

	VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234					
	DEPARTMENT OF ZOOLOGY					
	Course Code:	31CT21	Programme:	M.Sc.	CIA:	II
	Date:	03.04.2021	Major:	Zoology	Semester:	II
	Duration:	2 Hours	Year:	I Year	Max. Marks:	50
Course Title:	IMMUNOLOGY					

SECTION – A (Remembering)

Answer **ALL** the Questions:

(5 X 1 = 5 Marks)

- 1 The first immunoglobulin heavy chain expressed on the surface of the newly produced B cell is CO2
 a) IgE b) IgA c) IgG d) IgM
- 2 Which of the following is associated with the production of humoral antibodies? CO2
 a) T lymphocytes b) B lymphocytes c) Bone marrow d) Liver
- 3 Virulence reduce microbes used for vaccination are considered as CO2
 a) Toxoid b) Dormant c) A virulent d) Attenuated
- 4 The phagocytic cells that generates acute inflammation are CO4
 a) Neutrophils b) Basophils c) Eosinophils d) Monocytes
- 5 The maximum rate of precipitation occurs in CO5
 a) Zone of antigen excess b) Zone of equivalence
 c) Zone of antibody excess d) all the above

SECTION – B (Understanding)

Answer any **FIVE** Questions: Very Short Answers

(5 X 2 = 10 Marks)

- 6 Discriminate humoral immunity from cell mediated immunity. CO2
- 7 Contrast primary and secondary immunity. CO2
- 8 Define class - switch. CO2
- 9 What are CD8 cells? CO2
- 10 Interpret the term autoimmunity. CO3
- 11 Enlist the types of viral infectious diseases in human. CO4
- 12 What is immunofluorescence? CO5

SECTION – C (Applying)

Answer any **THREE** Questions:

(3 X 5= 15 Marks)

- 13 Describe IgE mediated hypersensitivity reactions. CO2
- 14 Enumerate the role of CD4 cells in the proliferation of B cells. CO2
- 15 AIDS is an epidemic disease. Justify. CO3
- 16 Narrate the viral strategies of immune evasion. CO4
- 17 Describe the immune response against protozoan parasites. CO4

SECTION – D (Analyzing)

Answer any **TWO** Question:

(2X 10= 20 Marks)

- 18 Discuss the Type – III and Type – IV hypersensitivity reactions. CO2
- 19 Signify the role of HLA alleles to determine the matching between donor and recipient in the transplantation immunology. CO3
- 20 Analyze the principle and applications of immunodiffusion. CO5

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Course Code:	31CT22	Programme:	M.Sc	CIA:	II
Date:	09.04.2021	Major:	Zoology	Semester:	II
Duration:	2 Hours	Year:	I	Max.Marks:	50
Course Title:	BIO STATISTICS				

SECTION – A (Remembering)

Answer **ALL** the Questions: (5 X 1 = 5 Marks)

- 1 Sampling errors are present only in CO1
 - a. Sample survey
 - b. Census survey
 - c. Both a and b
 - d. Bias
- 2 Vital statistics deals with such events of human life as CO5
 - a. births only
 - b. deaths only
 - c. marriage
 - d. All
- 3 The crude and standard rates are used in _____ rate CO5
 - a. birth
 - b. death
 - c. fertility
 - d. crude birth
- 4 Which one of the following is an important of vital statistics? CO5
 - a. Government
 - b. Demographers
 - c. Researcher
 - d. All
- 5 Which of the following is the number of live births per thousand of population? CO5
 - a. Crude birth rate
 - b. Crude death rate
 - c. Total fertility rate
 - d. Specific fertility rate

SECTION – B (Understanding)

Answer any **FIVE** Questions: (5 X 2 = 10 Marks)

- 6 Comment on the significances of Student t test CO1
- 7 What is 2x2 contingency table? CO1
- 8 What is binomial theorem? CO1
- 9 What is null hypothesis? CO2
- 10 What are the merits and demerits of sampling? CO2
- 11 Comment on F test CO4
- 12 Define life table CO5

SECTION – C (Applying)

