

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Second Semester)

Branch – ZOOLOGY

CHORDATA/ANIMAL DIVERSITY - II

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which class has the largest number of animals?  
(i) Fishes (ii) Reptiles  
(iii) Amphibians (iv) Mammals
- 2 This has a cartilaginous endoskeleton  
(i) Bony fishes (ii) Mollusca  
(iii) Dipnoi (iv) Elasmobranch
- 3 This is not a true amphibian animal  
(i) Toad (ii) Salamander  
(iii) Tortoise (iv) Frog
- 4 The respiratory organ in reptiles is  
(i) gills (ii) epidermis  
(iii) skin (iv) lungs
- 5 It is not a living fossil  
(i) *Sphenodon* (ii) *Peripatus*  
(iii) *Archaeopteryx* (iv) King crab

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a List out the general characteristic features of Prochordata.  
OR  
b Discuss the respiratory system of *Amphioxus*.
- 7 a Bring out the general characters of Pisces.  
OR  
b Analyze the migration in fishes.
- 8 a State the general characteristic features of class Amphibia.  
OR  
b Classify the modern Amphibia up to the level of orders.
- 9 a Outline the biological status of *Sphenodon*.  
OR  
b Explain the general characteristic features of class Reptilia.
- 10 a Write down the adaptation of aquatic mammals.  
OR  
b Summarize the general characters of class Aves.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a Write down the general characters and outline classification of Chordata.

OR

b Describe retrogressive metamorphosis in Ascidian.

12 a Discuss about parental care in fishes.

OR

b Enumerate the accessory respiratory organs in fishes.

13 a Elucidate about the Parental care in Amphibia.

OR

b Explain the pulmonary respiratory system of frog.

14 a Differentiate the Poisonous and non-poisonous snakes of south India.

OR

b Describe the respiratory system of Calotes.

15 a Discuss about migration in birds.

OR

b Elucidate the digestive system of Pigeon with neat sketch.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Second Semester)

Branch – ZOOLOGY

**DEVELOPMENTAL BIOLOGY/ EMBRYOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Amphimixis is the union of
  - (i) Ovum
  - (ii) Cytoplasm
  - (iii) Sperm
  - (iv) Nucleus of sperm and ovum
- 2 The daughter cells formed as a result of cleavage is known as
  - (i) Blastocysts
  - (ii) Blastula
  - (iii) Blastomeres
  - (iv) Blastocoel
- 3 The cavity present in the blastula is called as
  - (i) Coelom
  - (ii) Blastocoel
  - (iii) Sinus
  - (iv) Blastopore
- 4 Which extra embryonic membrane encloses the embryo in a fluid filled cavity?
  - (i) Amnion
  - (ii) Chorion
  - (iii) Alantois
  - (iv) Yolksac
- 5 ZIFT is an acronym for
  - (i) Zygote intra fallopian transfer
  - (ii) Zygote inter fallopian transfer
  - (iii) Zygote internal fallopian transfer
  - (iv) Zygote infusion fallopian transfer

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Write on account on gametogenesis.  
OR  
b Outline the types of eggs.
- 7 a Bring out the importance of gastrulation in frog  
OR  
b State the events that occur during blastulation.
- 8 a Narrate the steps in embryonic induction in Vertebrates.  
OR  
b Organize the structure of an egg.

Cont...

9 a Outline the types of placenta in mammals.

OR

b Give a short note on IVF.

10 a Write an essay on embryonic stem cells.

OR

b What is embryo transfer?.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11 a Enumerate the process of fertilization with neat sketch.

OR

b Analyze the importance of parthenogenesis.

12 a Explain the gastrulation in *Amphioxus*.

OR

b Elucidate the development of brain in frog.

13 a Justify the role of nucleus in animal development.

OR

b Survey the extra embryonic membrane in chick.

14 a Elucidate the structure of an egg in rabbit with neat diagram.

OR

b Examine the importance of sexual cycle.

15 a Discuss the production of chimeric mice.

