) *Clostridium*

Answer: A) *Aspergillus niger*

Solution: The fungus *Aspergillus niger* is widely used in industrial fermentation to produce citric acid from sugar sources.

34. Which bacteria are used as biofertilizers for leguminous plants?

- A) *Lactobacillus*
- B) *Rhizobium*
- C) *Azotobacter*
- D) *Clostridium*

Answer: B) *Rhizobium*

Solution: *Rhizobium* forms symbiotic associations with leguminous plants and fixes atmospheric nitrogen, improving soil fertility.

35. The process of converting milk into cheese involves:

- A) Alcoholic fermentation
- B) Lactic acid fermentation
- C) Nitrification
- D) Sulfate reduction

Answer: B) Lactic acid fermentation

Solution: Lactic acid bacteria convert lactose in milk into lactic acid, leading to the formation of cheese.

36. Methane gas is primarily produced in biogas plants by:

- A) Aerobic bacteria
- B) Methanogenic bacteria
- C) Photosynthetic bacteria
- D) Denitrifying bacteria

Answer: B) Methanogenic bacteria

Solution: Methanogenic bacteria, such as *Methanobacterium*, produce methane during the anaerobic digestion of organic matter.

37. Which microorganism is used in the commercial production of butyric acid?

- A) *Clostridium butyricum*
- B) *Penicillium*
- C) *Aspergillus niger*
- D) *Saccharomyces cerevisiae*

Answer: A) *Clostridium butyricum*

Solution: *Clostridium butyricum* is a bacterium that produces butyric acid through fermentation.

38. What is the role of microbes in sewage treatment?

- A) Fermentation
- B) Decomposition of organic matter
- C) Nitrate reduction
- D) Nitrogen fixation

Answer: B) Decomposition of organic matter

Solution: Microbes break down organic matter in sewage through aerobic and anaerobic processes, making the water safe for disposal.

39. Biofertilizers like *Azolla* are associated with which type of symbiotic microorganism?

- A) *Rhizobium*
- B) Cyanobacteria (*Anabaena*)
- C) *Lactobacillus*
- D) *Saccharomyces*

Answer: B) Cyanobacteria (*Anabaena*)

Solution: Cyanobacteria like *Anabaena* live symbiotically with *Azolla* and fix atmospheric nitrogen, enriching the soil.

40. Which microorganism is used in the production of ethanol?

- A) *Saccharomyces cerevisiae*
- B) *Penicillium*
- C) *Rhizobium*
- D) *Lactobacillus*

Answer: A) *Saccharomyces cerevisiae*

Solution: *Saccharomyces cerevisiae* ferments sugar into ethanol, widely used in alcoholic beverages and biofuels.

41. In biogas plants, what serves as the raw material?

- A) Wood
- B) Animal waste and organic matter
- C) Sand
- D) Coal

Answer: B) Animal waste and organic matter

Solution: Organic waste such as animal dung and crop residues are digested anaerobically in biogas plants to produce methane.

42. Which is an example of a microbial biocontrol agent?

- A) *Bacillus thuringiensis (Bt)*
- B) *Saccharomyces cerevisiae*
- C) *Lactobacillus*
- D) *Clostridium*

Answer: A) *Bacillus thuringiensis (Bt)*

Solution: *Bacillus thuringiensis* produces proteins toxic to insect pests and is used as a biopesticide in agriculture.

43. Antibiotics like penicillin are obtained from:

- A) Bacteria
- B) Fungi
- C) Viruses
- D) Algae

Answer: B) Fungi

Solution: Penicillin is derived from the fungus *Penicillium notatum*, which inhibits bacterial growth.

44. Which bacteria play a significant role in sewage treatment by removing nitrogen compounds?

- A) *Nitrosomonas*
- B) *Lactobacillus*

C) *Methanobacterium*

D) *Clostridium*

Answer: A) *Nitrosomonas*

Solution: *Nitrosomonas* oxidizes ammonia into nitrites, reducing nitrogen levels in sewage water.

45. *Trichoderma* species are used as:

A) Biofertilizers

B) Biocontrol agents

C) Antibiotics

D) Food processors

Answer: B) Biocontrol agents

Solution: *Trichoderma* species suppress plant pathogens by competing with them in the rhizosphere.

