

ಬೆಂಗಳೂರು
ನಗರ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ



BENGALURU
CITY UNIVERSITY

Office of the Registrar, Central College Campus, Dr. B.R. Ambedkar Veedhi, Bengaluru – 560 001.
PhNo.080-22131385, E-mail: registrarbcu@gmail.com

NO.BCU/BoS/M.Sc-Animal.Sc/46/2021-22

Date:01.06.2021

NOTIFICATION

- Sub: Syllabus for IV Semesters M.Sc Animal Science of Bengaluru City University
Ref: 1.The recommendations of the Board of Studies in Animal Science (PG)
2. Orders of the Vice-Chancellor dated:31.05.2021

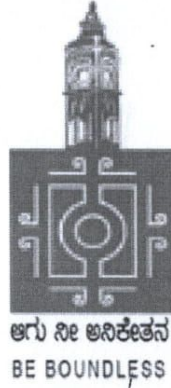
In pursuance to the recommendations of the Board of Studies in Animal Science (PG) and pending ratification by the Academic Council, the Syllabus for IV Semester M.Sc Animal Science of Bengaluru City University is hereby notified for implementation from the academic year 2020-21.

The copy of the Syllabus is notified in the University Website: www.bcu.ac.in for information of the concerned.


REGISTRAR

To,

1. The Dean, Faculty of Science, BCU.
2. The Chairman & Members of BoS in Animal Science (PG), BCU.
3. The Principals of the concerned affiliated Colleges of BCU – through email.
4. The P.S. to Vice-Chancellor/Registrar/Registrar (Evaluation), BCU.
5. Office copy / Guard file / University Website: www.bcu.ac.in



BENGALURU CITY UNIVERSITY

**REGULATIONS AND SYLLABUS FOR
Animal Science
(IV Semester)**

**CHOICE BASED CREDIT SYSTEM
(SEMESTER SCHEME)**

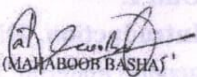
2020-21 Onwards

Proceedings of the On-Line Meeting (By Circulation) of the BOS in Animal Science (M. Sc-PG) of Bengaluru City University (BCU).

Amidst the COVID-19 pandemic, since a direct BOS meeting is not possible, online mode is chosen for the approval of syllabus.

The drafted syllabus pertaining to M. Sc in Animal Science (IV semester) of BCU was circulated online (mailed on 09.05.2021) to all the members of BOS, for scrutiny and approval in return mail on or before 14.05.2021. Few suggestions were received from the members and the same has been incorporated in the syllabus. Finally, BOS members mentioned below have accorded online approval of the syllabus and scheme of examination (both theory & practical) of the IV semester M. Sc in Animal Science of Bengaluru City University.

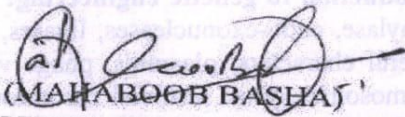
BOE Members of BCU:

| | <u>Signature</u> |
|--|---|
| 1. Dr. P. MAHABOOB BASHA Professor & Chairman of Zoology, BUB | Chairperson – BOS  |
| 2. Dr. SADANAND MALLAPPA YAMAKANAMARDI Professor & Former Dean, University of Mysore. | Member – External e-sign(online)* |
| 3. Dr. GH. PHILIP Professor, S K University, Ananthpur, A.P | Member – External e-sign(online)* |
| 4. Dr. V. NAGARAJ Professor, Kuvempu University, Shankaraghatta, | Member – External e-sign(online)* |
| 5. Dr. RAJASHEKAR PATIL Professor, Mangalore University, Mangalore. | Member – External e-sign(online)* |
| 6. Dr. BP. HARINI Professor, Bangalore University | Member – External e-sign(online)* |
| 7. Dr. MG. VENKATESHA [Former BOS chairman, BCU] Professor, Bangalore University | Member – Coopted e-sign(online)* |
| 8. Dr. MVV. SUBRAMANYAM Professor of Life Science, Bangalore University | Member – External e-sign(online)* |
| 9. Dr. Y. SITAVI Associate Professor, Jyoti Nivas College, Bangalore | Member – External e-sign(online)* |
| 10. Dr. KS. GEETA Associate Professor, Mount Carmel College, Bangalore | Member – External e-sign(online)* |

*By personal mail

Taking the considerations and recommendation from BOS members, the Chairperson confirmed the acceptance of syllabus of the IV semester M. Sc in Animal Science of BCU in the present form to be implemented from the academic year 2021 onwards.