OR

b Discuss the artificial insemination with reference to manipulation of animal reproduction.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
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BSc DEGREE EXAMINATION MAY 2023  
(Second Semester)

Branch – ZOOLOGY

PLANT BIOLOGY- II

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Miniaturizing and growing of plants in pots  
(i) Terrarium (ii) Water garden  
(iii) Bonsai (iv) Lawn
2. The branch of forestry deals with the timber production.  
(i) Flori Culture (ii) Silvi Culture  
(iii) Dleri Culture (iv) Horti Culture
3. Which of the leaves are commonly used as mosquito repellent?  
(i) Eucalyptus (ii) Digitalis  
(iii) Cassia (iv) Stramonium
4. Who is known as the Father of tissue culture?  
(i) Bonner (ii) Laibach  
(iii) Haberlandt (iv) Gautheret
5. Which of the following is the most common method for citric acid production?  
(i) Solid-state fermentation (ii) Submerged fermentation  
(iii) Surface fermentation (iv) Surface adhesion fermentation

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. How will you prepare a bonsai plant?  
OR  
b. State the advantages of indoor gardening.
- 7 a. Summarize the minor forest products.  
OR  
b. Bring out the economic importance of Teak plant.
- 8 a. Describe the uses of medicinal plants in cosmetics.  
OR  
b. Discover the medicinal uses of *Justistic adhatoda*.
- 9 a. Narrate the totipotency.  
OR  
b. Classify the advantages and disadvantages of artificial seeds.
- 10 a. Describe the factors affecting the citric acid production.  
OR  
b. Explain the production of *Agaricus*.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a. Discuss about the principles of garden designing.  
OR  
b. Highlight the uses of Jasmine and Roses.
- 12 a. Categorize the Indian forest types.  
OR  
b. Highlight the value of social forestry.
- 13 a. Discuss about the active principles of medicinal plants.  
OR  
b. Elucidate the medicinal uses and active principles of *Vitex negundo*.
- 14 a. Enumerate the various methods of sterilization.  
OR  
b. Outline the methods of protoplast isolation.
- 15 a. Summarize the method of alcohol production.  
OR  
b. Highlight the various steps in Penicillin production.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Sixth Semester)

Branch – ZOOLOGY

IMMUNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

1. Lymphocytes causing the graft rejection are found mainly in \_\_\_\_\_.  
(i) Spleen (ii) Lymph nodes  
(iii) Blood (iv) All the above
2. Macrophages in the brain are \_\_\_\_\_.  
(i) Histiocytes (ii) Kupffer cells  
(iii) Microglia (iv) Mononuclear phagocytes
3. Antigenic determinant sites were discovered by \_\_\_\_\_.  
(i) E.A. Kabat (ii) Landsteiner  
(iii) Lindermann (iv) R. Porter
4. The surface of a large antigen on which the antibody will bind is \_\_\_\_\_.  
(i) Active site (ii) antigenic site  
(iii) Epitope (iv) Hapten
5. The histocompatibility between B-cells and T-cells is mainly associated with \_\_\_\_\_.  
(i) Class II loci (ii) Class I loci  
(iii) Class III loci (iv) All the above
6. Delayed type hypersensitivity is associated with which one of the following?  
(i) TD and TH cells (ii) TC cells  
(iii) TH and TS cells (iv) TR cells
7. Anaphylaxis is a \_\_\_\_\_.  
(i) Type I reaction (ii) Type II reaction  
(iii) Type III reaction (iv) Type IV reaction
8. All are included in the expanded programme of immunization except \_\_\_\_\_.  
(i) Cholera (ii) Mumps  
(iii) Rubella (iv) BCG
9. Feather-tip ELISA is useful to detect \_\_\_\_\_.  
(i) Antibodies (ii) Antigens  
(iii) Marek's disease in chicken (iv) Proteins in the feathers
10. The most recent method for screening large synthetic antibody libraries is \_\_\_\_\_.  
(i) ELISA (ii) Phage display  
(iii) Biodisplay (iv) RIA

Cont...