46. Which microorganism is used in the production of Swiss cheese?

A) *Lactobacillus*

B) *Propionibacterium shermanii*

C) *Saccharomyces cerevisiae*

D) *Aspergillus niger*

Answer: B) *Propionibacterium shermanii*

Solution: *Propionibacterium shermanii* produces carbon dioxide during fermentation, forming the characteristic holes in Swiss cheese.

47. Which microorganism is used for the production of bioethanol?

A) *Lactobacillus*

B) *Saccharomyces cerevisiae*

C) *Methanobacterium*

D) *Rhizobium*

Answer: B) *Saccharomyces cerevisiae*

Solution: *Saccharomyces cerevisiae* ferments sugars to produce ethanol, a renewable biofuel.

48. What is the main purpose of secondary sewage treatment?

A) Removal of solid waste

B) Breakdown of organic matter by microbes

C) Chlorination of water

D) Removal of heavy metals

Answer: B) Breakdown of organic matter by microbes

Solution: Secondary sewage treatment uses aerobic microbes to degrade organic matter, reducing Biological Oxygen Demand (BOD).

49. The main gas produced in a biogas plant is:

- A) Carbon dioxide
- B) Methane
- C) Oxygen
- D) Hydrogen

Answer: B) Methane

Solution: Methane is the primary gas produced in biogas plants through anaerobic digestion by methanogenic bacteria.

50. *Monascus purpureus* is used in the production of:

- A) Antibiotics
- B) Blood cholesterol-lowering agents
- C) Ethanol
- D) Cheese

Answer: B) Blood cholesterol-lowering agents

Solution: *Monascus purpureus* produces statins, which are used to lower blood cholesterol levels.

CUET MCQ Questions and Solutions from UNIT 3 (2)

1. Which microorganism is used in the production of acetic acid?

- A) *Acetobacter aceti*
- B) *Saccharomyces cerevisiae*
- C) *Penicillium*
- D) *Lactobacillus*

Answer: A) *Acetobacter aceti*

Solution: *Acetobacter aceti* converts ethanol into acetic acid during the production of vinegar.

2. What is the main purpose of using biofertilizers?

- A) Pest control
- B) Enhancing soil fertility
- C) Increasing crop resistance to drought
- D) Producing biogas

Answer: B) Enhancing soil fertility

Solution: Biofertilizers such as *Rhizobium* and *Azotobacter* improve soil fertility by fixing atmospheric nitrogen.

3. The organism *Bacillus thuringiensis* is used for controlling:

- A) Bacterial infections
- B) Fungal infections
- C) Insect pests
- D) Weed growth

Answer: C) Insect pests

Solution: *Bacillus thuringiensis* produces toxic proteins that kill insect larvae, serving as an effective biopesticide.

4. Which is an example of a symbiotic nitrogen-fixing bacterium?

- A) *Azotobacter*
- B) *Rhizobium*
- C) *Clostridium*
- D) *Penicillium*

Answer: B) *Rhizobium*

Solution: *Rhizobium* forms symbiotic associations with leguminous plants and fixes atmospheric nitrogen.

5. Microbes can be used to produce biogas, which consists primarily of:

- A) Oxygen
- B) Methane
- C) Carbon monoxide
- D) Hydrogen sulfide

Answer: B) Methane

Solution: Biogas is composed mainly of methane, along with carbon dioxide and trace gases, produced by anaerobic digestion.

6. The use of microorganisms to control soil-borne plant diseases is called:

- A) Biocontrol
- B) Fertilization
- C) Decomposition
- D) Fermentation

Answer: A) Biocontrol

Solution: Biocontrol uses microbes like *Trichoderma* to suppress plant pathogens and enhance soil health.

7. Industrial alcohol is produced by fermentation using:

- A) *Aspergillus*
- B) *Saccharomyces cerevisiae*
- C) *Lactobacillus*
- D) *Rhizobium*

Answer: B) *Saccharomyces cerevisiae*

Solution: *Saccharomyces cerevisiae* ferments sugars to produce industrial alcohol (ethanol).

8. Sewage treatment plants use which bacteria in the aerobic process?

- A) *Lactobacillus*
- B) *Nitrosomonas*
- C) *Methanobacterium*
- D) *Rhizobium*

Answer: B) *Nitrosomonas*

Solution: *Nitrosomonas* bacteria oxidize ammonia into nitrites, essential in the aerobic treatment of sewage.

