

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch – ZOOLOGY

ANIMAL PHYLOGENY AND PALEONTOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who had said, the eleven hundred million years of archaean era there was no life. Hence the first part of archaean era is called Azoic era (a) Thomas Huxley (b) W.F. Libby (c) George Curvier (d) None of them	K1	CO1
	2	Name the earliest protists were probably amoeboid forms capturing food particles by (a) Phagocytosis (b) Encapsulation (c) Pinocytosis (d) Volutocytosis	K2	CO1
2	3	Show correct statements in case of the Rotifers. (a) They do have the ciliated corona on their head. (b) They have five simple eyes that are light-sensitive and often are red. (c) They are sensitivity to light permits some species to be photostatic. (d) All of the above	K1	CO2
	4	Which one of the following is known as "Arrow worms," "Glass worms," and also "Tigers of the zooplankton." (a) Ectopoda (b) Endopoda (c) Chaetognaths (d) Nemertea	K2	CO2
3	5	Recall the period evolutionary biologists, agree that a group of amphibian like tetrapods the Labyrinthodonts, (a) Devonian (b) Carboniferous (c) Precambrian (d) Cambrian	K1	CO3
	6	Choose a Wrong statement from the followings with regards to Osteolepis. (a) It was a lobed-finned fish belonging to Crossopterygii (b) It lived about 375 mys of ago and breathed with gills as well as lungs (c) Its Fins had not bony elements homologous to digits of tetrapod limbs (d) It was fishes of Devonian period with lobed fins having bones pattern of a tetrapod limb	K2	CO3
4	7	Demonstrate one of the slowest rates of evolution known among the reptiles as it has not changed greatly from species that were living 150 million years ago. (a) Squamata (b) Lepidosauria (c) Sphehodonta (d) Amphisbaenia	K1	CO4

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4	8	Label fossil man discovered in India. He is recognised as the next in line in the evolution of man. He is believed to have lived about 10 to 15 million years ago (a) Australopithecus (b) Loxodonta (c) Hominidae (d) Ramapithecus	K2	CO4
5	9	When was the first Public Indian Museum in Calcutta was opened? (a) 1814 (b) 1818 (c) 1914 (d) 1918	K1	CO5
	10	Tell components of Great Museum Exhibit Design (a) The Emotional Component. (b) The Intellectual Component. (c) The Physical Component. (d) All of them	K2	CO5

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain conceptual features of Precambrian period.	K2	CO1
		(OR)		
	11.b.	Compare the Fluorine and Nitrogen dating for determination of age of the fossils.		
2	12.a.	Develop the Phoronida- Affinities with Hemichordates.	K3	CO2
		(OR)		
	12.b.	Construct the evolutionary modification of Radula in vegetarian Snail.		
3	13.a.	Build the evolutionary aspect of the first fish appeared on Earth.	K3	CO3
		(OR)		
	13.b.	Organize the changes at anatomical level during transformation from Fishes to Amphibia.		
4	14.a.	Discover the concept of Thomas Huxley theory about the 'birds are dinosaurs'.	K4	CO4
		(OR)		
	14.b.	Examine Theories of Bipedalism.		
5	15.a.	Categorize major functions of the Museum.	K4	CO5
		(OR)		
	15.b.	Analyze Key skills for a Museum curators.		

SECTION - C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Construct the significance of Tertiary period.	K3	CO1
2	17	Examine how Cheatognatha is a separate Phylum by itself?	K4	CO2
3	18	Birds show monophyletic origin in their evolution. Develop evolutionary evidences.	K3	CO3
4	19	Dissect distribution and hypothetical phylogenetic tree of taxa leading to fossil hominids.	K4	CO4
5	20	Appraise how the exhibits are arranged on the basis of their functional aspect in a Museum?	K5	CO5