Answer any **THREE** Questions: (3 X 5= 15 Marks)

- 13 What do you mean by kurtosis? State different kinds of kurtosis CO1
- 14 Distinguish random and non-random sampling CO2
- 15 Write about the applications of life table CO5
- 16 Explain the importance of vital statistics CO5
- 17 What are the methods available to estimate the population? CO5

SECTION – D (Analyzing)

Answer any **TWO** Question: (2X 10= 20 Marks)

- 18 Explain two way ANOVA using suitable examples CO4
- 19 A certain manure was used on four plots of land A, B, C & D. Four beds were prepared in each plot and the manure used. The output of the crop in the beds of the plots A, B, C & D is given below. CO4

A	B	C	D
8	9	15	6
12	3	10	8
1	7	4	10
3	1	7	8

Find out whether the difference in the means of the production of crops of the plots is significant or not. (The table value of F for V1=3 and V2=12 at 5% level of significance =3.49)

- 20 Give an account on demographic characteristics of India CO5

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Course Code:	31CT23	Programme:	M.Sc.,	CIA:	II
Date:	10.04.2021	Major:	Zoology	Semester:	II
Duration:	2 Hours	Year:	I	Max.Marks:	50
Course Title:	DEVELOPMENTAL BIOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: (5 X 1 = 5 Marks)

- 1 The mass separation of cells from one another is called CO2
a) Epiboly b) Invagination c) Involution d) Delamination
- 2 Who discovered the organizer effect in embryo development? CO3
a) Spemann b) Wolff c) Haeckel d) Muller
- 3 The development of an egg without fertilization is called CO2
a) Gametogenesis b) Metagenesis c) Oogenesis d) Parthenogenesis
- 4 The proteins are synthesized under the direct control of CO4
a) Genes b) Enzymes c) vitamins d) Hormones
- 5 During metamorphosis the uptake of oxygen is CO5
a) Increases b) Decreases c) Moderate d) Stopped

SECTION – B (Understanding)

Answer any **FIVE** Questions: (5 X 2 = 10 Marks)

- 6 Define the term differentiation according to Balinsky and Spiegelman. CO4
- 7 State gradient theory. CO3
- 8 Specify the characteristics of differentiation. CO4
- 9 Define: Gastrula CO2
- 10 What do you mean by teratology? CO4
- 11 What is Epiboly? CO2
- 12 Define organizer CO3

SECTION – C (Applying)

Answer any **THREE** Questions: (3 X 5 = 15 Marks)

- 13 Give a brief account on importance of stem cells. CO4
- 14 What are the biochemical changes that occur during amphibian metamorphosis? CO5
- 15 Citing suitable examples, describe the nuclear transplantation CO3
- 16 Illustrate the various types of placenta. CO3
- 17 What is menstrual cycle? Discuss its different phases with diagram. CO2

SECTION – D (Analyzing)

Answer any **TWO** Questions: (2 X 10 = 20 Marks)

- 18 Give a detailed account on gene action and hormonal control in development. CO4
- 19 What is regeneration? Explain the mechanism of regeneration. CO5
- 20 Write an essay on embryonic inductions. CO3

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Course Code:	31EP21	Programme:	M.Sc	CIA:	II
Date:	12.04.2021	Major:	Zoology	Semester:	II
Duration:	2 Hours	Year:	2021	Max.Marks:	50
Course Title:	EVOLUTION				

SECTION – A (Remembering)

Answer **ALL** the Questions:

(5 X 1 = 5 Marks)

- 1 ----- is suggests that evolutionary difference between organisms arise from mutation. CO 2
a. Biological clock b. Ecological clock c. Molecular clock d. None of these
- 2 Mutation theory was proposed by CO 2
a. Hugo De Vries b. Charles Darwin c. Campbell d. Stemmer
- 3 ----- is helps to estimate genetic variation of a population CO 2
a. Spectrum analysis b. RFLP's c. AAS d. NMR's
- 4 The remains of *Homo habilis* was found by CO 5
a. Leakey b. Goodall c. Dubois d. Patterson
- 5 The skull of Neanderthal man had been unearthed in Germany in CO 5
a. 1855 b. 1856 c. 1857 d. 1858