**SECTION - B (35 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

11. a. Compare the primary and secondary Lymphoid organs.  
OR  
b. Illustrate the structure and functions of macrophages.
12. a. Describe about the essential factors for antigenicity.  
OR  
b. Explore the mechanism of Humoral Immune Response.
13. a. Classify the types of Hypersensitivity.  
OR  
b. Discuss the prevention and treatment of tumour.
14. a. Describe the types of graft mechanism.  
OR  
b. Give a brief note on immunoprophylaxis.
15. a. What are the steps involved in gel electrophoresis?  
OR  
b. Explain the principle and application of ELISA.

**SECTION - C (30 Marks)**

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16. Discuss the types of immunity and its factors.
17. What is Ag-Ab Reaction and elucidate the antigen-antibody reaction?
18. Write an account on Rheumatoid Arthritis.
19. Give a detailed account on immunodeficiency diseases.
20. Explain the theories of Antibody Biosynthesis.

Z-Z-Z

END



PSG COLLEGE OF ARTS & SCIENCE  
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BSc DEGREE EXAMINATION MAY 2023  
(Sixth Semester)

Branch – ZOOLOGY

**DISCIPILE SPECIFIC ELECTIVE – II**  
**ORNAMENTAL FISH BREEDING**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- 1 Name the person who keeps an aquarium.  
(i) Scientist (ii) A quarist  
(iii) Aquaculturist (iv) apiary
- 2 Which one of the following is senses the temperature in fish tank?  
(i) Secchi disc (ii) Heater  
(iii) thermostat (iv) filter
- 3 Choose the chemical which is used to wash an aquarium plant.  
(i) chlorine (ii) Potassium solution  
(iii) sodium (iv) pepper
- 4 Which one of the following is the reason for Water hardness?  
(i) Chloride salts (ii) Ferrous  
(iii) Calcium & magnesium salts (iv) chlorine
- 5 Choose the fish which lays egg in bubble nest.  
(i) Gourami (ii) catla  
(iii) cat fish (iv) rohu fish
- 6 Which one of the following is rich in protein?  
(i) Daphnia (ii) cyclops  
(iii) spirulina (iv) Chironomous larva
- 7 Which one of the following is a live feed?  
(i) Artemia (ii) bacteria  
(iii) virus (iv) bacteriophage
- 8 Name the chemical which is added to stop the fungal growth in artificial fish feed.  
(i) chloroform (ii) chromium  
(iii) sodium benzoate (iv) potash
- 9 Choose the parasite which lives inside the fish.  
(i) Endoparasite (ii) Ectoparasite  
(iii) Saprophyte (iv) commensols
- 10 Choose the parasite which causes the disease Dropsy.  
(i) Virus (ii) Bacteria  
(iii) protozoa (iv) Fungi

Cont...

**SECTION - B (35 Marks)**

Answer **ALL** Questions

**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Outline the requirements for an aquarium.  
OR  
b Explain the uses of filter.
- 12 a Bring out the role of pH in fish tank.  
OR  
b Explain the Ornamental plants.
- 13 a Summarise the characteristics of Gourami fish.  
OR  
b Analyze the habits of Barbs.
- 14 a Discuss the principles behind the feed formulation.  
OR  
b Explain the Mass culture of Tubifex worms.
- 15 a Outline the Causative agent, symptoms and control measures of Epizootic ulcerative syndrome.  
OR  
b Narrate the breeding methods of Angel fish.