Date: 14.05.2021


(MAHABOOB BASHA)
CHAIRPERSON, BOS IN ANIMAL SCINCE(PG).
BENGALURU CITY UNIVERSITY, BENGALURU

BENGALURU CITY UNIVERSITY
SYLLABUS for M. Sc ANIMAL SCIENCE

CHOICE BASED CREDIT SYSTEM
(2019 ONWARDS)

CURRICULUM IN ANIMAL SCIENCE FOR M.Sc. (PG)

IV SEMESTER

PAPER-I HCT: 401 Molecular Genetics and Genetic Engineering
(4 hours/Week, 52 hours, 4 Credits)

Unit I:

Introduction, DNA replication and repair: Central dogma of molecular biology. Characters of genetic material, Evidences for DNA and RNA as genetic material. Molecular structure of DNA and alternate forms, Structure and function of RNA and its types. Organization of genetic material: various levels of packaging of DNA, Histones and Scaffold proteins. Replication in prokaryotes and eukaryotes: replication modes, and evidences. Mechanisms of replication (prokaryotes and eukaryotes), models of replication. Enzymes, transcription factors origins and terminal synthesis. Recombination and repair mechanism: Somatic recombination, double break model. DNA repair mechanism and types.

11 hrs.

Unit II:

Transcription, translation and gene regulation: Transcription in prokaryotes and eukaryotes: transcription unit, enzymes, mechanism, factors, promoter and terminator sites, regulators, enhancers, silencers, inhibitors. Post transcriptional modifications, classes of introns, capping, Splicing, tailing, self splicing, RNA editing, processing of tRNA and rRNA. Translation- Beadle and Tatum experiment, Genetic code and its characteristics, codons and anticodons, mechanism (prokaryotes and eukaryotes), enzymes and translational factors, polyribosomes. Co-and post translational modification of proteins. Gene regulation- DNA binding proteins, type of operons, Lactose operon, tryptophan operon, attenuation. Histone modifications, DNA methylation, transcriptional activators and repressors, gene silencing, Gene-battery model of transcriptional regulation.

11 hrs.

Unit III:

Introduction to genetic engineering: Recombinant DNA technology; Tools, Enzymes-Nucleases, methylase, endo-exonucleases, ligases, restriction enzymes-types and functions, hosts & vectors – General characters, plasmids, phage vectors, cosmids, phagemids, phasemids, Bacterial artificial chromosomes, yeast artificial chromosomes, mini chromosomes, shuttle vectors, animal vectors – SV40 and retroviruses.

10 hrs.

Unit IV:

Gene cloning and Transformation techniques: Isolation and purification of nucleic acids/specific genes, steps in cloning, gene and cDNA libraries, synthesis of cDNA, adapters and linkers, modification of ends, site directed recombination, Gene transfer methods – DEAE method, Calcium phosphate mediated, lipase mediated, electro-poration, gene gun method, Agrobacterium mediated, direct methods, microinjection, selection methods and expression of cloned DNA. **10 hrs.**

Unit V:

Techniques and applications: Hybridization Techniques-Southern, Northern and Western blotting, DNA sequencing methods (Maxam Gilbert method, Sanger method, introduction to next generation sequencing), Polymerase chain reaction (PCR), RFLP, RAPD. Applications – recombinant proteins like insulin, somatostatin, vaccines, DNA fingerprinting, monoclonal antibodies, transgenic animals, gene therapy. **10 hrs.**

References:

1. Atherly.A.G., Girten,J.R and Mcdonald, J.F. The Science of Genetics. Saunders college, 1999.
2. Gardner, E.J., Simmons, M.J and Snustad, D.P. Genetics IIIEd. John Willy & Sons, New York, 1990.
3. Stickberger, N.W. Genetics. MacMillan Publishing Co. New York, 1985.
4. Watson, J.D et al., Recombinant DNA. W.H.Freeman & Co, 1992.
5. Trevor,B.B and Julian Burke. Gene structure and transcription. Oxford Univ Press, 1998.
6. Benjamin Lewin. Genes Vols I-IV. Oxford Univ Press, 1995.