SECTION – B (Understanding)

Answer any **FIVE** Questions:

(5 X 2 = 10 Marks)

- 6 Define the term molecular clock? CO 2
- 7 Comment on DNA phylogeny. CO 2
- 8 What do you meant by amino acid substitution? CO 2
- 9 Write short notes on humanization characters of Ramapithecus fossil. CO 5
- 10 Comment on the category of early tools of Eolithic man. CO 5
- 11 Draw the evolutionary status tree of *Homo habilis*. CO 5
- 12 What are Mousterian tools? CO 5

SECTION – C (Applying)

Answer any **THREE** Questions:

(3 X 5 = 15 Marks)

- 13 Give a short account on molecular evolution of Cytochrome C CO 2
- 14 Describe briefly how the agarose gel electrophoresis is helped in developing the phylogeny of vertebrates. CO 2
- 15 Compare the characteristics of Java man and Peking man CO 5
- 16 Describe early chellean, chellean and acheulian culture. CO 5
- 17 Give an account on the characters of conservative Neanderthal man. CO 5

SECTION – D (Analyzing)

Answer any **TWO** Question:

(2X 10= 20 Marks)

- 18 What do you understand by molecular evolution? Describe molecular evolution of Hemoglobin in vertebrates. CO 2
- 19 Write a note on test tube evolution. CO 2
- 20 Write an essay on the biological and cultural evolution of man. CO 5

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Course Code:	31CT41	Programme:	M.Sc	CIA:	II
Date:	03.04.2021	Major:	Zoology	Semester:	IV
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	APPLIED BIOTECHNOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions:

(5 X 1 = 5 Marks)

- 1 ____ is closely associated with ovulation and release of egg. CO2
a. Thyroxin hormones b. Gonadotrophic hormones c. MOET d. FACS
- 2 Plant tissue culture is associated with a wide range of application such as ____ CO3
a. Pharmaceutical production b. Large scale clonal propagation c. Industrially important d. All the above
- 3 Who coined the word "Nanotechnology"? CO4
a. Stebbins b. Richard Feynmann c. Eric Drexler d. Richard Smalley
- 4 The size of nanoparticles is between ____ nm. CO4
a. 100 to 1000 b. 0.1 to 10 c. 1 to 100 d. 0.01 to 1
- 5 Energy is produced from a organisms is called CO5
a. Solar energy b. Thermal energy c. Bioenergy d, Nuclear energy

SECTION – B (Understanding)

Answer any **FIVE** Questions:

(5 X 2 = 10 Marks)

- 6 What is artificial insemination? CO2
- 7 Define: Microinjection CO2
- 8 What is germplasm storage CO3
- 9 Mention any two uses of Nano robotics. CO4
- 10 Define the term biodegradation. CO5
- 11 What do you meant by biodiesel? CO5
- 12 Comment on superbug. CO5

SECTION – C (Applying)

Answer any **THREE** Questions:

(3 X 5= 15 Marks)

- 13 Give account of IVF CO2
- 14 Comment on YAC. CO2
- 15 Summarize the properties of Nanoparticles? CO4
- 16 Discuss briefly what are the strategies are followed to synthesis of a nanoparticles. CO4
- 17 Write a short note on trickling filter and its significances. CO5

SECTION – D (Analyzing)

Answer any **TWO** Question:

(2X 10= 20 Marks)

- 18 Give an account on embryonic stem cell engineering CO2
- 19 Explain the plant tissue culture techniques and their applications. CO3
- 20 Write an essay on applications of nanoparticles in medicine. CO4

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Course Code:	31CT42	Programme:	M.Sc.,	CIA:	II
Date:	09.04.2021	Major:	Zoology	Semester:	IV
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	ENVIRONMENTAL BIOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: (5 X 1 = 5 Marks)

