

D-6941

Sub. Code

35011

DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

First Semester

ANIMAL DIVERSITY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Aristotle.
2. Cladistics.
3. Asymmetry.
4. Obelia colony.
5. Leucosolenia.
6. Acoelomates.
7. Nematode.
8. Larval forms of Echinodermata.
9. Eukaryotic animals.
10. Aves.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Add notes on Binomial nomenclature.

Or

- (b) Give an account on numerical taxonomy and molecular taxonomy.

12. (a) Write notes on identification of sponges using various types of spicules.

Or

- (b) Write short notes on Ascaris and its adaptations.

13. (a) Give an account on roles of coral reefs.

Or

- (b) Illustrate brief notes on migration of birds.

14. (a) Draw neat labeled sketches on water vascular system in echinoderms.

Or

- (b) Explain the general characteristics of Phylum Mollusca.

15. (a) Point out the classification of reptiles.

Or

- (b) Give short notes on flightless birds with examples.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write a detailed essay on species concept and its types.
17. Give an account on general characters, classification and canal structure of the sponges.
18. Write detailed notes on the following :
 - (a) *Obelia* colony with neat diagram
 - (b) Polymorphism in coelenterates.
 - (c) Crustacean larvae.
19. Write an account on harmful and beneficial insects with suitable examples.
20. Write notes on the following :
 - (a) Dinosaurs
 - (b) Shellfishes
 - (c) Characteristics of Amphibians.

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35012

DISTANCE EDUCATION

M.Sc. (ZOOLOGY) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

First Semester

BIOCHEMISTRY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Draw the structure of D-Glucose and L-Glucose.
2. List out at least five essential amino acids.
3. Draw the secondary structure of Protein.
4. Define 'Iso enzyme'.
5. What are the functions of Vitamin A and C?
6. Define beta Oxidation.
7. Explain Gluconeogenesis.
8. What is Transamination Process?
9. Define Hyper Lipoproteinemia.
10. Explain 'Metabolic Disorders'.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Briefly discuss about the structure and functions of polysaccharides.

Or

- (b) Enumerate the different properties of amino acids.

12. (a) Discuss in details about 'Lock and Key Theory of Enzyme'.

Or

- (b) Give a brief account on classification of enzymes and their functions.

13. (a) Write brief notes on Enzyme Inhibitors.

Or

- (b) Write brief notes on :

- (i) Follicle Stimulating Hormone (FSH) and
(ii) Testosterone.

14. (a) Give an account on Glycogen metabolism.

Or

- (b) Give an account on biosynthesis of cholesterol.

15. (a) Give an account on degradation of pyrimidine molecules.

Or

- (b) Write short notes on Type I and Type II Diabetes and their treatments.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Describe a detailed account on the Double helical structure of DNA.
 17. Write brief notes on the following:
 - (a) Michaelis-Menten Equation
 - (b) Line-Weaver and Burk Plot
 - (c) Ketogenesis.
 18. Give a detailed account on Tricarboxylic Acid (TCA) Cycle.
 19. Give an account on various types of Glycogen Storage Diseases.
 20. Write a detailed note on Arthrosclerosis?
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DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

First Semester

CELL AND MOLECULAR BIOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Unit Membrane.
2. Desmosomes.
3. Dictyosome.
4. S-Phase.
5. Nucleases.
6. Ligation.
7. Helicase.
8. Reverse Transcription.
9. Translation.
10. Heterochromatin.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Briefly explain the Organismal Theory of Cell.

Or

- (b) Write an account on Microtubules with neat diagram and its function.

12. (a) Give a short account on Exonuclease and Endonuclease enzymes.

Or

- (b) Briefly discuss about the Fluid Mosaic Model of Plasma membrane.

13. (a) Give a short note on Microsomes with illustration.

Or

- (b) Explain the role of Golgi complex in Acrosome formation during spermatogenesis.

14. (a) Give a brief account on chemical composition of Ribosomes.

Or

- (b) Write short notes on functions of mRNA and tRNA with neat diagrams.

15. (a) Briefly explain the properties of RNA Polymerase I, II and III.

Or

- (b) Give a short account on DNA binding motifs in Prokaryotic and Eukaryotic cells.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write short notes on the following :
 - (a) Polytene chromosome,
 - (b) Nucleosomes,
 - (c) Rough Endoplasmic Reticulum.
17. Explain in details about the process of Meiotic cell cycle with neat diagrams and its significance.
18. Write brief notes on the following :
 - (a) Lysosome,
 - (b) Regulation of transcription.
19. Discuss in detail about the Protein Synthesis with neat diagram.
20. Elaborately discuss about the control of gene expression in prokaryotes.