IV SEMESTER M. Sc ANIMAL SCIENCE PRACTICAL

HCP- 401: Molecular Genetics and Genetic Engineering
(4 hours/week, 52 hours, 2 Credits)

1. Preparation of bacterial (*E. coli*) cells for transformation and selection of transformants by blue white selection method.
2. Polymerase chain reaction (PCR)
3. RFLP analysis by kit method
4. RAPD analysis by kit method
5. Karyotyping of Human chromosomes- Normal male, female and syndromes.
6. Chromosomal analysis: preparation of metaphase slides. Banding – GTG, CBC and NOR staining.
7. Fluorescence In situ hybridization technique (Demonstration only)
8. Isolation of DNA from animal and bacterial source
9. Extraction of RNA by Tryzol method
10. Estimation of DNA by DPA and RNA by Orsinol methods
11. Separation of nucleotide bases by paper chromatography
12. Isolation and purification of plasmid DNA from *E. coli*

IV SEMESTER

PAPER-II HCT- 402: Toxicology (4 hours/week, 52 hours, 4 Credits)

Unit I:

Key concepts of toxicology and Tissue damage – General Toxicology, Risk and hazard, Variability and uncertainty, Threshold and non-threshold dose responses, classification of toxic agents and mutagens. The regulatory toxicology. Use of human tissues in toxicology. Reversible and irreversible cellular damage. Tissue responses to toxic injury, Environmental toxicology, food toxicology, clinical toxicology. **10 hrs.**

Unit II:

Reproductive and Developmental toxicology – Reproductive toxicology– Effect of xenobiotics on male and female reproductive organs/cells in mammals. Overview of development, Wilson's Principles of Teratology; Teratogens. Developmental toxicants; radiation, infections, maternal metabolic imbalances, drugs, environmental chemicals, metals. **10 hrs.**

Unit III:

Biochemical toxicology - Lipid peroxidation, Oxidative stress, disruption in cellular calcium levels, protein and DNA damage. Occupational toxicology- hazardous chemicals, disorders from chemical exposure at work, assessment of occupational hazards. Environmental exposure – Heavy metals (Lead, Mercury, Arsenic), non metal (fluorine) gases (Carbon monoxide, Chlorine), radioactive wastes and management, Endosulphan tragedy. **10 hrs.**

Unit IV:

Xenobiotic metabolism – Xenobiotics and their classes, Xenobiotic metabolism and kinetics, Introduction to phase 1 and phase 2 reactions, Enzymes involved in xenobiotic metabolism – Phase 1 enzymes - Cytochrome P450, Flavin-containing, others; Phase 2 - Glutathione S-transferases, Glucuronyl transferases, Sulfotransferases; ROS production, Enzymes involved in ROS breakdown; Polymorphism in these enzymes Elimination of xenobiotics, Non-mammalian metabolism, Variation in metabolism due to endogenous and exogenous factors. **11 hrs.**

Unit V:

Measurement of toxicity – Acute and chronic toxicity tests, LD₅₀, LC₅₀ and ED₅₀. *In-vitro* toxicology – cell culture and cytotoxic tests, repeated dose toxicity, The Ames test, gene mutation tests using mammalian cells, chromosome aberration test, micronucleus assay, Green Screen HC, The Reconstructed Skin Micro Nucleus assay; *In-vivo* toxicology – Pig A assays, Drosophila Sex-Linked Recessive Lethal Test (SLRL), Dominant Lethal Test (Rodent), Heritable Translocation Test (Rodent), DNA damage measurement. **11 hrs.**