- 1 What type of toxicologist take samples of blood urine and hair for testing? CO3
a. Descriptive b. Analytical c. Mechanistic d. Forensic
- 2 The major source of natural emission of toxicants from wetland produced during biological decay is CO3
a. CO₂ b. Sulphur gases c. Nitrogen gases d. Ozone
- 3 The water Act and the Air (Prevention and Control of Pollution Act) were enacted in India in the year _____ and _____ respectively CO5
a.1974 and1981 b. 1974 and 2010 c. 2010 and 1974 d. 2010 and 1984
- 4 The tidal energy are coming under the category of CO2
a. Conventional b. Expansive c. Non-conventional d. Non expansive
- 5 “World Environment day” is observed on CO5
a. June 5 b. July 10 c. December 8 d. March 20

SECTION – B (Understanding)

Answer any **FIVE** Questions: (5 X 2 = 10 Marks)

- 6 What is demography? CO4
- 7 Define the term toxicology? CO3
- 8 Specify the objectives of EE CO5
- 9 What do you mean by “areas of blight”? CO4
- 10 What is soil erosion? CO2
- 11 Enlist any two endangered species. CO1
- 12 Comment on cyclones CO5

SECTION – C (Applying)

Answer any **THREE** Questions: (3 X5= 15 Marks)

- 13 Analyze the impact of toxicants in public health hazard. CO3
- 14 Describe the history of human population growth. CO4
- 15 What is meant by satellite towns? Explain. CO4
- 16 What is Bioindicators? Mention its role in environmental monitoring. CO1
- 17 Through suitable diagram, explain the rain water harvesting technology CO2

SECTION – D (Analyzing)

Answer any **TWO** Question: (2X 10= 20 Marks)

- 18 Write an essay on exobiology. CO4
- 19 Examine critically the impact of transport systems in urban environment. CO4
- 20 Trace the origin and kinds of monsoon and also explain the impact of monsoon on Indian peninsula. CO2





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Course Code:	31EP41	Programme:	M.Sc.,	CIA:	II
Date:	12.04.2021	Major:	Zoology	Semester:	IV
Duration:	2 Hours	Year:	2021	Max.Marks:	50
Course Title:	BIO-FARMING TECHNOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions:

(5 X 1 = 5 Marks)

- 1 M.S. Swaminathan Foundation is situated in CO1
 - a. Karnataka
 - b. Orissa
 - c. Tamilnadu
 - d. Andhra
- 2 The deep freezing of semen is stored at _____ °C CO5
 - a. -50
 - b. -70
 - c. -80
 - d. -196
- 3 Which one of the following is exotic breeds in cow? CO5
 - a. Jersey
 - b. Sahiwal
 - c. redsindhi
 - d. greysindhi
- 4 Which of the following is English class breed of fowl? CO5
 - a. Minorca
 - b. Red cap
 - c. Leghorn
 - d. Ancona
- 5 The disease of hen Spirochaetosis is caused by: CO5
 - a. Tick
 - b. Mite
 - c. Virus
 - d. Bacteria

SECTION – B (Understanding)

Answer any **FIVE** Questions:

(5 X 2 = 10 Marks)

- 6 What are the sources of earthworm's food? CO1
- 7 What is artificial insemination? CO5
- 8 Define feeders. CO5
- 9 Comment on Rinderpest. CO5
- 10 List down the characteristics of Assel. CO5
- 11 What is cross breeding? CO5
- 12 Comment on Polymouth Rock. CO5

SECTION – C (Applying)

Answer any **THREE** Questions:

(3 X 5 = 15 Marks)

- 13 Explain the preparation of vermiwash and its applications. CO1
- 14 Give an account on common dairy products. CO5
- 15 Describe any five Milch breeds of India. CO5
- 16 Give an account of indigenous breed of fowl. CO5
- 17 Give a short account of Asiatic class of fowl breed. CO5

SECTION – D (Analyzing)

Answer any **TWO** Question:

(2X 10 = 20 Marks)

- 18 Describe the role vermicompost in organic farming. CO1
- 19 Write an essay on Artificial insemination. CO5
- 20 Describe in detail the characteristics of fowl-house. CO5

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