

**BT402 solved OBJECTIVE AND SUBJECTIVE CURRENT papers
for midterm by vu medical zone**

BT402 Past Midterm file

Objective part

1. If a transferred gene comes from different species this is called _____ gene transfer.
Horizontal
2. _____ is the best solution to the problem of world hunger. **Gene technology.**
3. _____ strain of bacteria directly convert the nitrogen into amino acid. **Rhizobium**
4. Microorganism are essential for the _____ to function. **Earth**
5. Plant need nitrates to make _____ **amino acid**
6. Cellulose can be digested by enzyme named _____ **cellulase**
7. Most common example of GM animal is _____ **Dolly Sheep**
8. Genome of GMOs is genetically engineered in the laboratory to favor the expression of desired _____ traits. **Physiological**
9. _____ of microorganism can be used for monitoring and predicting environmental change. **Diversity patterns.**
10. Why GMO are criticized (allergic reaction, because of disease, genetic modification, all.) **all.**
11. Introduction of DNA from one organism into the cell of another by use of an electric pulse is termed as _____ **electroporation**
12. _____ organism can be genetically modified. (plant, animal, microbe, **all given**)
13. Microorganism came into being on the earth over a period of about _____ billion years. **1.2 to 1.5**
14. The molecular characterization of all genes in a species is _____ **genomics**
15. _____ or blue green algae produce oxygen in the ocean. **Cyanobacteria**
16. 1st issue with microbial biotechnology is _____ **isolation**
17. Genetically modified organism are modified by (mutation, deletion, insertion, **all**)
18. Many bacteria help to decompose dead organism wastes into chemical compound such as _____ **Ammonia**
19. GMOs may interfere with _____ **food chain**
20. Penicillium notatum is a _____ **green mould**
21. _____ were the first organism to be genetically modified. **Bacteria**
22. GM plants are economically beneficial because they are used to repel _____ **pests**
23. Genome of GMOs is genetically engineered in the laboratory to favor the expression of desired _____ trait. **Physiological**
24. Production of antibiotics, organic acids and enzymes by _____ **fermentation of microbes**
25. Microorganisms are used in the production of fermented food and beverages. **Yeast, Penicillium, Lactobacillus, All**
26. microorganisms play a role in conservation and _____ biology of higher organisms. **restoration**
27. Nutritional requirements can be determined from _____ of microbial cells. **chemical composition**

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28. Microorganisms degrade can **oil, petroleum, plastic, all**
29. Ist step of microorganism in bio processing is **isolation of pure culture or mixed culture.**
30. Morphology is **physiological factors.**
31. The most common type of GMOs plant is **alfalfa**
32. GMO crop is Less _____ in the world due to the fact that it cuts food prices. **Starvation**
33. Bacteria are used in the production of **vinegar**
34. Fermentation is a metabolic process that consumes sugar in the **absence of oxygen.**
35. The starter cultures produce lactic acid, resulting in a _____ in the milk and promoting curd synthesis. **pH decrease**
36. Genetically modified crops may also cause a threat to the **environment.**
37. Microorganism deals with the _____ of deterioration of processed or manufactured good. e **prevention**
38. The introduction of one or more genes conferring potentially useful traits into plants, livestock, fish and tree species. **Transformation**
39. **Cyanobacteria or blue green** algae produce oxygen in the ocean.
40. lactic bacteria also play an important role, as they convert the unstable _____ that is naturally present in wine into the stable lactic acid. **malic acid**
41. Penicillin is made from the **filamentous fungi**
42. The _____ invade the organic matter in soil first and are then followed by the bacteria. **fungi**
43. producation of _____ by fermentation. **(antibiotics, organic acids and enzyme).**
44. **industrially important acids ,enzyme pigments** are produce with the help of microorganisms.
45. shear sensitivity is belong to **physiological factor.**
46. GMOS are commonly used in **foods and medicine.**
47. **Corn and soyabeans** are two example of crops that have higher nutrient GMOs version available.
48. GMOs doest not enough **pesticides** because the crop itself is dangerous to some insects.
49. GMOs is an effective way to provide former **a larger profit while spending less time** a resources.
50. microorganisms produce important drugs called **antibiotics.**
51. **yeasts** are responsible for the fermentation process which produces alchol in wine.
52. chemical conversation of sugar into ethanol producing **alcoholic drinks** such as wine ber and cider.