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DISTANCE EDUCATION
M.Sc. DEGREE EXAMINATION.
MAY 2021 EXAMINATION
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MAY 2020 ARREAR EXAMINATION

Second Semester

Zoology

DEVELOPMENTAL BIOLOGY AND EVOLUTION

(CBCS 2018-2019 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Sertoli cells.
2. Fertilizin.
3. Fate map.
4. Blastopore.
5. Epiboly movement.
6. Amnion.
7. IVF.

8. Define species.
9. Vestigial organs.
10. Homologous organs.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Describe the structure of sperm.

Or

- (b) Write a brief note on egg activation during fertilization.

12. (a) List out and note on the factors affecting cleavage.

Or

- (b) Give a brief note on cell motility during Gastrulation.

13. (a) Describe the fate map of frog.

Or

- (b) Write an account on the concept of primary organizer.

14. (a) What is embryo transfer and add note on its importance?

Or

- (b) Brief note on the factors involved in teratogenesis.

15. (a) Write an account on the Lamarckian theory of evolution.

Or

- (b) Give an account on the biochemical evidence for evolution.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write an essay on the process of oogenesis.
17. Explain different types of morphogenetic movement during Gastrulation.
18. Describe the development brain during embryogenesis.
19. Write an elaborate account on placenta in mammals.
20. Explain the role of isolating mechanism in speciation.

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DISTANCE EDUCATION

M.Sc. (ZOOLOGY) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

Second Semester

GENETICS

(CBCS 2018-19 Academic Year onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the following questions.

1. Comment on Mendelian monohybrid crosses.
2. Comment on polygenetic inheritance.
3. Give some example for epistatic interaction.
4. Comment on Barr bodies.
5. Define Pedigree analysis.
6. What do you mean genotype frequency?
7. What does mean Chromosomal abnormalities?
8. Write the significance of the PHAGE gene expression system.
9. What does mean Apoptosis?
10. Write the significance about Drosophila as a genetic model system.

PART B — (5 × 5 = 25 marks)

Answer ALL the following questions, Choosing either (a) or (b).

11. (a) Write a short note on Simple Mendelian traits in man.

Or

- (b) Define Multiple allele and explain with suitable example.

12. (a) Write a short account on allelic and Non Allelic interactions.

Or

- (b) Comment on linkage and Genetic mapping.

13. (a) Write a short note on chromosomal abnormalities.

Or

- (b) Write a short note on Population genetics and its applications.

14. (a) Write the significance of Twin study and Eugenics.

Or

- (b) Write a short note on prokaryotic gene expression.

15. (a) Compare the morphology and physiological nature of normal and cancerous cells.

Or

- (b) Comment on Drosophila of genes expression.

PART C — (3 × 10 = 30 marks)

Answer any THREE of the following questions.

16. Write a short note on gene interaction: explain with an example of complementary and supplementary and epistatic interactions.
 17. Comment on Sex linked inheritance with a suitable example.
 18. Write a note on various types of mutations and its types.
 19. Write a short note on chromosome abnormalities and its clinical significance with an example.
 20. Write a note on cancer cell regulatory mechanism.
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DISTANCE EDUCATION

M.Sc. (ZOOLOGY) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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Second Semester

MICROBIOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Leewenhoek.
2. John Tyndall.
3. Bright field Microscope.
4. Phase contrast Microscope.
5. Micrometry.
6. Algae.
7. Chlamydias.
8. Protozoa.
9. Pasteurization.
10. Capsule staining.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Write an account on industrial uses of yeast and molds.

Or

- (b) Explain the Haeckel's three- Kingdom concept.

12. (a) Give the difference between Simple and Compound Microscope.

Or

- (b) Describe the Principle and applications of Transmission Electron Microscope.

13. (a) Give a brief account on staining methods.

Or

- (b) Brief note on growth kinetics.

14. (a) Write short note on microalgae.

Or

- (b) Discuss about the general characteristics of protozoa.

15. (a) Give a brief account on microbial diversity.