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch – ZOOLOGY

MOLECULAR GENETICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	DNA is composed of which of the following nitrogenous bases? A. Adenine, Cytosine, Guanine, Thymine B. Adenine, Cytosine, Guanine, Uracil C. Adenine, Uracil, Guanine, Thymine D. Cytosine, Uracil, Adenine, Thymine	K1	CO1
	2	DNA replication occurs during which phase of the cell cycle? A. G1 phase B. S phase C. G2 phase D. M phase	K2	CO1
2	3	What is the term for the smallest unit of recombination in a gene? A. Muton B. Recon C. Intron D. Promoter	K1	CO2
	4	The process of synthesizing a protein from mRNA is called: A. Transcription B. Replication C. Translation D. Splicing	K2	CO2
3	5	How many nucleotides make up a codon in the genetic code? A. One B. Two C. Three D. Four	K1	CO3
	6	In prokaryotes, transcription occurs in which part of the cell? A. Nucleus B. Mitochondria C. Cytoplasm D. Endoplasmic reticulum	K2	CO3
4	7	How many major loops in t RNA module? A. One B. Two C. Three D. Four	K1	CO4
	8	The operon model of gene regulation was first proposed by A. Francis Crick B. Jacob and Monod C. Watson and Crick D. Beadle and Tatum	K2	CO4
5	9	A mutation that involves the substitution of one nucleotide for another is known as: A. Deletion B. Insertion C. Point mutation D. Frameshift mutation	K1	CO5
	10	Which of the following dye is known to cause mutations by intercalating between DNA bases? A. Methylene blue B. Ethidium bromide C. Acridine orange D. Safranin	K2	CO5

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SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Summarize the semiconservative DNA replication.	K2	CO1
	(OR)			
	11.b.	Briefly explain the Meselson and Stahl's experiments.		
2	12.a.	Analyze the fine structure of gene.	K4	CO2
	(OR)			
	12.b.	List out the applications of overlapping gene.		
3	13.a.	Interpret the genetic code.	K5	CO3
	(OR)			
	13.b.	Highlight the importance of RNA splicing.		
4	14.a.	Evaluate the significance of the Lac Operon model.	K5	CO4
	(OR)			
	14.b.	Discuss the activation of amino acids in Protein synthesis.		
5	15.a.	Illustrate the types of chemical mutagens.	K3	CO5
	(OR)			
	15.b.	Elucidate the mechanism of Radiation induced mutation.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Demonstrate the structure of DNA with neat diagram.	K2	CO1
2	17	Narrate the mechanism of DNA repair.	K2	CO2
3	18	Discuss in detail about Transcription in Prokaryotes.	K6	CO3
4	19	Analyze the structure of tRNA.	K4	CO4
5	20	Interpret the various types of mutations.	K5	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch - ZOOLOGY

FISHERY BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which of the following has a cartilaginous endoskeleton? (a) Bony fishes (b) Mollusca (c) Dipnoi (d) Elasmobranch	K1	CO1
	2	This fish shows dorsal fin modified into suckers. (a) Neoceratodus (b) Hippocampus (c) Echeneis (d) Torpedo	K2	CO1
2	3	The migratory fish is a _____ (a) Ribbon fish (b) Carp (c) Salmon (d) Shark	K1	CO2
	4	Management and rearing of fishes only is called as ____ a) Aquaculture b) Pisciculture c) Apiculture d) Fishery	K2	CO2
3	5	Which is the most common measure of reproductive potential in fishes? a) Fecundity b) Reproductive effort c) Ovulation d) Fertility	K1	CO3
	6	Which estuarine system of the Indian coast is one of the largest estuarine system in the country covering a major portion of the gangetic delta? a) Hooghly- Matlah b) Mahanadi c) Narmada d) Peninsular	K2	CO3
4	7	The most efficient method for catching demersal fish is a) bottom trawl b) gill netting c) midwater trawl d) long line	K1	CO4
	8	What type of net used for Bombay duck in Gujarat is called _____. a) gill net b) Dol net c) trammel d) trawl	K2	CO4
5	9	Trammel net is a a) drift gill net b) bottom set gill net c) multiple layer gill net d) single layer gill net	K1	CO5
	10	In large reservoir which gear is widely used to capture carps and catfishes? a) drag net b) cast net c) gill net d) bag net	K2	CO5

