



# VIVEKANANDA COLLEGE

(Residential & Autonomous – A Gurukula Institute of Life – Training)

College with Potential for Excellence

Re-accredited with “A” Grade (CGPA 3.59 out of 4.00) by NAAC

Affiliated to Madurai Kamaraj University, Managed by Sri Ramakrishna Tapovanam,

Tirupparaitturai, Trichy

Tiruvedakam West, Madurai District-625 234, Tamil Nadu

**DBT STAR COLLEGE SCHEME**

Department of Biotechnology, Government of India, New Delhi



Chairman & Principal

: Dr. T. Venkatesan, M. Com., B.Ed., M.Phil., PGDCA., Ph.D

Coordinator & Member Secretary : Dr. G. Ponraj, M.Sc., M.Phil., Ph.D

## No. of hands-on experiments being conducted (Pre support)

1. Cockroach- Dissection - Digestive system, Nervous systems & Reproductive system
2. Mounting - Mouth parts and Salivary glands
3. Earthworm – Dissection - Digestive and Nervous systems
4. Mounting - Body setae and Penial setae
5. House fly - Mounting -Mouthparts
6. Fish – Dissection and observation of visceral organs
7. Shark- Mounting of Placoid Scales
8. Study of Cell types – Observation of prepared slides
9. Study of buccal epithelium in human and Onion peeling
10. Mitosis – Study of stages in Onion root tip meristem
11. Meiosis – Study of stages of grass hopper testis –squash
12. Micro technique- Preparation of permanent slides (Demonstration only).
13. Identification of the genetic material(chromosome)by simple staining – Giant chromosome in *Chironomus* larva
14. Survey of simple Mendelian traits in man in small population.
15. Use of beads to study Monohybrid, Dihybrid and Test crosses.
16. Distribution of tasters and non-tasters in the class population (PTC tasting).
17. Polygenic inheritance of quantitative traits – observations and graphical representations may be made using height and weight of the students.
18. Temporary mounting of Chick blastoderm.
19. Effect of Thyroxine in tadpoles of Frog
20. Whole mount of 24 Hours and 48 Hours chick embryo
21. Effect of temperature on the opercular movement of fish.
22. Study of oxygen consumption by a fish
23. Test for the detection of excretory products (Ammonia, Urea and Uric acid).
24. Study of blood corpuscles- Preparation of blood smear and counting of blood corpuscles using haemocytometer.
25. A study on ECG strip and report
26. Effect of activities on blood pressure in Man.
27. Study of salivary amylase enzyme activity. Effect of temperature and  $p^H$
28. Tests for albumen, Sugar and Urea in Urine.
29. Qualitative tests for carbohydrate, protein and lipid.
30. Study of  $p^H$  meter and measurement of  $p^H$  of various water samples.
31. Estimation of Ascorbic acid (Vitamin-C)
32. Analysis of Slide Preparation: Haemin and Uric acid crystals.
33. Primary screening of industrially important microbes.

34. Isolation of Genomic DNA
35. Isolation of Plasmid DNA
36. Demonstration of Agarose gel Electrophoresis
37. Immobilization of yeast cells
38. PCR demonstration
39. Cleaning of glass wares – Sterilizing media and equipment's
40. Preparation of media for Microbes.
41. Distribution of microbes in Nature- Soil, Water and in Air.
42. Cultural characterization of Bacteria
43. Simple staining of bacteria
44. Differential staining of bacteria – Gram staining.
45. Microscopic examination of live bacterial population.
46. Hanging drop technique
47. Dissection to show lymphoid organs in Chick.
48. Observation of spleen cells-Slide.
49. Bleeding and serum separation.
50. Demonstration of agglutination by blood group antigen.
51. Demonstration of R.B.C. and W.B.C. count.
52. Collection of Data
53. Frequency Distribution (with number of Seed Pods)
54. Calculation of Mean, Median, Mode and Standard Deviation
55. Chi-Square analysis for Mendelian Cross (Monohybrid & Dihybrid)
56. Probability with tossing of coins.
57. MS Word and its applications
58. Excel – Bar diagram, Pie diagram and Histogram
59. PowerPoint
60. Data base retrieval from internet
61. Email Creation and sending documents
62. Browsing the internet using websites
63. Browsing the internet using search Engines
64. Searching the data bases in NCBI, in PDB, in Swiss – Prot
65. Getting gene sequences from data bank
66. Nucleotide sequences
67. Protein sequences
68. Analyzing Protein sequences using ROSMOL and JMOL
69. Bond length between molecules
70. Bond angle between molecules
71. Finger print study and experiments with beads to understand evolutionary concepts
72. Principles of natural selection and genetic drift in large and small population Variation in finger prints in Man.
73. Experiment with beads to illustrate gene pool concept & production of genotypes
74. Experiment to study natural selection in large population
75. Experiment to study principles of genetic drift in small population.
76. Identification of breeds of Cow and exotic cows
77. Computation of ration for calf and pregnant cow
78. Experiment to identify the specific gravity of milk using Lactometer
79. Detection of adulteration using MBR test, alcohol test and H<sub>2</sub>SO<sub>4</sub> tests
80. Visit to dairy processing Centre and Veterinary hospital
81. Morphometric study of fresh water pond
82. Identification of fresh water and marine plankton
83. Estimation of dissolved oxygen in water samples
84. Measurement of soil temperature, pH and moisture

### **After Support**

1. Virtual Dissection – Earthworm, Cockroach, Honey bee, Housefly, Mosquito using softwares
2. Virtual Dissection - Frog, Calotes and Chick using softwares.
3. ESR mounting for physiology
4. Basic hematological techniques and biochemical assays
5. DNA model building through plastic molecular beads
6. Protein profile preparation through SDS PAGE
7. Water sample quality test with multi parameter probe
8. Analysis of milk quality by milk nutritive value analyzer
9. Comparative human trait analysis (Height, Weight & BMI) by using BMI analyzer
10. Biodiversity and digital documentation of faunal baseline in the local vicinity

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