2 Marks Questions

1. Why plants needs nitrate?

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They need nitrates to make amino acids.

2. What is lactic acid fermentation?

It occurs in animal muscles when the tissue requires energy at a faster rate than oxygen can be supplied used to convert lactose into lactic acid in yogurt and cheese production also gives the sour taste to fermented vegetables such as pickles.

3. What are steroids?

Steroids are a very important group of chemicals, which are used as anti-inflammatory drugs, and as hormones such as estrogens and progesterone, which are used in oral contraceptives. Producing steroids from animal sources or chemically synthesizing them is difficult, but microorganisms can synthesize steroids from sterols or from related compounds.

4. Importance of microbes in the field of agriculture?

- Bacteria play important roles to promote the plant growth.
- Bacteria, Break down dead plants and dead animals by releasing AMMONIA
- AMMONIA, Adds nitrogen into the soil
- The nitrogen fixing bacteria in the soil change the ammonia into nitrates. This nitrates will be used by plants.

5. GMO economically beneficial?

GMOs is an effective way to provide farmers a larger profit while spending less time a resources. Economically beneficial because they are used to repel pests, which prevents the need for pesticides to be used.

6. How animal digest cellulose?

Cellulose can be digest by enzyme named cellulase

7. Bacteria are genetically modified why give example?

- Bacteria were the first organisms to be modified in the laboratory, due to their simple genetics.
- These organisms are now used for several purposes, particularly important in producing large amounts of pure human proteins for use in medicine.
- Genetically modified bacteria are used to produce the protein insulin to treat diabetes.
- Similar bacteria have been used to produce clotting factors to treat haemophilia, and human growth hormone to treat various forms of dwarfism.

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8. Some bacteria have been genetically engineered Why?

- To produce certain vaccines that are used to prevent infectious diseases • Insulin, produced to treat diabetes

9. What are the physical factor of microbial environment?

Physical factors

- Temperature
- Humidity
- Ph
- Macronutrients
- Micronutrients
- viscosity

10. How microbes are important in industry?

- Industrially important acids, enzymes, pigments are produced with the help of microorganisms. E.g. *Aspergillus niger*, *Bacillus subtilis*.
- Microbes are used in different industry such as meat industry, wine industry and many others.

11. How microbe are economically important?

Bacteria are economically important as these microorganisms are used by humans for many purposes. The beneficial uses of bacteria include the production of traditional foods such as yoghurt, cheese, and vinegar.

12. Effect of improper nutrients of microbes?/ Effect of unbalanced nutrients on microorganism?

Improper nutrients will lead to the formation of abnormal molecules and hinders the growth of microorganisms.

13. Different types of microbes?

- bacteria.
- fungi.
- algae.
- protozoa.
- Viruses

14. How microorganism clean the environment?

Ability of microorganisms to degrade toxic materials like oil, petroleum, plastic, etc has opened a new field of research. E.g. *Pseudomonas*, *Alcanivorax*.

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3 Marks Questions

1. Name the Physiological factors of improvements of strain?

- Morphology
- Metabolic by-products
- Shear Sensitivity
- Genetic Stability
- Issues in production strain

2. What is bio processing of microbes?

Bio processing of microbes

Application of natural or genetically manipulated whole cells/ tissues/ organs, or parts thereof, for the production of industrially or medically important products. Encompasses research, development, manufacturing, and commercialization of products prepared by using biological systems

- Issues of microorganisms in bio processing

1st Step: Isolation of Pure or Mixed Cultures from nature

2nd Step: Assesment to determine the capacity for the production Issues of microorganisms in bio processing