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SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the classification of fishes.	K2	CO1
		(OR)		
	11.b.	Identify the salient features of Catla.		
2	12.a.	Discuss the Factors influencing Growth conditions of fishes.	K3	CO2
		(OR)		
	12.b.	Explore the types of fish tagging methods.		
3	13.a.	List out the importance of fishery zones in India.	K4	CO3
		(OR)		
	13.b.	Enumerate the importance of the Inland capture fisheries of India.		
4	14.a.	Describe the Acoustic survey method in fisheries.	K4	CO4
		(OR)		
	14.b.	How to do survey of egg, larvae of fisheries in India? Discuss.		
5	15.a.	Analyse the Modern gears used in fisheries.	K3	CO5
		(OR)		
	15.b.	Explain Fish preservation and processing in fishery.		

SECTION - C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the Respiratory system of fishes.	K4	CO1
2	17	Categorize the types of Fish migration and its significance.	K4	CO2
3	18	Enumerate the Present status and scope of fisheries in India.	K5	CO3
4	19	Write an essay on fishery resources.	K5	CO4
5	20	Discuss the types of crafts used in India.	K6	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION DECEMBER 2024
(First Semester)
Branch – ZOOLOGY

ECOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Ques No.	Question	K Level	CO
1	1	Choose the name given to the soil components of earth. a.atmosphere b.lithosphere c.hydrosphere d. biosphere	K1	CO1
	2	Transfer of energy from one tropic level to another tropic level is _____ a.tropic level b.food chain c.energy flow d.food web	K2	CO1
2	3	A sum total of plants, animals and microbes living in a particular area. a.population b.community c.species d.genus	K1	CO2
	4	What is Natality? a. Death rate b. Birth rate c. mortality d. density	K2	CO2
3	5	When the total number of individuals that can be supported in an area at a particular time is ----. a.density b. carrying capacity c.mortality d.dispersal	K1	CO3
	6	Which one of the following helps to understand the spatial distribution patterns and resource allocation? a.Natality b. death rate c.Density indices d.none	K2	CO3
4	7	Name of the branch that deals with the study of rocks, their origin, composition and structure. a.limnology b.petrology c.virology d.all the above	K1	CO4
	8	What is the name given to the cycling of carbon between biotic and abiotic factors? a.nitrogen cycle b.carbon cycle c.sulphur cycle d.oxygen cycle	K2	CO4
5	9	When will be the wild life week celebrated? a. January b.october c.december d.may	K1	CO5
	10	Relate red data book with the following. a.wild life b.domestic animal c.endangered animals d.all the above	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss the layers of atmosphere.	K3	CO1
		(OR)		
	11.b.	Highlight the ecological pyramids.		
2	12.a.	Explain the types of ecological succession.	K3	CO2
		(OR)		
	12.b.	Identify the Keystone species in ecosystem.		
3	13.a.	Explain the types of Growth curve.	K4	CO3
		(OR)		
	13.b.	Distinguish Mortality and Natality.		
4	14.a.	Enumerate the applications of GIS in oceanography.	K4	CO4
		(OR)		
	14.b.	Examine the mining and its applications.		
5	15.a.	Explain the importance of Social forestry.	K5	CO5
		(OR)		
	15.b.	Evaluate the methods of biodiversity conservation.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the Primary productivity and its measurement.	K4	CO1
2	17	Examine the competition and its type.	K4	CO1
3	18	Narrate the factors affecting population growth.	K4	CO1
4	19	Explain the Nitrogen cycle.	K5	CO5
5	20	Interpret advantages of rain water harvesting.	K5	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch - ZOOLOGY