**SECTION - C (30 Marks)**

Answer any **THREE** Questions

**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Discuss the setting up of an aquarium in your office.
- 17 Explain in detail about the role of dissolved Oxygen in fish tanks.
- 18 Discuss the habitat and breeding habits of Gold fish.
- 19 Discuss in detail about the culture of Artemia.
- 20 Outline the packing and transportation of live fish.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Sixth Semester)

Branch – ZOOLOGY

ENVIRONMENTAL BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- 1 \_\_\_\_\_ is the mature soil that lies immediately over the parent rock.  
(i) Secondary soil (ii) Residual soil  
(iii) Zonal soil (iv) Hydromorphic soil
- 2 Hard water contain soluble salts of \_\_\_\_\_ and magnesium.  
(i) Calcium (ii) Lead  
(iii) Mercury (iv) Nitrogen
- 3 The relationship between sea-anemone and hermit crab exhibits \_\_\_\_\_.  
(i) Mutualism (ii) Commensalism  
(iii) Parasitism (iv) Antibiosis
- 4 Who proposed the term 'ecosystem'?  
(i) Ernst Haeckel (ii) Charles Elton  
(iii) A.G. Tansley (iv) Clarke
- 5 In the sea, \_\_\_\_\_ is the zone of shallow water extending up to the depth of 200 metres.  
(i) Oceanic Zone (ii) Abyssal zone  
(iii) Aphotic Zone (iv) Neritic Zone
- 6 \_\_\_\_\_ is the place where a river meets the sea.  
(i) An estuary (ii) Lake  
(iii) Pond (iv) Lagoon
- 7 \_\_\_\_\_ rate of population refers to number of individuals dieing per unit of time.  
(i) Mortality (ii) Natality  
(iii) Density (iv) Age
- 8 Which of the following is responsible for the Bhopal tragedy?  
(i) Nitrogen oxide (ii) Mercury  
(iii) Lead (iv) Methyl Isocyanate
- 9 Manas sanctuary is located in:  
(i) Assam (ii) Kashmir  
(iii) West Bengal (iv) Gujarat
- 10 Point Calimere sanctuary is situated in \_\_\_\_\_ district of Tamil Nadu.  
(i) Coimbatore (ii) Thanjavur  
(iii) Tirunelveli (iv) Madurai

Cont...

**SECTION - B (35 Marks)**

Answer **ALL** Questions

**ALL** Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a What are the effects of photoperiodism on animals and plants?  
OR  
b What are stenohaline and euryhaline animals? – explain it with examples.
- 12 a Write short note on food web with suitable example.  
OR  
b Describe the pyramid of energy.
- 13 a Give an account on the various zones of the ocean.  
OR  
b Write a note on cave adaptations.
- 14 a Discuss the age structure in different types of population.  
OR  
b Noise pollution – write in detail.
- 15 a What do you mean by ‘means of dispersal’? Explain.  
OR  
b Comment on Wallace’s line of zoogeographical regions of faunal distribution.

**SECTION - C (30 Marks)**

Answer any **THREE** Questions

**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Discuss ‘temperature’ as an environmental factor.
- 17 What is an ecosystem? Explain the various components of an ecosystem with suitable examples.
- 18 Discuss the pond as a freshwater habitat.
- 19 Write an essay on the water pollution.
- 20 Explain in detail about the wildlife conservation.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Sixth Semester)

Branch – ZOOLOGY

BIOCHEMISTRY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

1. Choose the major function of Carbohydrate  
(i) Storage  
(ii) Structural framework  
(iii) Both storage and Structural framework  
(iv) Transport materials
2. Identify the acid with reducing property  
(i) Mucic acid  
(ii) Glucaric acid  
(iii) Gluconic acid  
(iv) Glucuronic acid
3. Which of the following express the number of OH groups in fats?  
(i) Reichert- Meissl number  
(ii) Polanske number  
(iii) Iodine number  
(iv) Acetyl number
4. State the correct answer that if the solution has to be a buffer, its pH should be -----.  
(i) its pKa value  
(ii) its Ka value  
(iii) at 7  
(iv) at 14
5. Find the number of amino acids that make up a protein?  
(i) 10  
(ii) 20  
(iii) 30  
(iv) 50
6. Mention the nature of Coenzyme  
(i) often a metal  
(ii) always a protein  
(iii) often a vitamin  
(iv) always an inorganic compound
7. Label ATP as a -----.  
(i) Vitamin  
(ii) Nucleic acid  
(iii) Nucleoside  
(iv) Nucleotide
8. What is the type of stationary phase is used in Thin layer Chromatography?  
(i) Solid or Liquid  
(ii) Liquid or Gas  
(iii) Solid only  
(iv) Liquid only
9. Indicate the Net gain of ATP during conversion of Glucose to Pyruvate  
(i) 1 ATP+1GTP  
(ii) 2 ATP  
(iii) 4ATP  
(iv) 6 ATP
10. Where does TCA cycle occurs in Prokaryotes ?  
(i) Mitochondrial matrix  
(ii) Cytosol  
(iii) Nucleus  
(iv) Ribosomes

Cont...