3. What are the physiological factors of strain production(development)?

- Morphology
- Metabolic by-products
- Shear Sensitivity
- Genetic Stability

4. Importance or role of microbes in meat industry?

Meat starter cultures are used to make dried, fermented products such as salami, Salami is a type of cured sausage consisting of fermented and air-dried meat, typically beef or pork. pepperoni, Pepperoni is an American variety of salami, made from cured pork and beef mixed together and seasoned with paprika or other chili pepper. dried ham, Ham is pork that has been preserved through salting, smoking, or wet curing. Lactic bacteria develop the flavour and colour of the products. In addition, a wide variety of moulds are used to ripen the surface of sausages, preserving the natural quality of the product and controlling the development of flavor.

5. What is Alcoholic fermentation?

Alcoholic fermentation

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- Done by
- Yeast and certain bacteria
- Pyruvate is broken into alcohol and carbon dioxide
- Used in the production of beer, wine and bread

6. Importance of microbes in medicines?

7. Use of microbes in medicine?

They also have immense potential in the field of medicine. They are used industrially for the production of antibiotics, vaccines. Insuline, growth hormones and diagnostic kits. E.g. E. coli, Polio virus.

8. Meat industry?

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9. How microbes are important inside human body?/ why microbes are beneficial for human body?

Microbes are beneficial for the human body due to the following reasons.

- Microbes are used to synthesize a number of products valuable to human beings. These products include beverages, food additives, products for human and animal health, and biofuels
- Antibiotics produced by microbes are regarded as one of the most significant discoveries of the twentieth century and have made major contributions towards the welfare of human society

10. Name the vitamin produced by microbes?

Microbes are capable of synthesizing these compounds and hence they can be used for the commercial production of many of the Vitamins e.g. thiamine (Vitamin B1), riboflavin (Vitamin B2).

11. Why we learnt about more microorganisms?

Bacteria break down (or decompose) dead organisms, animal waste, and plant litter to obtain nutrients. But microbes don't just eat nature's waste, they recycle it. The process of decomposition releases chemicals (such as carbon, nitrogen, and phosphorus) that can be used to build new plants and animals.

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5 Marks Questions

1. Write two names of pharmaceutical drugs and how it produced from microbes?

Many pharmaceutical drugs are also produced by microbes e.g. Cyclosporin A, that is used as an immunosuppressive agent in organ-transplant patients, is produced by the fungus *Trichoderma polysporum*. Statins produced by the yeast *Monascus purpureus* have been commercialized as blood- cholesterol-lowering agents. It acts by competitively inhibiting the enzyme responsible for the synthesis of cholesterol.

2. Importance of microbial biotechnology and microbial genomics?

Microbial genomics and microbial biotechnology research is critical for advances in food safety, food security, biotechnology, value-added products, human nutrition and functional foods, plant and animal protection, and furthering fundamental research in the agricultural sciences.

3. How microbes that are genetically engineered helpful for human stat their uses in medicine too?

- They also have immense potential in the field of medicine. They are used industrially for the production of antibiotics, vaccines. Insuline, growth hormones and diagnostic kits. E.g. E. coli, Polio virus.
- GMOs, are commonly used in foods and medicines.
- They are important in producing large amounts of pure human proteins for use in medicine

4. Describe the Importance of microbes?

DECAYING PROCESS:

- Many bacteria help decompose (menguraikan) dead organism and animal wastes into chemical compound such as ammonia.
- In sewage treatment plant (lojirawatankumbahan), bacteria are use to break down the complex animal and plant matter into simple compounds

ANTIBIOTICS:

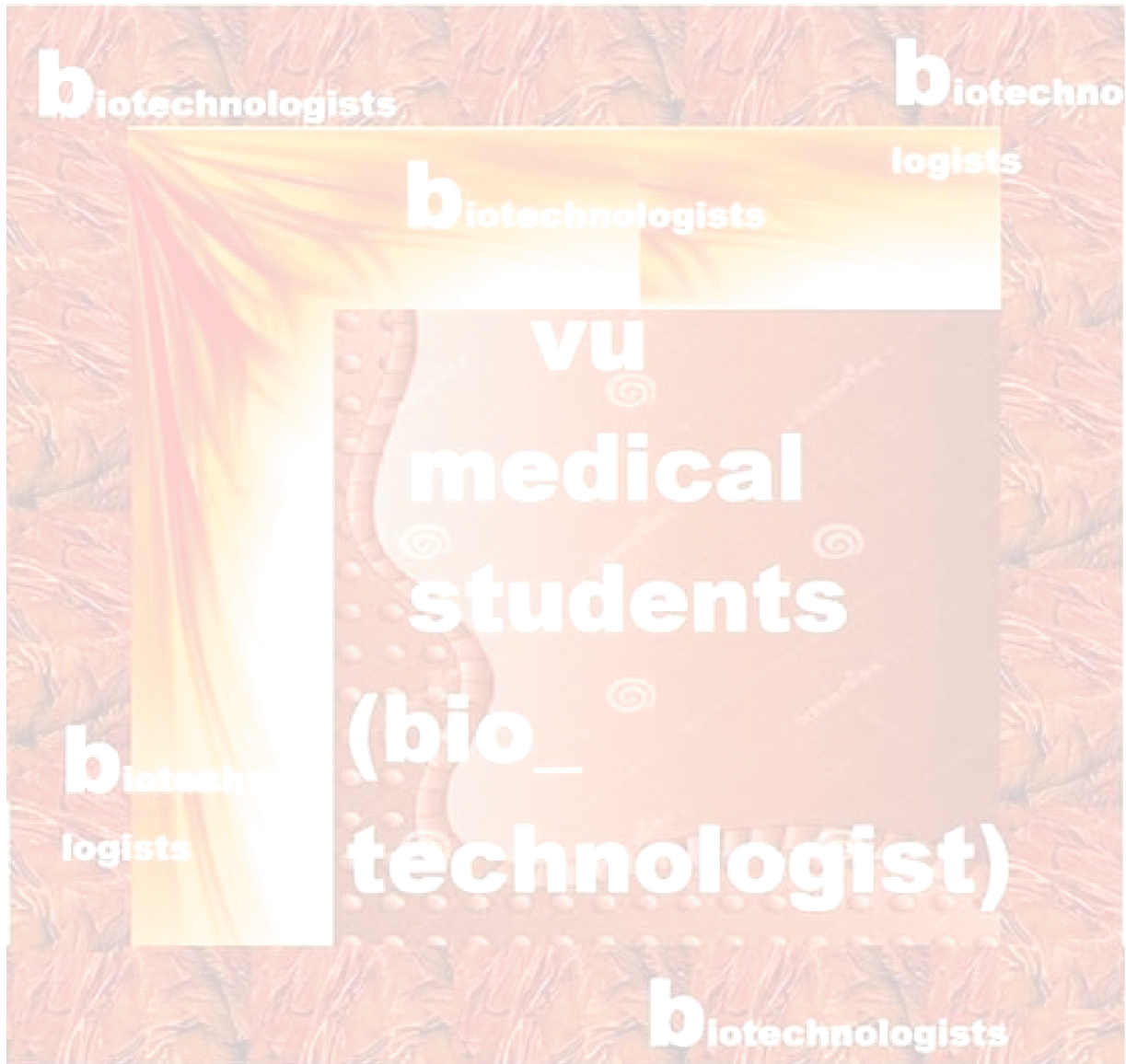
Functions of antibiotics are

- Weaken, Destroy other microorganism
- *Penicillium notatumis* a GREEN MOULD
- Its produces antibiotic called PENICILLIN

AGRICULTURE:

- Bacteria play important roles to promote the plant growth.
- Bacteria, Break down dead plants and dead animals by Insulin, produced to treat diabetes
- Bacteria are used in the production of: Milk, Yogurt, Cheese, Vinegar , Soy sauce, Chocolate etc.

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