S. G. V. C. Vidya Prasarak Trust's,
**Matoshri Gangamma Veerappa Chiniwar Arts, Commerce & Science College,**
**MUDDEBIHAL-586212.** Dist. Vijayapur (Karnataka)
*(Accredited with CGPA of 2.58 on seven point scale at 'B+' Grade)*
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* email : princmgvc@gmail.com * www.mgvcmbl.in *

Ref. No. : 64/21

Date : 2021-22.

# Certificate

This is to certify that following are the list of Departmental Projects of during the year 2021-22

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MUDDEBIHAL-586212. Dist. Vijayapur (Karnataka)
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Ref. No. : 642/21 Date : 2021-22

## DEPARTMENT OF ZOOLOGY

**Project work on 'LOCAL EDIBLE FISHES OF MUDDEBIHAL TALUK' for the year 2021-2022**

**Semester: VIth Semester**

| Sl.No | Seat No. | Name |
|---|---|---|
| 1. | S1928001 | Aaisha Bagawan |
| 2. | S1928005 | Aishwarya Kalyani |
| 3. | S1928006 | Akash Jadhav |
| 4. | S1928011 | Amaresh Koloor |
| 5. | S1928017 | Amrutha Hiremath` |
| 6. | S1928020 | Anasultana Mulla |
| 7 | S1928023 | Anil Adagal |
| 8 | S1928026 | Apeksha Nayak |
| 9 | S1928029 | Ashok Ammapur |
| 10 | S1928033 | Ashwini Rathod |
| 11 | S1928051 | Gurudevi Policepatil |
| 12 | S1928053 | HanamantrayaWalikar |
| 13 | S19280 | Hareesh Dodamani |
| 14 | S1928055 | Husenbasha Havaragi |
| 15 | S1928057 | Javeriya Bagawan |
| 16 | S1928061 | Kavya N Bijjur |
| 17 | S1928062 | Keerthi Nalatwad |
| 18 | S19280 | Madhu Bhajantri |
| 19 | S1928068 | Madhusudhan Lokare |

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| | | |
|---|---|---|
| 20 | S19280 | Mahesh Nadavinamani |
| 21 | S1928070 | Maktumsab Mamadapur |
| 22 | S1928071 | Malanabegum Nadaf |
| 23 | S1928075 | Maruti Rathod |
| 24 | S1928080 | Mounesh Pattar |
| 25 | S1928081 | Naganagouda Policepatil |
| 26 | S1928096 | Praveen Odi |
| 27 | S1928098 | Pruthvi Boodi |
| 28 | S1928101 | Rajashekhar |
| 29 | S1928103 | Rajiyabegum Nadaf |
| 30 | S1928105 | Ramappa Gangihal |
| 31 | S1928106 | Ramesh Dodamani |
| 32 | S1928111 | Roopa Tunbagi |
| 33 | S1928112 | Rukiya Mujawar |
| 34 | S1928 | Sahana Narasalagi |
| 35 | S1928117 | Sangeeta Ullagaddi |
| 36 | S1928122 | Shankar Deshmukh |
| 37 | S1928124 | Shashikant Naik |
| 38 | S1928131 | Shridhar Hugar |
| 39 | S1928133 | Sudeep Tiganibidari |
| 40 | S1928135 | Sunanda Hadapad |
| 41 | S1928138 | Supriya Hugar |
| 42 | S1928140 | Tejashwini Hosamani |
| 43 | S1928141 | Veena Desai |
| 44 | S1928143 | Veena Gubachi |
| 45 | S1928 | Venkatesh Rathod |
| 46 | S1928146 | Vinayak Patil |

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| | | |
|---|---|---|
| 47 | S1928147 | Vinod Dodamani |
| 48 | S1928151 | Waseemakram Bagawan |

NAAC A+ GRADE
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# MGVC Arts, Commerce and Science College

# Muddebihal

## Department of Zoology

## A Project Report on

## Local Edible Fishes of Muddebihal Taluka

**Project submitted to the Department of Zoology**

**Submitted By:** Aishwarya G. Kalyani
R.g.No:- S1928005

**Project Guide:** Vastrad Sir

**2021-22**

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# MGVC Arts, Commerce and Science College

# Muddebihal

## Department of Zoology

### Certificate

This is to certify that the project report entitled **"Local Edible Fishes of Muddebihal Taluka"** Submitted by Aishwarya G. Kalyani Rg. No: S1928005 as part of VIth Semester examination in BSc Zoology practicals.