9. Cyanobacteria like *Anabaena* and *Nostoc* are used as:

- A) Antibiotics
- B) Biocontrol agents
- C) Biofertilizers

D) Biopesticides

Answer: C) Biofertilizers

Solution: Cyanobacteria fix atmospheric nitrogen and enhance soil nutrient content, acting as biofertilizers.

10. Which gas is responsible for the "smell" in biogas plants?

A) Hydrogen

B) Sulfur dioxide

C) Hydrogen sulfide

D) Nitrogen

Answer: C) Hydrogen sulfide

Solution: Hydrogen sulfide (H₂S) produced in biogas plants contributes to the characteristic smell of biogas.

11. Which method involves the use of controlled pollination to combine desirable traits in plants?

A) Tissue culture

B) Plant breeding

C) Biofortification

D) Genetic engineering

Answer: B) Plant breeding

Solution: Plant breeding is the science of improving crops by selecting and combining traits like yield, disease resistance, or drought tolerance through controlled pollination.

12. Which technique is used to produce genetically identical plants?

A) Plant breeding

B) Single-cell protein

C) Tissue culture

D) Apiculture

Answer: C) Tissue culture

Solution: Tissue culture is a technique that allows the production of clones (genetically identical plants) from a single parent plant using nutrient media.

13. Which crop variety is an example of biofortification?

A) Golden rice

B) Hybrid maize

C) BT cotton

D) Sugarcane

Answer: A) Golden rice

Solution: Golden rice is biofortified with beta-carotene (a precursor of Vitamin A) to combat Vitamin A deficiency.

14. What is the main product of single-cell protein (SCP)?

- A) Antibiotics
- B) Proteins
- C) Carbohydrates
- D) Vitamins

Answer: B) Proteins

Solution: SCP involves cultivating microorganisms like algae, fungi, or bacteria as a protein-rich food supplement for humans and animals.

15. Which species of honeybee is most commonly used in apiculture?

- A) *Apis dorsata*
- B) *Apis cerana indica*
- C) *Apis mellifera*
- D) *Trigona*

Answer: C) *Apis mellifera*

Solution: *Apis mellifera*, the European honeybee, is widely used for commercial honey production due to its high productivity.

16. Which process involves feeding algae, fungi, or bacteria to produce high-protein biomass?

- A) Tissue culture
- B) Single-cell protein production
- C) Plant breeding
- D) Apiculture

Answer: B) Single-cell protein production

Solution: Microorganisms are grown on nutrient media to produce SCP, which is a sustainable protein source for food and feed.

17. Which is a primary goal of animal husbandry?

- A) Developing hybrid plants
- B) Enhancing the genetic quality of livestock
- C) Producing biofertilizers
- D) Preserving forests

Answer: B) Enhancing the genetic quality of livestock

Solution: Animal husbandry focuses on breeding and caring for livestock to improve productivity and genetic quality.

18. What is the significance of artificial insemination in livestock improvement?

- A) Reduces breeding costs
- B) Prevents diseases
- C) Enhances genetic traits
- D) All of the above

Answer: D) All of the above

Solution: Artificial insemination enhances genetic traits, reduces costs, and minimizes the spread of diseases in livestock.

19. What is the main purpose of biofortification?

- A) Increasing crop productivity
- B) Enhancing nutrient content in crops
- C) Improving resistance to pests
- D) Reducing water requirements

Answer: B) Enhancing nutrient content in crops

Solution: Biofortification aims to develop crops with higher nutritional value, such as iron-enriched wheat or zinc-rich rice.

20. Which of the following is an example of a hybrid plant variety?

- A) IR-8 rice
- B) BT cotton
- C) Golden rice
- D) Penicillin

Answer: A) IR-8 rice

Solution: IR-8 rice is a high-yield hybrid variety developed through plant breeding for increasing food production.

21. Which microorganism is widely used for SCP production?

- A) *Rhizobium*
- B) *Spirulina*
- C) *Saccharomyces cerevisiae*
- D) *Clostridium*

Answer: B) *Spirulina*

Solution: *Spirulina*, a cyanobacterium, is rich in proteins, vitamins, and minerals, making it an excellent SCP source.

22. What is the term for bee-keeping?

- A) Sericulture
- B) Aquaculture
- C) Apiculture

D) Pisciculture

Answer: C) Apiculture

Solution: Apiculture is the scientific management of honeybees for the production of honey and beeswax.