Or

- (b) Write short note on Ebola virus.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Elaborate the classification of fungi.
 17. Describe about the principle and application of Confocal Microscope.
 18. Give a detailed account on Methods of Sterilization.
 19. Give a detailed account on general characteristics of micro algae.
 20. Describe the pathogenesis of Hepatitis.
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DISTANCE EDUCATION

M.Sc. (ZOOLOGY) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

Third Semester

ANIMAL PHYSIOLOGY

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Active transport.
2. RQ.
3. Fibrinogen.
4. Ammonotelic.
5. Euryhaline.
6. WBC.
7. Synapsis
8. Kymograph.
9. Buoyancy
10. Sarcomeres.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Describe the importance of digestive enzymes.

Or

- (b) Explain how oxygen exchange takes place in the lungs.

12. (a) Explain the process of excretion in humans.

Or

- (b) Describe in details about the respiratory diseases.

13. (a) Explain the functions of blood.

Or

- (b) Explain the following:

- (i) Glomerular Filtration
- (ii) Gastrointestinal Hormones.

14. (a) Define and classify thermoregulation in animals.

Or

- (b) Write short notes on Photopigments.

15. (a) Explain 'Lunar Periodicity' in Reproduction.

Or

- (b) Write a note on hormones involved in metamorphosis of insects.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain a detailed account on transportation of gases in lungs with suitable diagram.
 17. Discuss about the various chemical changes that occur during muscle contraction.
 18. Explain in detail about the process of blood coagulation and various theories.
 19. Draw the internal structure of auditory system. How do we hear?
 20. Give an account of adrenal gland and its various functions.
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DISTANCE EDUCATION

M.Sc. (Zoology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

Third Semester

IMMUNOLOGY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Dendritic cells.
2. Antibody.
3. Paratope.
4. Natural Killer cells.
5. Cell mediated immunity.
6. Memory B cells.
7. Major Histocompatibility complex.
8. Autoimmunity.
9. Graves's disease.
10. Immunosuppression.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, Choosing either (a) or (b).

All questions carry equal marks.

11. (a) Give an account on structure and functions of Primary Lymphoid System.

Or

- (b) Discuss about the structure of antibody and its importance.

12. (a) Write brief notes on innate immunity.

Or

- (b) Write short notes on adaptive immunity.

13. (a) Enumerate brief about 'T Lymphocytes'.

Or

- (b) Illustrate the various immunization schedule.

14. (a) What is Antibody Engineering? Explain its applications in tumor targeting and intracellular Immunization.

Or

- (b) Discuss about the mechanism of Graft rejection.

15. (a) Give an account on Immuno-florescent assay.

Or

- (b) Enumerate functional classification of Cancer associated genes.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write elaborate notes on structure and functions of Secondary Lymphoid Organs.
17. Elaborately discuss the classical pathway of complement system.
18. Give an account on autoimmune disorders.
19. Write a detailed account on four types of hypersensitivity.
20. Give an account on immunological techniques in detection and identification of infectious diseases and warfare agents.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

Third Semester

Zoology

ENVIRONMENTAL BIOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 ×2 =20 marks)

Answer ALL questions.

1. Energy flow
2. Soil Microbes
3. Shelford's law
4. Plankton
5. Lithosphere
6. Mangrove
7. Mortality

8. Climax community
9. Ecotone
10. Pollutants

PART B — (5 × 5 =25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Illustrate the energy flow in an ecosystem with diagram.

Or

- (b) Write notes on Thermal stratification of a lake.

12. (a) Write brief about chemical properties of seawater.

Or

- (b) Explain the economic importance of seaweeds.

13. (a) How does the ozone layer form and why it is important?

Or

- (b) Write notes on the following :

- (i) Sulphur cycle

- (ii) Concept of a population

14. (a) What are the five limiting factors in an ecosystem?

Explain.

Or

- (b) How do you determine the carrying capacity of a population?

15. (a) Explain the process of ecological succession.

Or

(b) Brief the need for conservation of biodiversity hot spots of India.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss elaborately the ecotypes in relation to grassland ecosystem.

17. What are the main types of marine environment? Write brief notes on salt marshes and estuaries.

18. Give a general account on gaseous cycle with reference to Carbon, Oxygen and Nitrogen.

19. Describe in detail about the structure of community in an ecosystem.

20. Give a detailed account on various environmental laws in India.

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DISTANCE EDUCATION

M.Sc.(Zoology) DEGREE EXAMINATION.

MAY 2021 EXAMINATION

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MAY 2020 ARREAR EXAMINATION

Fourth Semester

FISHERIES AND AQUACULTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : 3 hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Masula Boat
2. Indian carps
3. Capture fishery
4. Hermaphroditism in fishes
5. Pre-Stocking management
6. Nursery pond
7. Race way culture

8. Ponderal Index
9. Smoking of fishes
10. Fish Glue

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

All questions carry equal marks.