ANIMAL PHYSIOLOGY AND BIOCHEMISTRY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	What is collagen? a) Fat b) Protein c) Carbohydrate d) None of the above	K1	CO1
	2	Which of the following has the thickest wall? a) Right ventricle b) Left ventricle c) Right atrium d) Left atrium	K2	CO1
2	3	This pressure facilitates filtration while urine is being formed. (a) filtrate hydrostatic pressure (b) osmotic blood pressure (c) capillary hydrostatic pressure (d) all of these	K1	CO2
	4	The total number of orifices for outgoing and incoming of urine through the bladder is (a) 2 (b) 3 (c) 4 (d) 5	K2	CO2
3	5	Which of the following structure of a synapse has the neurotransmitter? (a) Schwan cells (b) Synaptic cleft (c) Synaptic knobs (d) Synaptic vesicles	K1	CO3
	6	The synaptic vesicles a neuromuscular junction discharges _____. (a) adrenaline (b) epinephrine (c) acetylcholine (d) none of the above	K2	CO3
4	7	Which of the following is an example of epimers? a) Mannose & Glucose b) Glucose & Ribose c) Galactose & Mannose d) Glucose & Galactose	K1	CO4
	8	Which of the following are important for white blood cell recognition? a) Glycoproteins b) Glycosaminoglycans c) Glycolipids d) Proteoglycans	K2	CO4
5	9	The nature of an enzyme is (a) Lipid (b) Vitamin (c) Carbohydrate (d) Protein	K1	CO5
	10	This enzyme was first isolated and purified in the form of crystals. (a) Urease (b) pepsin (c) Amylase (d) Ribonuclease	K2	CO5

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SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Write notes on components of blood.	K3	CO1
	(OR)			
	11.b.	State the role of respiratory pigments.		
2	12.a.	Describe about the urine formation process.	K4	CO2
	(OR)			
	12.b.	Narrate the structure of nephron.		
3	13.a.	Explain about the nerve impulse.	K4	CO2
	(OR)			
	13.b.	Expound the ultra structure of muscle.		
4	14.a.	Summarize the properties of carbohydrates.	K3	CO2
	(OR)			
	14.b.	List out the features of proteins.		
5	15.a.	Discuss the biological importance of enzymes.	K4	CO2
	(OR)			
	15.b.	Write an account on co enzymes.		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Elucidate the ECG and its medical uses.	K4	CO1
2	17	Trace out the function and types of Pheromones.	K4	CO2
3	18	Write an essay on Physiology of vision.	K5	CO3
4	19	Give an account on classification of carbohydrates.	K6	CO4
5	20	Explain about the types of enzymes.	K4	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch – ZOOLOGY

MICROBIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which microorganism(s) among the following perform photosynthesis by utilizing light? a) Cyanobacteria, Fungi and Viruses b) Viruses c) Cyanobacteria d) Fungi	K1	CO1
	2	The respiratory chain of bacteria is associated with the _____ a) cytoplasmic membrane b) cell wall c) cytoplasm d) mitochondrial membrane	K2	CO1
2	3	Which of the following is the characteristic of good quality milk? a) CFU<1000000 per ml b) CFU>1000000 per ml c) CFU=1000000 per ml d) CFU>1500000 per ml	K1	CO2
	4	Coliform bacteria leads to _____ a) Off-flavor and smell b) Gas formation c) Off-flavor, smell and gas formation d) Fruity taste	K2	CO2
3	5	Causative agent of leprosy a) <i>Mycobacterium leprae</i> b) <i>Salmonella typhi</i> c) <i>Mycobacterium tuberculosis</i> d) <i>Corynebacterium diphtheria</i>	K1	CO3
	6	This Hepatitis virus is not an RNA virus a) Hepatitis G virus b) Hepatitis E virus c) Hepatitis B virus d) Hepatitis A virus	K2	CO3
4	7	How are microorganisms added in bioreactors? a) Directly mixed with medium b) Directly charged with the medium c) Added on the surface of the nutrient medium d) By mixing them with pebbles	K1	CO4
	8	The restriction of enzyme mobility in a fixed space is known as _____ a) enzyme immobilization b) enzyme inhibition c) enzyme kinetics d) biosensor	K2	CO4