**SECTION - B (35 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 7 = 35)

11. a. Analyze the structure, occurrence and properties of Lactose.  
OR  
b. Show the classification of Polysaccharides with examples.
12. a. Narrate the properties and biological functions of Fatty acids.  
OR  
b. Explain the structure and biological significance of Water.
13. a. Describe the hydrolysis and denaturation of proteins.  
OR  
b. Bring out the factors that affect enzyme reactions.
14. a. Outline the Classification of Nucleic acid with their significance.  
OR  
b. Summarize the principle and applications of Colorimeter.
15. a. Sketch the  $\beta$ - oxidation of fatty acids.  
OR  
b. Summarize the reactions of Urea cycle.

**SECTION - C (30 Marks)**

Answer any THREE Questions

ALL Questions Carry EQUAL Marks

(3 x 10 = 30)

16. Discuss the reactions of monosaccharides with acids, alkalies and formation of Osazone.
17. Survey the biological buffers and their significances.
18. Distinguish the structure of Proteins.
19. Elucidate the Watson and Crick's double helical structure of DNA.
20. Summarize the reactions and energetics of TCA cycle.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Third Semester)

Branch – ZOOLOGY

GENETICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

1. In case of incomplete dominance monohybrid F1 \_\_\_\_\_ is 1:2:1.  
i) Genotype ii) Phenotype  
iii) Both genotype and phenotype iv) The ratio is wrong.
2. When two or more nonallelic gene pairs affect the same character in the same way, it is called  
i) pleiotropy ii) polygenic inheritance  
iii) additive expressivity iv) total penetrance.
3. Crossing over more frequent in  
i) Males ii) Females iii) both iv) None of these.
4. How many autosomes are present in a human being?  
i) 20 pairs ii) 22 pairs iii) 23 pairs iv) 44 pairs.
5. Which of the following is a type of autosomal recessive genetic disorder?  
i) Haemophilia ii) Skeletal dysplasia  
iii) Sickle cell anaemia iv) None of the above.

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

6. a) Write a brief note on Law of independent assortment.  
OR  
b) Describe the inheritance of flower colour in *mirabilis*.
7. a) What are complementary genes? Explain the inheritance of Pericarp colour in Barley.  
OR  
b) Give a brief account of Rh blood group.
8. a) Briefly explain the coupling and Repulsion.  
OR  
b) Explain the sex linked inheritance with reference to inheritance of colour blindness.
9. a) Comment on polyploidy.  
OR  
b) Discuss about the Barr body.
10. A) Write short notes on out breeding.  
OR  
b) Point out the significance of Hardy Weinberg Law.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

11. a) Explain the law of segregation.

OR

b) What is Co-dominance? Explain the inheritance of coat colour in short horn cattle.

12. a) Write a detailed account of supplementary gene with reference to inheritance of coat colour in Mice.

OR

b) Discuss the multiple alleles with reference to ABO blood group.

13. a) Write a brief note on linkage in Drosophila.

OR

b) Discuss about the cytological evidences for crossing over.

14. a) Give an account of Numerical chromosomal abnormalities.

OR

b) Describe the Turner's syndrome.

15. a) Discuss about the types of inborn errors of metabolism.

OR

b) Write an account of merits and demerits of inbreeding.