23. Which nutrient deficiency does biofortified wheat primarily address?

A) Vitamin C

B) Iron

C) Zinc

D) Calcium

Answer: C) Zinc

Solution: Biofortified wheat is enriched with zinc to combat zinc deficiency, which can lead to immune and growth issues.

24. Which is an important plant tissue culture technique?

A) Callus culture

B) Fermentation

C) Composting

D) Pollination

Answer: A) Callus culture

Solution: Callus culture involves growing undifferentiated plant cells in a nutrient medium, used for cloning or genetic modifications.

25. Which hybrid variety increased wheat production during the Green Revolution?

A) Sonalika

B) IR-8

C) Red gram

D) BT brinjal

Answer: A) Sonalika

Solution: Sonalika is a high-yield wheat variety that played a significant role in boosting wheat production during the Green Revolution.

26. Which is an example of a single-cell protein source?

A) *Spirulina*

B) Wheat

C) Maize

D) Potato

Answer: A) *Spirulina*

Solution: *Spirulina*, a blue-green algae, is cultivated as a sustainable protein source due to its high nutrient content and eco-friendly nature.

27. What is the main purpose of tissue culture?

- A) To develop antibiotics
- B) To propagate disease-free plants
- C) To increase crop size
- D) To extract natural dyes

Answer: B) To propagate disease-free plants

Solution: Tissue culture allows the production of genetically identical, disease-free plants on a large scale.

28. Which of the following is an example of biofortified crop?

- A) BT cotton
- B) IR-36 rice
- C) Zinc-enriched rice
- D) Hybrid maize

Answer: C) Zinc-enriched rice

Solution: Zinc-enriched rice is developed through biofortification to address zinc deficiency in humans.

29. Which process is involved in producing high-yield and disease-resistant crops?

- A) Biofortification
- B) Plant breeding
- C) Apiculture
- D) Composting

Answer: B) Plant breeding

Solution: Plant breeding involves selecting and combining desirable traits to create high-yield, disease-resistant varieties.

30. What is the primary product of apiculture?

- A) Wax
- B) Silk
- C) Honey
- D) Protein

Answer: C) Honey

Solution: Apiculture is the practice of bee-keeping, mainly for honey production, along with beeswax and other byproducts.

31. Which type of microorganism is commonly used for single-cell protein production?

- A) Viruses
- B) Fungi
- C) Protozoa
- D) Nematodes

Answer: B) Fungi

Solution: Fungi, like *Fusarium* species, are utilized in single-cell protein production due to their high protein content.

32. Which crop has been genetically improved to produce Vitamin A?

- A) Wheat
- B) Golden rice
- C) Potato
- D) Maize

Answer: B) Golden rice

Solution: Golden rice is genetically engineered to be rich in beta-carotene, a precursor of Vitamin A, to combat its deficiency.

33. What is the aim of biofortification?

- A) Developing pest-resistant plants
- B) Enhancing the nutritional quality of food crops
- C) Increasing crop yield
- D) Reducing soil erosion

Answer: B) Enhancing the nutritional quality of food crops

Solution: Biofortification focuses on improving nutrient levels in crops to combat malnutrition.

34. Which of these is a benefit of plant tissue culture?

- A) Requires large land areas
- B) Produces disease-free plants
- C) Takes longer time to grow plants
- D) Cannot clone rare species

Answer: B) Produces disease-free plants

Solution: Tissue culture enables the production of healthy, disease-free plants from a single parent.

35. Which of the following is an example of animal husbandry?

- A) Breeding high-yield crops
- B) Rearing livestock for milk and meat

C) Biofortification of crops

D) Tissue culture in plants

Answer: B) Rearing livestock for milk and meat

Solution: Animal husbandry involves raising animals like cows, goats, and poultry for milk, meat, and other products.

36. Which bee species is commonly used in commercial honey production?

A) *Apis dorsata*

B) *Apis mellifera*

C) *Apis cerana indica*

D) *Apis florea*

Answer: B) *Apis mellifera*

Solution: *Apis mellifera* is preferred for its high honey yield and ease of domestication.

37. Which microorganism is commonly used in biofertilizers?

A) *Rhizobium*

B) *Fusarium*

C) *Spirulina*

D) *Penicillium*

Answer: A) *Rhizobium*

Solution: *Rhizobium* forms symbiotic relationships with legumes, fixing atmospheric nitrogen for plant growth.