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5	9	Which of the following is not a biopesticide? a) Nucleopolyhedrovirus b) Xanthomonas campestris c) Bacillus thuringiensis d) Trichoderma harzianum	K1	CO5
	10	Industrial nitrogen fixation is carried out by _____. a) Friedel Crafts reaction b) Helmonts process c) Haber process d) None of the above	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Summarize the significant microbiology institute in India and their role in microbial industry.	K3	CO1
		(OR)		
	11.b.	Explain the different types of sterilization techniques.		
2	12.a.	Enumerate the microbial contamination of spoilage of poultry.	K4	CO2
		(OR)		
	12.b.	List out the microbial contamination of spoilage of sea food with examples.		
3	13.a.	Discuss the pathogenesis, diagnosis and control measure of Cholera.	K5	CO3
		(OR)		
	13.b.	Pathogenicity and characteristic features of Leprosy - Explain.		
4	14.a.	Critically comment on immobilization of enzymes.	K5	CO4
		(OR)		
	14.b.	Explain the industrial production of Ethanol.		
5	15.a.	Critically Comment on water pollution management with help of microbes.	K6	CO5
		(OR)		
	15.b.	Explain about the Biofertilizers with suitable examples.		

SECTION - C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the morphology of microbial cell with suitable diagram.	K4	CO1
2	17	Discuss the major sources of contamination of milk.	K4	CO2
3	18	Discuss about the pathogenesis, diagnosis and control measures of Rabies.	K5	CO3
4	19	Explain the production of antibiotics with suitable examples.	K4	CO4
5	20	Elucidate on the role of Ti plasmid and Nif gene in agriculture.	K6	CO5

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMEER 2024
(Second Semester)

Branch – ZOOLOGY

MAJOR ELECTIVE COURSE-I ECONOMIC ZOOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

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

Module No.	Question No.	Question	K Level	CO
1	1	Find the exotic species of silkworm. a) Lambido marisi b) Perionyx excavatus c) Eisenia fetida d) Pheretima elongate	K1	CO1
	2	Relate the percentage of moisture level is required for vermicomposting operations. a) Below 30% b) 40-50% c) 20-100% d) 70-80%	K2	CO1
2	3	Choose the following is not a major reason for choosing earthworms for Vermicomposting. a) Low incubation time b) Digestion rate c) Adaptability d) Low growth rate	K1	CO2
	4	Match the following materials can be used as a source of bedding for a vermicomposting bin. a) Grass clippings b) Cardboard c) Wood chips d) All of the above	K2	CO2
3	5	Tell the Zoological name of Giant rock bee. a) Apis dorsata b) Apis indica c) Apis florea d) Apis mellifera	K1	CO3
	6	Show the family member of honeybee has wax gland. a) Queen b) Queen and worker c) Drone d) Worker	K2	CO3
4	7	Label the following one is Indigenous bee hive. a) National hive b) Dadant hive c) Newton bee hive d) None of the above	K1	CO4
	8	Relate the device which is used by beekeepers to keep away the bees. a) Feeder b) Excluder c) Extractor d) Smoker	K2	CO4
5	9	What is the major proportion of honey? a) Water b) Carbohydrate c) Lipids d) Proteins	K1	CO5
	10	Relate the milky substance made up of digested pollens and honey mixed with secretion of saliva. a) Nector b) Royal jelly c) Bee venom d) Propolis	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Organize the common earthworm species used for vermiculture.	K3	CO1
		(OR)		
	11.b.	Categorize the procedure for indoor vermiculture methods.	K4	
2	12.a.	Justify the process of vermicomposting.	K5	CO2
		(OR)		
	12.b.	Discuss the maintenance of vermicomposting bed.	K6	
3	13.a.	Differentiate between Indian bee and Italian bee.	K3	CO3
		(OR)		
	13.b.	Identify the natural enemies of honey bees.	K3	
4	14.a.	Predict the methods of getting honeybee colony.	K6	CO4
		(OR)		
	14.b.	Interpret the maintenance of honeybees in monsoon season.	K5	
5	15.a.	Evaluate the nutritive values of honey.	K5	CO5
		(OR)		
	15.b.	Discuss the difference between pollen and royal jelly.	K6	