Z-Z-Z

END



PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Third Semester)

Branch – ZOOLOGY

SERICULTURE

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Name the technique of joining the parts of two plants in such a way that unite and grow as one plant.  
(i) Cutting (ii) Layering  
(iii) Grafting (iv) All the above
2. Find the causative agent of Violet root rot disease.  
(i) *Fusarium oxysporum* (ii) *Fusarium pallidosorum*  
(iii) *Rosellinia necatrix* (iv) *Helicobasidium mompa*
3. Mention the layer of silk gland that sheds at each moult in silkworm.  
(i) tunica propria (ii) glandular layer  
(iii) tunica intima (iv) peritreme
4. Define the terminology for transferring of newly hatched larvae from incubation tray to the rearing tray.  
(i) Bed cleaning (ii) Spacing  
(iii) Brushing (iv) Mounting
5. Indicate the definition for number of kilograms of cocoons required to obtain 1 kilogram of reeled silk.  
(i) Denier (ii) Renditta  
(iii) Shell ratio (iv) Reelability

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. a) Bring out the importance of sericulture.  
OR  
b) Classify the mulberry varieties.
7. a) Explain the deficiency diseases caused by Nitrogen.  
OR  
b) Narrate the causative organism and symptoms of Tukra disease.
8. a) Describe the morphology of silkworm egg.  
OR  
b) Analyze the structure of silk glands in silkworm.

Cont...

9. a) Compare the methods of incubation of silkworm eggs.  
OR  
b) State the methods of late age silkworm rearing.
10. a) Bring out the details of cocoon marketing.  
OR  
b) Calculate the by-products of sericulture.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. a) Classify the species of silkworm.  
OR  
b) Categorize the methods of planting in mulberry.
12. a) Discuss the causative organism, symptoms and control measures of root rot diseases of mulberry.  
OR  
b) Justify the deficiency diseases caused by Potassium and Phosphorus.
13. a) Elucidate the structure of *Bombyx mori* larva with a neat diagram.  
OR  
b) Point out the life cycle of silkworm.
14. a) Analyze the CSB model rearing house.  
OR  
b) Enumerate the methods of young age silkworm rearing.
15. a) Identify the symptoms and control measures of Pebrine disease in silkworm.  
OR  
b) Highlight the life cycle of Uzi fly.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Third Semester)

Branch – ZOOLOGY

CHEMISTRY - I

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 The oxidation number of free calcium is \_\_\_\_\_.  
(i) zero (ii) one  
(iii) three (iv) four
- 2 A terpenoid used in the manufacture of celluloid and also as a moth repellent is  
(i) Menthol (ii) Citral  
(iii) Camphor (iv) Geraniol
- 3 The principle involved in paper chromatography is  
(i) adsorption (ii) partition  
(iii) solubility (iv) volatility
- 4 The reaction rate constant can be defined as the rate of reaction when each reactant's concentration is  
(i) unity (ii) doubled the initial concentration  
(iii) zero (iv) infinite
- 5 Increased levels of air pollution result in \_\_\_\_\_.  
(i) soil erosion (ii) global warming  
(iii) respiratory problems (iv) all of the above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a State the Pauli exclusion principle.  
OR  
b Classify the following species as oxidizing and reducing agents:  
i)  $Fe^{2+}$  ii)  $Cl^-$  iii)  $S^{2-}$
- 7 a Bring out the Huckel's rule.  
OR  
b State the isoprene rule.
- 8 a Apply sublimation method of purification of liquids.  
OR  
b Explain the mass percentage and volume percentage.
- 9 a Describe the pseudo unimolecular reactions with example.  
OR  
b Narrate the catalytic poisoning and catalytic promoters.
- 10 a Show the various effects of acid rain.  
OR  
b Summarize the sources of soil pollution.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Explain the Arrhenius, Bronsted-Lowery and Lewis concepts with examples.  
OR  
b Calculate the oxidation number of the atom underlined in the following.  
i)  $\underline{\text{C}}\text{IO}_3^-$  ii)  $\underline{\text{Cr}}_2\text{O}_7^{2-}$  iii)  $\text{Na}_2\underline{\text{S}}_2\text{O}_3$  iv)  $\underline{\text{C}}_6\text{H}_{12}\text{O}_6$  v)  $\text{K}_4[\underline{\text{Fe}}(\text{CN})_6]$  vi)  $\underline{\text{O}}\text{F}_2$
- 12 a Discuss the preparation and properties of nicotine.  
OR  
b Summarize the preparation and uses of Teflon and Terylene.
- 13 a Outline the fractional distillation.  
OR  
b Highlight the principles of thin layer chromatography.
- 14 a Derive the rate constant for first order reaction.  
OR  
b Discuss the mechanism of enzyme catalysis.
- 15 a Elucidate the primary, secondary and tertiary methods of water treatment.  
OR  
b Discuss the contamination of foods with toxic chemicals and pesticides.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)

