BT401 Mid Term Solve

Subjective No.03

Welcome To vuways Study Help

1. **type of wild plant 2**
2. **when founder effect accurs?2**

A founder effect occurs when a new colony is started by a few members of the original population. This small population size means that the colony may have:

•• Reduced genetic variation from the original population.
•• A non-random sample of the genes in the original population

3. **Meaning of crop reservation?**

careful and simple **preservation** and storage techniques can help reduce **crop** losse

4. **Major loss of genetic diversity.**

Loss of genetic diversity in small populations,

- Changes in the natural distribution of genetic diversity among populations (artificial isolation and mixing)
- Population size critical factor,

5. **Use of ven diagram**

Venn diagrams enable students to organise information visually so they are able to see the relationships between two or three sets of items. They can then identify similarities and differences.

6. **What are steroids? 2 marks** any of a large class of organic compounds with a characteristic molecular structure containing four rings of carbon atoms (three six-membered and one five). They include many hormones, alkaloids, and vitamins.
7. **Importance of microbes in field of agriculture. 2 marks**

•Plant growth promotion through soil microorganisms,
•• In the understanding and surveillance of microbial plant pathogens
•• Biological control,
•• beneficial symbiosis in the guts of ruminant livestock,
•• Production of chemicals of direct benefit to agriculture
•• Workhorses in agro-industrial processes.

8. **Enlist major sources of genetic diversity. 2**

•• Mutations
•• Speciation
•• Errors in Meiosis

9. **WHat is outbreeding**

Out-breeding is the mating of animals of the same breed but which have no closer relationship than at least 4 to 6 generations. Outbreeding is the recommended breeding practice for most purebred sheep breeders. Within pure-breeding, there are several types of mating systems. Outbreeding is the recommended breeding practice for most purebred sheep breeders

10. **What is demosticate plant 2**

"Plant domestication is the process whereby wild plants have been evolved into crop plants through artificial selection."

11. **define founder effect 2m**

"The effect on the resulting gene pool that occurs when a new isolated population is founded by a small number of individuals possessing limited genetic variation relative to the larger population from which they have migrated

12. **What is mild inbreeding?2**

Mating of relatives beyond 2nd generation and upto 6th generation

define in situ(2m)

13.

Conservation of species in their natural habitat E.g. natural parks, nature reserves

14. **how A genome can be used in G×E examine. 2m**

Gene–environment interaction (or genotype–environment interaction or GxE or G×***E***) is when two different genotypes respond to environmental variation in different ways. A norm of reaction is a graph that shows the relationship between genes and environmental factors when phenotypic differences are continuous.

15. **write the reason of extinction of sea mink. 2m**

The sea mink (Neovison macrodon) once lived along the coasts of Maine and New Brunswick, but was prized for its fur and was hunted to extinction in the second half of the 19th century.

16. **What is colony collapse disorder. 2 marks**

"Colony collapse disorder" is wiping out entire populations of the insect. Scientists have yet to discover its true cause.

17. **Dfine endemic species.2m**

Endemic species are those species of plants and animals found only in a particular area and not found anywhere else.

18. **Enlist classes of gene pool system.2m**

1. Primary Gene Pool (GP1):
2. Secondary Gene Pool (GP2):
3. Tertiary Gene Pool (GP3):

19. write some feauter of myrcia skeldingii

Myrcia skeldingii was a species of plant in the Myrtaceae family. It was endemic to Jamaica. It became extinct due to habitat loss.

20. types of genetic stock?

1. Cytological stocks
2. Mutants stock
3. Germplasm set

21. Why preservation is important?

Until two decades ago the genetic resources were getting depleted owing to the continuous depredation by man. It was imperative therefore that many of the elite, economically important and endangered species are preserved to make them available when needed. Many methodologies have been devised for long term preservation of material.

3 MARKS

1. Why do we need to conserve plant genetic resources

- • conservation of plant genetic resources is necessary for food security and agro-biodiversity
- • Biodiversity provides a valuable source of compounds to the medical, food and crop protection industries.
- • Maintenance of ecosystem
- • Genetic resources need to be conserved so that they may be used in crop research and be used as sources of genes for crop improvement.