11. (a) Briefly discuss about the economically important marine invertebrates and their export potential.

Or

- (b) Write a short account on morphometric and meristic characters used for identification of fishes.

12. (a) Give a brief account on spawning and reproduction in fishes.

Or

- (b) Briefly discuss about invasive species of fishes with suitable examples and its impact.

13. (a) Write a short account on culture of Artemia in the laboratory.

Or

- (b) Explain the process of water quality and feed management in a fish pond.

14. (a) Give a brief account on hormonal control of reproduction of fishes.

Or

- (b) Write a short account on any two methods of fish preservation.

15. (a) Explain in detail about the national and international standards.

Or

- (b) Write a brief account on fish breeding techniques.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write elaborate essay on marketing opportunities of fish seeds and freshwater fishes.
17. Give a detailed account on important finfish and shellfish diseases and their control measures.
18. Discuss elaborately the design, structure and construction of aquaculture ponds.
19. Explain the process of different types of live feed culture.
20. Write an essay on quality control in fishery industry.
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DISTANCE EDUCATION
M.Sc. DEGREE EXAMINATION
MAY 2021 EXAMINATION

&

MAY 2020 ARREAR EXAMINATION

Fourth Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

All questions carry equal marks.

1. Recombinant DNA Technology
2. Transgenic animals
3. Bacterial artificial chromosome
4. Gene transfer technology
5. Chimeras
6. Plasminogen activator
7. DNA finger printing

8. RFLP
9. Somatic Gene therapy
10. Knock-out mice

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

All questions carry equal marks.

11. (a) Explain brief notes on (i) Yeast artificial chromosome and (ii) Phagemids.

Or

- (b) How are the retrovirus-mediated gene transfer and expression cloning as powerful tools in functional genomics study?
12. (a) Write notes on (i) Tissue repair (ii) Sonoporation and (iii) Cell preservation.

Or

- (b) Name at least four types of bioreactors and write short notes on any two bioreactors.
13. (a) Write an essay on role of artificial insemination and embryo transfer in domestic animals.

Or

- (b) Write an account on four steps involved in PCR during DNA sequence.
14. (a) What are the differences between Southern, Western and Northern hybridization.

Or

- (b) What is Hematopoietic cell? Write short notes on its functions and malfunctions.

15. (a) How is recombinant DNA used to make a vaccine?

Or

- (b) Write short notes on Social and ethical implications of genetic engineering.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Write brief notes on the following: (a) Mini chromosomes
(b) Plasmid vector (c) Synthetic media.
17. Elaborately discuss about the various applications of transgenic animals.
18. Give an account on potential application of pheromones in monitoring, mating disruption and control of insect pests.
19. Write elaborate notes on techniques used for visualization and characterization of DNA.
20. Briefly discuss about various applications of biotechnology in the field of medicine.

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DISTANCE EDUCATION
M.Sc. DEGREE EXAMINATION
MAY 2021 EXAMINATION
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MAY 2020 ARREAR EXAMINATION

Fourth Semester

Zoology

BIOPHYSICS, BIOSTATISTICS AND BIOINFORMATICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

All questions carry equal marks.

1. Hydrogen bond
2. Polymers
3. UV radiation
4. Excited state
5. FT-NIR
6. Discontinuous variables
7. ANOVA
8. Normal distribution

9. Cheminformatics
10. Phylogeny

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

All questions carry equal marks.

11. (a) Write a detailed account of biomolecules and its properties.

Or

- (b) Give brief notes on (a) bio energetics and (b) Redox potential

12. (a) Write an account on measurement of radio activity.

Or

- (b) Explain the continuous and discontinuous variables.

13. (a) Give a short note on Qualitative variables.

Or

- (b) Write short notes on (i) Mean (ii) Median and (iii) Standard deviation.

14. (a) Give short notes on Chi-square test in biological research.

Or

- (b) Explain in detail about the Pharmaco-informatics.

15. (a) Write a detailed note on next generation sequencing.

Or

- (b) Write a detailed note on CLUSTAL W.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe in detail about the principle and applications of spectroscopy in biomolecule detection.
 17. What are the natural sources of radiation? Explain a detailed account on all three types of radiations.
 18. Briefly discuss about various statistical packages in biological data analysis.
 19. Write brief about the applications of bioinformatics in cancer detection and drug targets.
 20. Draw a schematic diagram of Phylogenetic tree and elaborate its applications.
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