

Bidar University Bidar

Dept. of Zoology

Syllabus

THIRD SEMESTER B.SC

Course Title Code: Cytology & Histology	Course Credits: 04
Course Code: DSC3TZ	Teaching Hours Per week: 4
Total Contact Hours: 60	Duration of Exam :03 Hours
Formative Assessment Marks: 20	Summative Assessment Marks :80

Course Outcomes (Cos):

At the end of the course the student should be able to understand

1. After successful accomplishment of the course, the learners will be able to acquire better understanding and comprehensive knowledge regarding most of the essential aspects of Cytology & Molecular Biology.
2. Students will be able to understand and integrate knowledge of chemical and Biological Principles of living systems.
3. Acquiring knowledge on technique in biology.
4. The course will mainly focus on the study of Tissues and organs through sectioning, staining and examining does sections under a microscope.

UNIT-I: Cell Biology

15

- Cell theory: Differences of Prokaryotic and Eukaryotic Cells.
- Ultra structure of animal Cell: Structure and functions of plasma membrane (Fluid Mosaic)
- Structure and functions of cell organelles- Endoplasmic reticulum Golgi body. Ribosomes, Lysosomes. Centrosomes. Mitochondria and Nucleus.

UNIT-II: Cell Division and Cancer Biology

15

- * Chromosomes- Structure, types, giant chromosomes.
- * Cell Division- : Cell cycle and its regulation. Mitosis, Meiosis
- * Cancer biology: Introduction, general properties of Cancer cells. Carcinogens, Prevention & regulation of cancer, Gene therapy, Chemotherapy & radiotherapy. Cell sequence & apoptosis.

UNIT-III: Molecular Biology

15

- * Identification of genetic material, Griffith's experiment.
- * DNA & RNA: Structure, Types and DNA Replication.
- * Protein Biosynthesis- Transcription and Translation.
- * Gene Expression – Genetic Code Lac operon concept.
- * Molecular Biology Techniques- Polymerase Chain Reaction, Electrophoresis, DNA Finger printing, ELISA

UNIT-IV: Histology**15**

Histological study of the following organs- & glands (i) Tongue, (ii) Stomach, (iii) Intestine (iv) Liver, (v) Pancreas, (vi) Kidney, (vii) Thyroid, (viii) Adrenal, (ix) Testis (x) Ovary (XI) Pituitary.

SUGGESTED READING

1. Lodish, Berk, Zipursky, Matsudria, Baltimore, Darnell 'molecular Cell Biology' W.H. Freeman and Company New York.
2. Cell Biology by C.B. Power.
3. Gardner, E.J., Simmons, M.J. Snustad, D.P. (2008). Principles of Genetics. VIII Edition Wiley India.
4. James.D. Watson Nancy H. Hopkins' Molecular Biology of the Gene'
5. Gupta P.K.'Genetics.
6. Chordata By P.H.Dhami & Dhami.

**Cytology and Histology:
Model Question Paper (Theory)**

Time: 03 hours

Max Marks: 80

Instructions

1. Answer all the Sections.
2. Draw diagrams wherever necessary.

SECTION: A

Q1. Answer any Ten of the following
Question No. 1 to 12.

10X 2=20

SECTION- B

Q.II Answer the following in brief.

A. Answer any **Three** Of the following in brief.

3X5= 15

Question No. 13 to 16(Cytology and Molecular Biology)

B. Answer any One of the following in brief/

1X5=05

Question No. 17 to 18 (Histology)

SECTION –C

Q.III Answer the following in details.

A. Answer any Three of the following in detail.

3X10 =30

Question No. 19 to 22 (Cytology and Molecular Biology)

B. Answer any One of the following in detail

1X10=10

Question No. 23 & 24 (Histology)

PRACTICAL-DSC -ZP-3:
BASED ON PAPER Z-3:
CYTOLOGY & HISTOLOGY

1. Ultra structure of cell & cell Organelles through Charts.
2. Procedure for the Preparation of Fixatives & Stains.
3. Observation of Permanent Slides of Mitosis.
4. Observation of Permanent Slides of Meiosis.
5. Squash preparation of Onion root tip.
6. Squash preparation of Onion flower bud/Grasshopper testis.
7. Mounting of Polytene chromosomes in Chironomous larva of Insects/Drosophila.
8. Study of Plasmid.
9. Isolation of DNA.
10. Observations of 10 histological slides as per theory
11. Preparation of permanent slides of mammalian tissue based on theory.