Branch – ZOOLOGY

MICROBIOLOGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Who is a father of microbiology?
 

(i) Antani Van Leeuwenhoek	(ii) Edward Jenner
(iii) Louis pasteur	(iv) Robert Koch.
  
- 2 The rod shaped bacteria are called.
 

(i) Coccus	(ii) Spirillum
(iii) Bacilli	(iv) Vibrio.
  
- 3 Autoclave is an electrical apparatus used for.
 

(i) Incubation	(ii) Inoculation
(iii) Sterilization	(iv) Culture medium
  
- 4 \_\_\_\_\_ are neither prokaryotes nor eukaryotes.
 

(i) Bacteria	(ii) Virus
(iii) Fungi	(iv) Protozoa.
  
- 5 Diptheria is caused by gram positive Nocardioform bacteria, \_\_\_\_\_.
 

(i) <i>Vobrio cholerae</i>	(ii) <i>Corynybactreium diphtheriae</i>
(iii) <i>shigellae dysenteriae</i>	(iv) <i>Salmonella typhi</i> .

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 (a) Analyze the contribution of Edward Jenner to microbiology.  
OR  
(b) Briefly explain the structure of bacterial cell wall.
  
- 7 (a) Summarize the significance of *Salmonella typhi*.  
OR  
(b) Sketch the Binary fission of Bacteria.
  
- 8 (a) How can you sterilize the glassware by Dry heat method?  
OR  
(b) Describe the inoculation and Incubation in Bacterial culture method.

Cont...

- 9 (a) Describe the Icosahedral shape of Virus.  
OR  
(b) Summarize about the interferon.
- 10 (a) Describe the causative organism and symptoms of hepatitis.  
OR  
(b) Explain the causative organism, mode of transmission and symptoms of Diphtheria.

**SECTION -C (30 Marks)**

Answer ALL questions  
ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 (a) Analyze the contribution of Robert Koch and Louis Pasteur to microbiology.  
OR  
(b) Discuss about the general structure of Bacteria.
- 12 (a) Write about the significance of *Mycobacterium* and *Vibrio cholera*.  
OR  
(b) Summarize the Batch culture and Continuous culture of Bacteria.
- 13 (a) Classify the types of culture medium.  
OR  
(b) Elucidate the pure culture method of Bacteria.
- 14 (a) Point out the general characters of Viruses.  
OR  
(b) Distinguish the lytic cycle and lysogenic cycle.
- 15 (a) Discuss about the causative organism, mode of transmission, symptoms and control measures of Measles.  
OR  
(b) Elucidate the causative organism, mode of transmission, symptoms and control measures of chicken box.

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)

Branch – ZOOLOGY

EVOLUTION

Time: Three Hours

Maximum: 50 Marks

SECTION-A

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 The first experiment regarding the evolution of life was performed by \_\_\_\_  
(i) Watson and Crick (ii) Oparin and Haldane  
(iii) Urey and Miller (iv) Meselson and Slant
- 2 Reproduction can occur within members of a \_\_\_\_  
(i) Genus (ii) Species  
(iii) Family (iv) Order
- 3 When the new species formation occurs is called as \_\_\_\_  
(i) Speciation (ii) Isolation  
(iii) Evolution (iv) Genetic drift
- 4 Which food habit of Darwin's finches lead to the development of many other varieties?  
(i) Fruit eater (ii) Cactus eater  
(iii) Insect eater (iv) Seed eater
- 5 The last common ancestor of human is \_\_\_\_  
(i) Pan troglodytes (ii) Homo neanderthalensis  
(iii) Lemuroidea (iv) Dromaesaurus

SECTION - B

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a. Discuss the Redi's experiment.  
OR  
b. Infer the analogous structures in animal.
- 7 a. List out the salient features of Lamarckism.  
OR  
b. Discuss the struggle for existence in Darwinism.
- 8 a. State about the mechanism of speciation  
OR  
b. Classify the types of variations.