Reference

1. Agarwal A and Gopal K Principles of toxicology, IBDC publishers India. 2010.
2. Curtis D. Klaassen, Casarett and Doull's Toxicology: the basic science of poisons, 6th edition, Mc-Graw-Hill Medical Publishing Division, New York, 2001.
3. Curry, A S Analytical Methods in Human Toxicology, 1986.
4. Dekant, W. and Neumann H.G. Tissue –specific Toxicity: Biochemical mechanisms, Academic Press. Harcourt Brace Fovanovich, Publishers, London, 1992,
5. Duffus, J.A. Environmental Toxicology, Edward Arnold, Publishers, London, 1980.
6. Ernest Hodgson, A Textbook of Modern Toxicology, 4th edition, Wiley Publications. New Jersey, 2010,
7. Fan, A.M. and Chang L.W.(Ed) Toxicology and Risk assessment: Principles and methods and applications, Marcell Dekker publishers, New York, 1996,
8. Gupta P K and Salunkha D K Modern Toxicology, Metropolitan Book Co., Pvt Ltd, New Delhi. India, 1985.
9. Haley, T J and Berndt W. O. Basic Environmental Toxicology, Hemisphere Publishing cooperation, Washington, 1987.
10. Hayer, W. J., Jr Laws E. Vol.1,2 and 3, Hand book of pesticide toxicology, Academic Press Inc, California, 1991.
11. Hodgson E and Levi P, Text Book of Modern Toxicology, McGraw – Hill International edition. Singapore, 2000.
12. Kanth, S. Trends in environmental pollution and pesticide toxicology, Jagmandar Book Agency, New Delhi, 1989.
13. Landis W G and Yu M. H. Introduction to Environmental toxicology, 3rd ed, Lewis publishers, Florida, 2003.
14. Timbrell J. A. Principles of Biochemical Toxicology, Taylor and Francis Ltd, London, 2009.
15. Vijay Kumar M. Essentials of toxicology, New India Publishing Agency, New Delhi, India, 2011.
16. Walker C H, Hopkin S P, Sibly R Nand Peakall D. B. (Eds.), Principles of ecotoxicology 3rd edition, C Taylor and Francis, NY. U.S.A, 2006.

IV SEMESTER M. Sc ANIMAL SCIENCE PRACTICAL
HCP: 402 Toxicology
(4 hours/week, 52 hours, 2 Credits)

1. Detection of adulterants in food samples.
2. Analysis of presence of toxicants like pesticides etc., from samples
3. Detection of organophosphates by chromatographic methods
4. Experiment to study genotoxicity of a chemical in an animal model
5. Experiment to study teratogenesis of a chemical in an animal model
6. Detection of mercury chloride by enzyme inhibition technique.
7. A case study report on Endosulphan effects
8. Estimation of antioxidants (SOD/ Catalase)
9. Measurement of Cytochrome p450
10. Determination of LC₅₀ of selected toxicants
11. Determination of LD₅₀ of selected toxicants

IV SEMESTER
PAPER- III HCT-403: Human Nutrition and Health
(4 credits, 4 hr/week, 52 lectures)

Unit I:

General information on food and nutrition: Basic terms used in study of food and nutrition, an interrelationship Food, nutrition and health. Influence of food on Physiological, neurological and Psychological aspects. Essentials of Nutrients: Sources, Functions and disease related to deficiency/excess of the following nutrients: Proteins, lipids and carbohydrates, Fat soluble vitamins-A, D, E and K Water soluble vitamins – thiamin, riboflavin, niacin, pyridoxine, folate, vitamin B12 and vitamin C. Minerals – calcium, iron and iodine. **10 hrs.**

Unit II:

General information on Human health: WHO definition of health, disease, disorder; classification of diseases based on source, global distribution of diseases. General information on Human health & disease; Heart diseases – Hypertension, thrombosis (blocks), heart attack (angiogram, angioplasty and open heart surgery) Diabetes mellitus – Causes and treatment (normal blood sugar level), Liver cirrhosis and Hepatitis – Types, causes and treatment, Bronchitis, Allergy. Genetic diseases – Introduction to genetic disorders, Neurological disorders - Alzhiemers and Parkinson's, Psychiatric disorders - Depression, schizophrenia, Behavioral disorders - attention deficit hyperactivity disorder, Eugenics - and Positive and negative Eugenics. **11 hrs.**

Unit III:

Common infectious diseases in humans: Definition of pathogens, terminologies used in infectious disease (aetiology, epidemiology, vector, incubation period, infective period, causative agent, epidemic, endemic, pandemic, prevention/prophylaxis). Causative agent, transmission, signs and symptoms, treatment and prevention of various diseases: Water-borne diseases Typhoid and Paratyphoid. Air-borne diseases - resurgence of T.B., Influenza (H₁N₁), Vector-borne diseases - Malaria, Chickungunya, Dengue. Japanese encephalitis. Sexually Transmitted Diseases – (Gonorrhoea, Genital herpes). **11 hrs.**