38. Which tissue culture technique helps conserve endangered plant species?

A) Fermentation

B) Cryopreservation

C) Composting

D) Pollination

Answer: B) Cryopreservation

Solution: Cryopreservation stores plant tissues at very low temperatures, aiding in the conservation of rare and endangered species.

39. Which practice involves selective breeding and rearing of animals for increased productivity?

A) Apiculture

B) Animal husbandry

C) Sericulture

D) Aquaculture

Answer: B) Animal husbandry

Solution: Animal husbandry focuses on improving livestock traits through selective breeding and proper care.

40. Which product is derived from apiculture besides honey?

- A) Silk
- B) Wax
- C) Biofertilizers
- D) Antibiotics

Answer: B) Wax

Solution: Beeswax, a byproduct of apiculture, is used in cosmetics, candles, and other industries.

41. What is the primary function of the immune system?

- A) Transport oxygen
- B) Fight infections and diseases
- C) Aid in digestion
- D) Regulate hormones

Answer: B) Fight infections and diseases

Solution: The immune system protects the body by identifying and eliminating pathogens like bacteria, viruses, and cancerous cells through innate and adaptive immune responses.

42. Which type of vaccine uses a weakened form of the pathogen?

- A) Inactivated vaccine
- B) Subunit vaccine
- C) Live-attenuated vaccine
- D) DNA vaccine

Answer: C) Live-attenuated vaccine

Solution: Live-attenuated vaccines use weakened pathogens to stimulate immunity, as seen in vaccines for measles and mumps, providing long-term immunity.

43. What is the primary cause of AIDS?

- A) Bacteria
- B) HIV (Human Immunodeficiency Virus)
- C) Protozoa
- D) Fungus

Answer: B) HIV (Human Immunodeficiency Virus)

Solution: AIDS (Acquired Immunodeficiency Syndrome) is caused by HIV,

which attacks the immune system, particularly CD4 cells, leading to life-threatening infections and cancers.

44. What type of cancer originates in blood-forming tissues?

A) Carcinoma

B) Sarcoma

C) Leukemia

D) Lymphoma

Answer: C) Leukemia

Solution: Leukemia is a cancer of blood-forming tissues like bone marrow, leading to the overproduction of abnormal white blood cells that disrupt normal body functions.

45. Which vaccine is recommended to prevent cervical cancer?

A) BCG vaccine

B) Hepatitis B vaccine

C) HPV vaccine

D) Polio vaccine

Answer: C) HPV vaccine

Solution: The HPV (Human Papillomavirus) vaccine protects against strains of HPV that cause cervical cancer, making it an important preventive measure.

46. What is the most common mode of HIV transmission?

A) Airborne droplets

B) Contaminated water

C) Unprotected sexual contact

D) Insect bites

Answer: C) Unprotected sexual contact

Solution: HIV is primarily transmitted through unprotected sexual contact, sharing needles, or from mother to child during childbirth or breastfeeding.

47. Which immune cells are targeted and destroyed by HIV?

A) Red blood cells

B) Platelets

C) CD4 T cells

D) B cells

Answer: C) CD4 T cells

Solution: HIV infects and destroys CD4 T cells, weakening the immune system and making the body susceptible to opportunistic infections.

48. What is a key symptom of adolescence?

- A) Loss of appetite
- B) Rapid physical and emotional changes
- C) Decreased cognitive ability
- D) Constant fatigue

Answer: B) Rapid physical and emotional changes

Solution: Adolescence is marked by puberty, emotional development, and social changes as the body transitions from childhood to adulthood.

49. Which is a major risk of prolonged drug and alcohol abuse?

- A) Enhanced memory
- B) Reduced physical fitness
- C) Liver damage and addiction
- D) Improved concentration

Answer: C) Liver damage and addiction

Solution: Prolonged drug and alcohol abuse leads to addiction, liver damage, cognitive impairments, and adverse effects on mental and physical health.

50. Which type of immunity is provided by vaccines?

- A) Innate immunity
- B) Active acquired immunity
- C) Passive immunity
- D) Temporary immunity

Answer: B) Active acquired immunity

Solution: Vaccines stimulate the body to produce antibodies and memory cells, providing long-term protection against specific diseases.