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the life cycle of earthworm.	K4	CO1
2	17	Elaborate the methods of vermicomposting.	K6	CO2
3	18	Organize the structure, life cycle and functions of worker bee.	K3	CO3
4	19	Discuss any five rearing appliances used in Apiary.	K6	CO4
5	20	Explain the steps involved in extraction of honey.	K5	CO5

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - ZOOLOGY

INTRODUCTION TO IMMUNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which of the following cells of the immune system do not perform phagocytosis? (a) Macrophage (b) Neutrophil (c) Eosinophil (d) Basophil	K1	CO1
	2	Lymph differs from blood in having (a) no plasma (b) more RBCs and less WBCs (c) more WBCs and no RBCs (d) plasma without proteins	K2	CO1
2	3	Which of the following bind to mast cells and cross-link, resulting in degranulation and release of histamine? (a) IgM (b) IgA (c) IgG (d) IgE	K1	CO2
	4	The second most abundant Ig is (a) IgM (b) IgG (c) IgA (d) IgE	K2	CO2
3	5	Name the cell which receives antigen presented by MHC molecule. (a) Nk cells (b) B-cells (c) T-cells (d) Macrophages	K1	CO3
	6	Major Histocompatibility Complex is a tight cluster of linked (a) Carbohydrates (b) Protein (c) Genes (d) Lipid molecules	K2	CO3
4	7	Agglutination reaction is more sensitive than precipitation for the detection of..... (a) Antigens (b) Antibodies (c) Complement (d) Antigen-antibody complexes	K1	CO4
	8	Precipitation reaction is relatively less sensitive for the detection of (a) Antigens (b) Antigen-antibody complexes (c) Antibodies (d) Complement	K2	CO4
5	9	Which hypersensitivity reactions are T cell-mediated? (a) Type I (b) Type II (c) Type III (d) Type IV	K1	CO5
	10	Which of the following is included in B Cell receptor? (a) CD 24 (b) CD 59 (c) CD 79 (d) CD 16	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain about Eosinophil in response to Allergy condition.	K2	CO1
		(OR)		
	11.b.	Highlight the uses of Lymphocytes in our immune system.		
2	12.a.	Enumerate the functions of immunoglobulins.	K3	CO2
		(OR)		
	12.b.	Analyse the structure of immunoglobulin molecule.		
3	13.a.	Explain the structure of major Histocompatibility Complex- I.	K4	CO3
		(OR)		
	13.b.	Identify the Antigen presenting cells in Antigen Antibody Reactions.		
4	14.a.	Examine the properties of Vaccines for different diseases.	K4	CO4
		(OR)		
	14.b.	Compare the different types of complement system.		
5	15.a.	Narrate the T cell receptors in Antigen processing reaction.	K3	CO5
		(OR)		
	15.b.	Explain about Cytokine properties.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Classify the immune cell constituents in Immune system.	K4	CO1
2	17	Expound the distribution of immunoglobulin genes of Immune system.	K4	CO2
3	18	Explain the Antigen Antibody Reactions.	K5	CO3
4	19	Describe the Importance of principles and applications of ELISA Test.	K5	CO4
5	20	Discuss the different types of hypersensitivity reactions.	K6	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - ZOOLOGY