FORMAT OF QUESTION PAPER FOR PRACTICAL: ZP-3

CYTOLOGY & HISTOLOGY

Time: 2 hrs

Max Marks: 40 hrs

Q.I.	Identify and Describe. (2 Cell organelles + 1 Mitosis + 1 Meiosis +Histology)	= 10
Q.II.	Mounting/ Squash preparation of Onion root tip or flower bud.	= 10
Q.III.	Polytene Chromosomes/Isolation DNA/ Preparation of Permanent Slide	= 10
Q.IV.	Viva-Voce.	= 05
Q.V.	Certified Record Book	= 05

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Dept. of Zoology
Syllabus
THIRD SEMESTER B.SC

Course Title Code: APICULTURE	Course Credits: 02
Course Code: DSE-1TZ	Teaching Hours Per week: 2
Total Contact Hours: 30	Duration of Exam :02 Hours
Formative Assessment Marks: 10	Summative Assessment Marks :40

UNIT-II

Biology of Bees (04)

History, Classification of Honey Bees and Social Organization of Bee Colony

UNIT-II:

Rearing of Bees (12)

Artificial Bee rearing (Apiary), Beehives – Newton and Langstroth

Bee Pasturage

Selection of Bee Species for Apiculture

Bee Keeping Equipment

Methods of Extraction of Honey (Indigenous and modern)

UNIT-III:

Diseases and Enemies (06)

Bee Diseases and Enemies

Control and Preventive measures

UNIT-IV :

Bee Economy

Products of Apiculture industry and its uses (Honey and Bees Wax) (02)

UNIT-V:

Entrepreneurship in Apiculture (06)

Bee Keeping Industry- Recent Efforts, Modern

Methods in employing artificial

Beehives for cross Pollination in horticultural gardens

Note: Submission of a Project Report is Compulsory

SUGGESTED READINGS:

- Post, P.J.(1962) Apiculture. Oxford and IBH, New Delhi.
- Bisht D.S,. Apiculture, ICAR Publication
- Singh S., Beekeeping in India, India Council of Agricultural Research New Delhi.

DSE-1
APICULTURE
Model Question Paper (Theory)

Time: 2hrs

Max. Marks =40

Q.1. Answer any FIVE of the following

5X2=10

Q.No. 1 to 6

Q.II. Answer any TWO of the following in Brief.

2X5=10

Q.No. 7 to 9

Q.III. Explain / Describe any TWO of the following.

2X10=20

Q.No. 10 to 12.

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THIRD SEMESTER B.SC

Course Title Code: VERMICULTURE	Course Credits: 02
Course Code: DSE-1TZ	Teaching Hours Per week: 2
Total Contact Hours: 30	Duration of Exam :02 Hours
Formative Assessment Marks: 10	Summative Assessment Marks :40

UNIT-I Introduction and Scope of sericulture types of earthworms Habit categories- epigeic endogeic and anecic: indigenous and exotic species. (07)

UNIT-II Methodology of vermi composting. Countaines for culturing new materials required, preparation of bed, environmental pre- requisites, feeding, harvesting and storage of vermi compost (09)

UNIT-III Advantages of vermi composting Useful species of earthworms, local and exotic species of earthworms', key to identify the species of earthworms. (07)

UNIT: IV Diseases and and pests of earthworms enemies of earthworms sickness and worms' enemies frequent problems and fixation (07)

Reference Books:

1. Sultan ahmed ismnil 2005 the Earthwarm Book Second Revised Edition Other india press. Goa India.
2. Bhatnagar & Patla. 2007 Earthwarm vermiculture and vermin- composting Kalyani Publishers, New Delhi.
3. May Violt Christ 2008 Vermittechnolgy, M.P Publishers CChennai
4. Aravind Kumar. 2005 Vermes & Vermitechnology A.P.H.Publishing Corporation New. Dehli

DSE-1
VERMICULTURE
Model Question Paper (Theory)

Time: 2hrs

Max. Marks =40

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| Q.1. Answer any FIVE of the following
Q.No. 1 to 6 | 5X2=10 |
| Q.II. Answer any TWO of the following in Brief.
Q.No. 7 to 9 | 2X5=10 |
| Q.III. Explain / Describe any TWO of the following.
Q.No. 10 to 12. | 2X10=20 |