2. reason for grading up(3)

Breeding of animals of two different breeds where the animal of an indigenous breed/genetic group is mated by an improved pure breed for several generations towards attaining the superior traits of the improved breed. Grading up is continuous use of purebred sires of the same breed in a grade herd. By fifth generation, the graded animals may reach almost purebred levels.

3. How pollution is threat to species? 3

Marine animals are exquisitely sensitive to traces of toxic chemicals in lakes, oceans and rivers. Drastic changes in oxygen levels, caused by industrial pollution, can suffocate entire populations. Large bodied animal and rare species are more prone to the changes caused by humans to the planet. Constant exposure to pollution can render plants and animals more susceptible to dangers including starvation, loss of habitat and disease

4. Types of out breeding (3)

•• Cross breeding
•• Grading up
•• Species cross

5. Cryopreservation (3)

Cryo-preservation or **cryo-conservation** is a process where organelles, cells, tissues, extracellular matrix, organs or any other biological constructs susceptible to damage caused by unregulated chemical kinetics are preserved by cooling to very low temperatures(typically -80 °C using solid carbon dioxide or -196 °C using liquid nitrogen).

6. Difference between vertical n horizontal gene transfer.

Vertical Gene transfer: "The transfer of genes from parents to offspring." **Horizontal gene transfer:**
"Horizontal gene transfer is known to occur between different species, such as between prokaryotes and eukaryotes, between the three DNA-containing organelles of eukaryotes, the nucleus, the mitochondrion and the chloroplast.

7. Physiological factors of improvents of strain. 3 marks

8. Importance of microbes in meat industry. 3 marks

9. Objective of GSPC. 3

1. Plant diversity is well understood, documented and recognized
2. Plant diversity is urgently and effectively conserved
3. Plant diversity is used in a sustainable and equitable manner
4. Plant diversity is used in a sustainable and equitable manner
5. The capacities and public engagement necessary to implement the strategy have been developed.

10. CHARACTERISTICS OF genepool. 3

•• It includes all the variants or alleles of every gene.
•• It includes all the genes present in the population.
•• In most cases, the population includes individuals of the same species.
•• A gene pool includes even those genes whose effects are not visible in an individual.

11. Causes of migration

•• Shortage of food supply on the breeding ground
•• Environmental factors
•• Internal factors
•• Photoperiodism

•• Fat deposition

12. What is Threatened of species 3

Threatened species are any species (including animals, plants, fungi, etc.) which are vulnerable to endangerment in the near future. Species that are threatened are sometimes characterized by the population dynamics measure of critical dispensation, a mathematical measure of biomass related to population growth rate.

13. why harts tounge fern was threatened 3m

Quarrying, recreation and residential development have all destroyed these plants and their habitat. Canadian populations are threatened by lumbering and the development of land for ski resorts and country estates, among other activities.

14. give diff concept of gene environment interaction 3m

There are two different conceptions of gene–environment interaction.

•• Tabery has labeled them *biometric* and *developmental* interaction

•• Sesardic uses the terms *statistical* and *commonsense* interaction

15. Ratio of vegetables grown in pakistan

Pakistan covering 75% of the total area under vegetables, accounting for 74% of the total production. The major share in the production is of Punjab (63%) followed by Sindh (14%), Baluchistan (12%) and KPK (11%). Maximum area is grown under **potatoes** and about 88 % occurs in Punjab. About 46% of onion is cultivated in Sindh and 25% in Punjab. Chili is at the third position of which 84% is cultivated in Sindh.

16. What is horizontal gene transfer?3

"Horizontal gene transfer is known to occur between different species, such as between prokaryotes and eukaryotes, between the three DNA-containing organelles of eukaryotes, the nucleus, the mitochondrion and the chloroplast."

17. Enlist various methods of storage.3

1. **Cryopreservation** - generally involves storage in liquid nitrogen.
2. **Cold storage** - it involves storage in low and non freezing temperature.
3. **Low pressure** – it involves partially reducing the atmospheric pressure of surrounding.
4. **Low oxygen storage** - it involves reducing the oxygen level but maintaining the pressure.