APPLIED BIOTECHNOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Klenow fragment is derived from a) DNA Ligase b) DNA Pol-I c) DNA Pol-II d) Reverse Transcriptase	K1	CO1
	2	The vaccines prepared through recombinant DNA technology are a) Third generation vaccines b) First-generation vaccines c) Second-generation vaccines d) None	K2	CO1
2	3	Which organism has the highest number of vectors? a) Yeast b) Mammalian cells c) E.coli d) Fungi	K1	CO2
	4	Bolivar and Rodriguez constructed which vector? a) Yip7 b) R6-5 c) pUC8 d) PBR322	K2	CO2
3	5	The Golden Rice variety is rich in a) Vitamin C b) carotene and ferritin c) Biotin d) Lysine	K1	CO3
	6	Which bacterium is used in the production of insulin by genetic engineering? a) Saccharomyces b) Rhizobium c) Escherichia d) Mycobacterium	K2	CO3
4	7	Which among the following is damaging the future industrial development of some areas of biotechnology? a) Employees b) Unrealistic regulatory requirements c) Daily wages d) Bioreactors used	K1	CO4
	8	Which among the following is not a fermentation technology product? a) Coffee b) Soya sauce c) Sauerkraut d) Cheese	K2	CO4
5	9	The major cause of environmental degradation is a) Bio-magnification b) Nitrogen deposition c) Quorum quenching d) Lyophilization	K1	CO5
	10	Which of the following method of disposal of solid waste leads to release of organic pollutants into the environment? a) Land filling b) Incineration c) Phytoremediation d) Biological treatment	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Write notes on Southern blotting.	K3	CO1
		(OR)		
	11.b.	Discuss the principle of RFLP.		
2	12.a.	Describe the structure of PBR322.	K4	CO2
		(OR)		
	12.b.	Write notes on SV40.		
3	13.a.	Enumerate the features of stem cells and mention its types.	K4	CO3
		(OR)		
	13.b.	Narrate the gene therapy for human genetic disease.		
4	14.a.	Describe the method of single cell protein production.	K3	CO4
		(OR)		
	14.b.	Discuss the role of microbes in biofertilizers.		
5	15.a.	State the advantages and disadvantages of bioremediation.	K4	CO5
		(OR)		
	15.b.	Compare the positive and negative impacts of G M foods.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Write an essay on DNA finger printing technology.	K4	CO4
2	17	Explain the types of plasmids.	K4	CO4
3	18	Explore the methods of IVF technology.	K5	CO4
4	19	Give an account on structure of bioreactor.	K6	CO4
5	20	Discuss about the components of IPR.	K4	CO4

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - ZOOLOGY

ENDOCRINOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	This is not an endocrine gland. (a) Adrenal (b) Pituitary (c) Lacrimal (d) Thyroid	K1	CO1
	2	This hormone is not secreted by Hypothalamus. (a) PRH (b) FSH (c) CRH (d) TRH	K2	CO1
2	3	This hormone is responsible for "fight-or-flight" response. (a) Thyroxine and melatonin (b) insulin and glucagon (c) epinephrine and norepinephrine (d) oestrogen and progesterone	K1	CO2
	4	Effects of hypothyroidism include all but this (a) Diarrhoea (b) lethargy (c) Anorexia (d) Weight gain	K2	CO2
3	5	Which of these is true of the endocrine system? (a) secretes hormones that are transported to target cells by blood (b) causes changes in metabolic activities (c) effects are prolonged (d) All of above are true.	K1	CO3
	6	Calcitonin is a hormone of which of following: (a) Adrenal cortex (b) Thyroid gland (c) Pituitary glan. (d) Thymus gland	K2	CO3
4	7	All of the following are hormones of the anterior pituitary except: (a) Human growth hormone (GH) (b) Follicle-stimulating hormone (FSH) (c) Parathyroid hormone(PTH) (d) Thyroid-stimulating hormone (TSH)	K1	CO4
	8	Most hormones of the endocrine system are regulated by a: (a) Negative feedback mechanism (b) Positive feedback mechanism (c) Hormone-receptor complex (d) Hormone-gene complex	K2	CO4
5	9	Colostrum is (a) milk of lactation period (b) milk of initial few days (c) milk of initial few hours (d) milk on day one	K1	CO5
	10	In humans, the location of the Bartholin's glands are (a) either side of the fallopian tube (b) either side of the penis (c) either side of the vas deferens (d) either side of the vagina	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Que2stion	K Level	CO
1	11.a.	Explain the modern concepts and problems in Endocrinology.	K3	CO1
		(OR)		
	11.b.	Describe the mechanism of hormonal action.		
2	12.a.	Lit out the biological actions of Parathyroid hormones and its function.	K3	CO2
		(OR)		
	12.b.	Comment on Hypothalamic control and its significance.		
3	13.a.	Describe the structure of Pancreas and their functions.	K4	CO3
		(OR)		
	13.b.	Explain the functions of medullary hormones.		
4	14.a.	Analyze the endocrine control of moulting in insects.	K4	CO4
		(OR)		
	14.b.	Discuss about endocrine control of metamorphosis in Crustaceans.		
5	15.a.	Illustrate the structure of mammalian testis.	K4	CO5
		(OR)		
	15.b.	Discuss the hormonal control of lactation.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Trace out the objectives and scope of endocrinology.	K4	CO1
2	17	Elaborate the characteristics and structural organization of Pituitary gland.	K6	CO2
3	18	Discuss about the structural organizations of Adrenal gland and their function.	K5	CO3
4	19	Describe the hormonal control of metamorphosis in insects.	K4	CO4
5	20	Discuss the hormonal control of metamorphosis in anuran amphibian.	K5	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2024
(Third Semester)