Cont...

- 9 a. Distinguish the adaptive convergence and Adaptive divergence.  
**OR**  
b. Analyse the convergent evolution in marsupials and placental mammals.
- 10 a. What are causes for human evolution?  
**OR**  
b. Explain the evolutionary trends obtained in horse evolution.

**SECTION -C**

Answer **ALL** questions  
**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

- 11 a. Discuss the Urey muller Experiment for the evidences of origin of life.  
**OR**  
b. Describe in detail about biochemical origin of life.
- 12 a. What is neo-darwinism? Explain the experimental support for neo-darwinism.  
**OR**  
b. Analyse the Darwin's finches and their significance.
- 13 a. Discuss in detail about the sources of variation.  
**OR**  
b. Classify the allopatric speciation and sympatric speciation.
- 14 a. What are the causes of adaptive radiation and explain types of adaptive radiation.  
**OR**  
b. Determine the parallel evolution with suitable example.
- 15 a. Discuss the cultural evolution of man.  
**OR**  
b. Point out the stages of horse evolution and explain the evolution of equus.

Z-Z-Z

END



PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2023  
(Fourth Semester)

Branch – ZOOLOGY

CHEMISTRY - II

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (5 x 1 = 5)

- 1 Which of the following statements about coordination compounds' bonding concept is incorrect?  
(i) Crystal Field Theory (ii) VSEPR Theory  
(iii) Valence Bond Theory (iv) Molecular Orbital Theory
- 2 Mention the main structural feature of protein  
(i) Ester linkage (ii) Peptide linkage  
(iii) Ether linkage (iv) All of these
- 3 Which of the following is an example of basic dye?  
(i) Alizarin (ii) Malachite green  
(iii) Indigo (iv) Orange I
- 4 Identify the statement that is not correct for Kohlrausch's law  
(i) The law is valid at infinite dilution  
(ii) The law is valid for weak electrolytes only  
(iii) The basis of law is the independent migration of ions  
(iv) None of these
- 5 Find the non-toxic and green solvent.  
(i) Liquified carbon dioxide (ii) Benzene  
(iii) Carbon tetrachloride (iv) Toluene

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 3 = 15)

- 6 a Describe about coordination compounds and ligands.  
OR  
b Outline the triple superphosphate, manufacture.
- 7 a Describe what is a heterocyclic compound? Classify it.  
OR  
b How will you prepare furan and thiophene?
- 8 a How will you prepare alizarin dye?  
OR  
b Describe the concept of chromophores and auxochromes.

- 9 a Explain what is quantum yield?  
OR  
b Narrate about the buffer solutions.
- 10 a Describe the role of sulphur proteins in biological systems.  
OR  
b Narrate about Fluoride toxicity.

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 a Infer the "EAN rule" in coordination chemistry. Point out its applications.  
OR  
b Discuss Werner's theory in detail.
- 12 a What are zwitter ions? Outline the preparation of glycine.  
OR  
b Discuss the structures of proteins in detail.
- 13 a Classify the dyes based on their chemical structure.  
OR  
b Elucidate the preparation of Malachite green and Phenolphthalein dyes.
- 14 a Analyze the fluorescence and phosphorescence using Jablonski diagram.  
OR  
b Summarise Kohlrausch's Law and mention its applications.
- 15 a Discuss the role of essential and trace elements in biological systems.  
OR  
b Describe the scope of green chemistry.

Z-Z-Z

END