18. primaray genetic consequences on inbreeding(3m)

The primary genetic consequence of inbreeding is to increase the frequency of pairing of similar genes.

19. Some effect of lesser number of gene in gene population.3m

Populations with a lesser number of genes in their gene pool will be susceptible to problems. This may cause them to become endangered or even perish altogether, i.e., become extinct.

20. Why several species in pakistan are facing threat.3m

21. how many types of in situ conservation

Types of in situ conservation

1. National park

2. Biosphere reserve

3. Gene sanctuary

22. What is sardine run

One of the largest and most ecologically important migrations occurs along the eastern coast of South Africa, the **Sardine Run**. In July, after spawning in the cold waters of the Cape of South Africa millions of sardines migrate north to warmer waters in the KwaZulu-Natal coast

23. merits of insitu

•• Plants and animals conserved in their natural environment
•• Biodiversity permanently protected
•• Natural and cultural heritage protected permanently
•• Ecological integrity is maintained and managed
•• Opportunities may arise for ecologically sustainable land uses (which come with associated economic benefits)
•• Facilitates scientific research of the site

24. why G.E interaction study is necessary.

5MARKS

1. Types of ex situ conservation

• • Gene bank

- • Botanical garden
- **1. Gene Bank**
- Gene bank refers to a place or organization where germplasm can be conserved in living state. Gene banks are also known as germplasm banks.

Types of Seed Bank

Seed Gene Bank

A place where germplasm is conserved in the form of seeds is called seed gene bank. Seeds are very convenient for storage because they occupy smaller space than whole plants.

Field Gene Bank

Field gene banks also called plant gene banks are areas of land in which germplasm collections of growing plants are assembled.

2. Botanical Garden

A botanical garden or botanic garden is a garden dedicated to the collection, cultivation and display of a wide range of plants labeled with their botanical names

2. **Steps of allopatric speciation.**

1. **A geographic change separates members of a population into more than one group.**
2. Different gene mutations occur and build up in the different populations over time.
3. The populations become so different that members of the different populations can no longer breed with each other anymore if were they to be in the same habitat in the same time. If this is the case, allopatric speciation has occurred.

3. **Write two names of pharmaceutical drugs and how they will make. 5 marks**

• Some drugs are especially obtained from animals. Ex. Heparin an anti-coagulant is used to control clots in blood, is obtained from ox lungs and pig intestines

4. **Importance of microbial biotechnology and microbial genomics. 5 marks**

- ***Microbial biotechnology***, enabled by genome studies, will lead to breakthroughs such as improved vaccines and better disease-diagnostic tools, improved ***microbial*** agents for biological control of plant and animal pests, modifications of plant and animal pathogens for reduced virulence, development of new industrial..
- ***Microbial genome*** sequencing is a major tool in present ***microbiology*** to study and characterize the unknown ***microbes***. It is helpful in identifying and comparing the ***microbes*** which cannot be cultured in lab conditions. The study of ***microbial genomes*** helps us to better understand the broader biology of ***bacteria***, and how their genetic composition contributes to their tangible characteristics. The study of ***genomics*** is also ***important*** to infer the evolution of ***bacteria***.

5. **write a note on microbial resources?(5m**

The complexity and diversity of microbial populations is highest among all living organisms. The diversity of microbial communities and their ecologic roles are being explored in;

- • Soil

- • Water
- • Plants
- • In animals

- • In extreme environments such as the arctic deep-sea vents or high saline lakes.

Microorganisms include;

- • Algae, Bacteria (including cyanobacteria), Fungi (including yeasts), Protistan groups, Viruses.

Number & Richness Genetic Resources of Microorganism:

- • Numbers of species described and currently accepted in most groups of microorganisms worldwide are respectively 143,000 & 18,500
- • 120 new species of bacteria and 1,500 new species of fungi are added to science each year
- • This clearly demonstrating that knowledge of these groups is grossly inadequate

6. write the steps of the conservation of PGR. 5m

• Selection of target texa
• • Project commission
• • Eco geographic survey/preliminary survey mission
• • Conservation objectives
• • Filed exploration
• • Conservation strategies
• • Conserved product deposition and dissemination
• • Characterization/ Evaluation
• • PGR utilization
• Utilization products