Unit IV:

Disease diagnostics: Physical examination and laboratory testing for disease diagnosis: Pulmonary function tests. Diagnosis of Diabetes mellitus and Glucosurea. VDRL/ Widal test for bacterial infections. Methods to diagnose viral infection; DNA utilization in Disease diagnosis. Scanning procedure (CT, MRI) Understanding EEG and ECG. DNA utilization in Disease diagnosis. **10 hrs.**

Unit V:

Enzymes in diagnosis of human diseases and Health care: Acetylcholinesterase, angiotensin converting enzyme (ACE), Pseudocholinesterase, 5'- nucleotidase (5NT), Glucose-6-phosphate dehydrogenase (GPD) and other red blood cell enzymes; Immuno reactive trypsinogen (IRT) and Chymotrypsin; Amylase isoenzymes, Macroamylase, Isoenzymes (CK, LDH, ALP). SGOT and SGPT. **10 hrs.**

References

1. Atul B M, Hoffbrand A V, Haematology at a glance- Medical – 2005
2. Gibney et al. Public Health Nutrition; Blackwell Publishing, 2004
3. Hoffbrand V, Moss P. A. H, Pettit J. E, Essential haematology- Medical – 2006
4. Lakra P, Singh M.D. Textbook of Nutrition and Health; First Ed; Academic Excellence Publications, 2008.
5. Mudambi, SR and Rajagopal, M.V. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; New Age International (P) Ltd, Publishers, 2012.
6. Srilakshmi B. Nutrition Science; New Age International (P) Ltd, Publishers, 2012.
7. Sudhir V S, Diseases of The Brain and Nervous System: A Health Education Guide. Team Spirit (India) Pvt. Ltd. Publishers ,2008.
8. Suri S. and Malhotra A. Food Science, Nutrition & Food Safety Pearson India Ltd.,2014.
9. World Health Organization (WHO), No. 2, p. 100, 1948
10. Zelman M, Tompany E, Raymond J, Holdaway P and Mullyhill M.L.E. Human Diseases: A Systemic Approach, 7th Ed; Pearson Prentice Hall, 2009

IV SEMESTER M. Sc ANIMAL SCIENCE PRACTICAL HCP 403: Human Nutrition and Health

(4 hours/week, 52 hours, 2 Credits)

1. Planning, preparation and nutritional evaluation of diets in relation to age, activity levels and physiological state.
2. Planning, preparation and calculation of diets for Diabetes and hypertension.
3. Planning, preparation and calculation of diets for Kidney failure, and liver cirrhosis.
4. Estimation of SGOT, SGPT, in human blood/serum samples.
5. Estimation of LDH, NSE, Cholesterol in human blood/ serum/CSF samples.
6. Estimation of Bilirubin, Creatinine in human serum/urine samples.
7. Estimation of glucose in human serum/urine samples (Glucose oxidase method)
8. Immunoassay for detection of microbial infection (kit method).
9. STD detection by agglutination method (kit method).
10. A report submission on a field visit to Diagnostic center.

IV SEMESTER

PAPER-IV HCT- 404: RESEARCH METHODOLOGY (4 hours/week, 52 hours)

Unit I:

Introduction to Research: Definition of research, objectives and motivation in research. Types of research. Descriptive vs analytical research, applied vs fundamental research, Conceptual v/s empirical research. Methods vs methodology. Research process, criteria for good research. Current trends in Research: mono-disciplinary, trans-disciplinary and inter-disciplinary research. Use of model organisms in research. Research funding agencies in India and problems encountered by researchers in India, Future prospects for research in India. **10 hrs**

Unit II:

Defining the Research Problem and Reviewing the Literature: Formulating the research problem, selecting the problem, necessity of defining the problem. Techniques in defining the problem. Preparation and presentation of research problem. Role of literature review in research topic. Review the literature, searching the existing literature, broadening the knowledge base in research area. Developing a theoretical framework, conceptual framework and presenting the literature reviewed. **10 hrs.**

Unit III:

Research Design and Sample Surveys: Need for research design. Types- historical, descriptive, explorative and experimental. Concepts relating to research design, different research designs and features of good design. Basic principles of experimental design. Introduction to sample design, sampling and non-sampling errors. Sample survey vs census survey and types of sampling design. Formulation of hypothesis, sources of hypothesis, characteristics and role of hypothesis. Tests of hypothesis. **10 hrs.**

Unit IV:

Data Collection and Report Writing: Experimental and survey- collection of primary and secondary data. Methods in data collection- observation method, interview, through questionnaires and case study method. Validity- content, criterions related and construct validity. Reliability-test and retest reliability, alternative and scorer reliability. Processing and analysis of data: Processing operations, statistics in research-descriptive and inferential statistics. Types of analysis and interpretation of data. Report writing: Significance of report writing, different steps in writing reports, layout of research report, mechanics of writing research report, necessary precautions in writing research reports, conclusions. **11 hrs.**

Unit V:

Intellectual Property rights, Research Ethics and Scholarly Publication: Concept of Intellectual property system in India. Development of trade related aspects of intellectual property rights (TRIPS) regime in India. Patents Act 1970, Trade Mark Act 1999. Protection of animal and plant species and Farmers Right Act 2001. World Intellectual Property Organization (WIPO), WTO. Paris convention. Protection of undisclosed information, enforcement of Intellectual Properties Rights. Research ethics-ethical issues, Institutional guidelines of Govt. of India for using biological and human samples. Scholarly publishing- IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability. **11 hrs.**

| References | Code | Title of the Paper | Total Hours | Hours/week | Mark |
|---|------|--------------------|-------------|------------|------|
| 1. Kothari C R 1990. Research Methodology: Methods and Techniques. New Age International. | | | | | |
| 2. Leedy P D 2004. Practical research planning and design. Prentice Hall, NY | | | | | |
| 3. Wadehra B L 2000. Law relating to patents, trademarks, copyright design. Universal Law Pub. New Delhi. | | | | | |
| 4. Simha S C and Dhiman A K 2002. Research Methodology EssEss Publishing New Delhi | | | | | |
| 5. Garg B I Agrawal F and Agrawal U K 2002. An introduction to Research Methodology.RBSA Publishers. | | | | | |
| 6. Cooper D 2004. Business research methods. Tata McGraw Hi, New Delhi | | | | | |

IV SEMESTER M. Sc ANIMAL SCIENCE PRACTICAL

**HCP 404 - Research Methodology
(4 hours/week, 52 hours, 2 Credits)**

1. Criteria involved in selection of research topic and modalities of exhaustion.
2. Importance of scientific surveys, primary data and secondary data in research.
3. Selecting a title for the paper, writing the abstract and key words.
4. Writing the Discussion Conclusions and Results: Citation of references using different styles.
5. Preparing Questionnaire, Opinionnaire, conducting Interview.
6. Use of MS Excel in data presentation.
7. Use of SPSS soft-ware for scientific approach
8. Examples of some common statistical tests
9. Making a ICT enabled scientific presentation
10. Report on any five disputes/cases related to intellectual property rights (IPR)

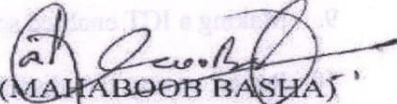
Scheme IV Semester

| Paper Code | Title of the Paper | Total Hours | Hours/week | Marks | | |
|--------------|--|-------------|------------|------------|------------|------------|
| | | | | IA | Exam | Total |
| HCT 401 | Molecular Genetics and Genetic Engineering | 52 | 4 | 30 | 70 | 100 |
| HCT 402 | Toxicology | 52 | 4 | 30 | 70 | 100 |
| HCT 403 | Human Nutrition and Health | 52 | 4 | 30 | 70 | 100 |
| HCT 404 | Research Methodology | 52 | 4 | 30 | 70 | 100 |
| HCP 401 | Molecular Genetics and Genetic Engineering | 52 | 4 | 15 | 35 | 50 |
| HCP 402 | Toxicology | 52 | 4 | 15 | 35 | 50 |
| HCP 403 | Human Nutrition and Health | 52 | 4 | 15 | 35 | 50 |
| HCP 404 | Research Methodology | 52 | 4 | 15 | 35 | 50 |
| Total | | 416 | 32 | 180 | 420 | 600 |