Branch - ZOOLOGY

MAJOR ELECTIVE COURSE – II BIO FARMING AND PRODUCTS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who is the mother of Broiler Poultry Farming? a) James Harbor b) Wilmer Steel c) William Hanna d) Wilkinson	K1	CO1
	2	Poultry birds which are exclusively grown for meat are called _____ a) Layers b) Cockerel c) Rooster d) Broilers	K2	CO1
2	3	What is the ideal temperature for hatching eggs? a) 90-95 degree Fahrenheit b) 95-98 degree Fahrenheit c) 99-102 degree Fahrenheit d) 101-103 degree Fahrenheit	K1	CO1
	4	The direction of poultry house should be _____ to _____ a) South to East b) West to East c) North to South d) East to West	K2	CO1
3	5	<i>Pasteurella multocida</i> is a the causative agent _____ poultry disease. a) Coccidiosis b) Fowl Cholera c) Mycoplasma d) Avian influenza	K1	CO1
	6	_____ is the preventive medicine is used chicken for the immunity. a) Antigen b) Antibody c) Vaccine d) All the above	K2	CO1
4	7	How many native cattle are in the India? a) 50 b) 70 c) 30 d) 40	K1	CO1
	8	What is the exotic dairy breeds of cattle in India? a) Jersey b) Rooster c) Sindhu d) All the above	K2	CO1
5	9	Which of the following is an indigenous dairy breed of cattle? a) Chippiparai b) Kanni c) Red Sindhi d) Kombai	K1	CO1
	10	What is the cow's first milk called? a) Holostrum b) Drostrum c) Milk d) Colostrum	K2	CO1

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Summarize about the white leghorn.	K2	CO1
		(OR)		
	11.b.	Explain the applications of poultry manure.		
2	12.a.	Inspect about the debeaking in poultry.	K4	CO3
		(OR)		
	12.b.	Examine the feed formation for poultry.		
3	13.a.	Evaluate the storage and preservation of egg.	K5	CO4
		(OR)		
	13.b.	Evaluate the fungal disease Aspergillosis.		
4	14.a.	Analyze the scope of dairy farming in India.	K4	CO3
		(OR)		
	14.b.	Categorize the records maintenance in dairy farming.		
5	15.a.	Elaborate about the feeding of cattle.	K6	CO5
		(OR)		
	15.b.	Compile the role of NDRI and NDDB.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Inspect about the poultry housing.	K4	CO3
2	17	Estimate the Summer and winter management of poultry rearing.	K5	CO4
3	18	Elaborate the poultry disease Ranikhet and Salmonellosis.	K6	CO5
4	19	Interpret the characteristics of native breeds of cattle.	K5	CO4
5	20	Discuss about the artificial insemination.	K6	CO5

Z-Z-Z

END