Details of credits

IV Semester

| Subjects | Paper | Instruction Hr/week | Duration of Exam(hr) | Marks | | | Credits |
|------------------|-----------|---------------------|----------------------|-------------|-------------|--------------|------------------|
| | | | | IA | Exam | Total | |
| Hard Core | 4T | 4x4 | 4x30 | 4x30 | 4x70 | 4x100 | 4 x 4 =16 |
| | 4P | 4x4 | 4x4 | 4x15 | 4x35 | 4x 50 | 4 x 2 =8 |
| | | | | | | Total | 24 |


 (MAHABOOB BASHA)

*Approval by BOS (online circulation)
Date: 14.05.2021

CHAIRPERSON, BOS IN ANIMAL SCINCE(PG)
BENGALURU CITY UNIVERSITY, BENGALURU

Blueprint for the preparation of question paper Scheme of Examination:
IV Semester (M. Sc Animal Science)

THEORY

Duration of the Examination: **3 Hrs**

Marks 70

Part A: Comprises **5 compulsory questions**. Each question carries **Two marks**
(Questions should be from all units).

05x2=10 marks

Part B: Comprises **5 questions with internal choice within a unit**. Each question carries
Six marks (Questions should be from all units).

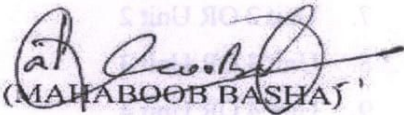
05x 6=30 marks

Part C: Comprises **5 questions**, of which **Three questions** should be answered. Each
question carries **Ten marks** (Questions should be from all units)

03x10=30 marks

*Approval by BOS (online circulation)

Date: 14.05.2021


(MAHABOBBASHA)

CHAIRPERSON, BOS IN ANIMAL SCINCE(PG)
BENGALURU CITY UNIVERSITY, BENGALURU

MODEL QUESTION PAPER
M.Sc., ANIMAL SCIENCE (CBCS)
IV Semester Examination, August/September 2021

Instructions: 1) Answer all the parts. 2) Draw diagrams wherever necessary.

Time: 3 Hours

Max. Marks: 70

PART- A

Write short notes on the following:

(5x2=10)

1. Unit 1
2. Unit 2
3. Unit 3
4. Unit 4
5. Unit 5

PART- B

Write critical notes on the following:

(5x6=30)

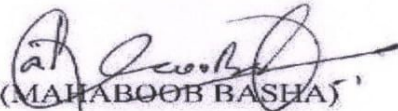
6. Unit 1 OR Unit 1
7. Unit 2 OR Unit 2
8. Unit 3 OR Unit 3
9. Unit 4 OR Unit 4
10. Unit 5 OR Unit 5

PART-C

Write in detail on **any three** of the following:

(3x10=30)

11. Unit 1
12. Unit 2
13. Unit 3
14. Unit 4
15. Unit 5


(MAHABOOB BASHA)

*Approval by BOS (online circulation)
Date: 14.05.2021

CHAIRPERSON, BOS IN ANIMAL SCIENCE(PG)
BENGALURU CITY UNIVERSITY, BENGALURU

SCHEME OF PRACTICA EXAMINATION
IV SEMESTER M. Sc., ANIMAL SCIENCE PRACTICAL

Duration:4 hrs.

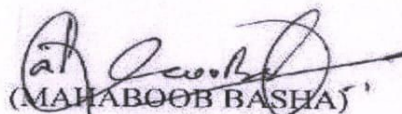
Max.Marks:35

**HCP 401-404: Each Practical Paper Examination: 30 marks Practical + Viva voce
05 marks= 35 marks**

INTERNAL ASSESSMENT

**Theory Papers: 30 marks for each theory Paper (Seminar/Assignment for 10 marks,
Two class tests: 10+10= 20 marks).**

Practical papers: 15 marks for each practical paper (Test=10 marks +05 marks for record).


(MAHABOOB BASHA)

***Approval by BOS (online circulation)**

Date: 14.05.2021

**CHAIRPERSON, BOS IN ANIMAL SCINCE(PG).
BENGALURU CITY UNIVERSITY, BENGALURU**