He/She is satisfactorily completed the project work under our supervision during the year 2021-22

**Staff in charge** **Head of the Department**

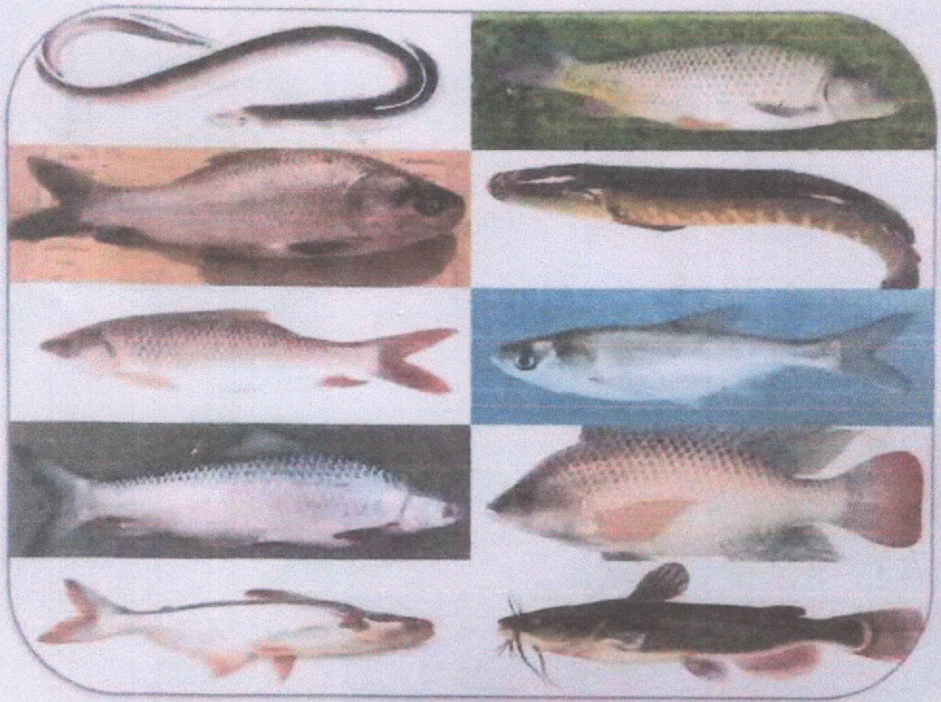
**OBSERVATION OF CARP FISH BY THE STUDENTS**

**FISHERMAN SHOWING CATLA FISH TO THE STUDENTS**

## OBSERVATION OF LABEO FISH BY THE STUDENTS

## OBSERVATION OF COMMON CARP FISH BY THE STUDENTS

# INDEX



1. WALLAGO ATTU
2. COMMON CARP
3. CATLA
4. MRIGALA
5. PANGASIUS
6. ROHU
7. SILVER CARP
8. SNAKE FISH
9. TILAPIA MOSSAMBICA
10. ANGUILLA





Anu

# 1. WALLAGO ATTU (CAT FISH)

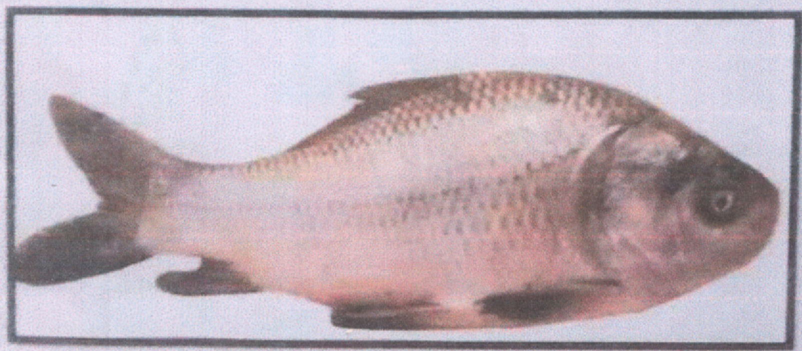
## CLASSIFICATION

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actionpterygii |
| Order | - | Siluriformes |
| Family | - | Siluridae |
| Genus | - | Wallago |
| Species | - | attu |

## MORPHOLOGICAL CHARACTERS :-

* It is a catfish. Its local name is Mulle.
* It is commonly called as helicopter catfish
* It is found in tangadagi river.
* Its body is elongated, laterally compressed with a straight back.
* Its body is broader near the head and narrower at the trunk. Its body is about 1 meter in length.
* Its head bears a wide mouth which extends behinds the eyes and 4 Barbels . a pair of long maxillary barbels and pair of short mandibular barbels.
* Its dorsal fin is short and spineless. Pectoral fins are close to each other.
* It is carnivorous. It feeds on eggs of other fishes and dead animals.
* It is lazy and is usually found at the bottom of pond.
* Its is one of the best fish food as it lacks intramuscular bones.

# 3. CATLA (CATLA CATLA)



**CLASSIFICATION :-**

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actionpterygii |
| Order | - | Cypriniformes |
| Family | - | Cyprinidae |
| Genus | - | Catla |
| Species | - | catla |

**MORPHOLOGICAL CHARACTERS :-**

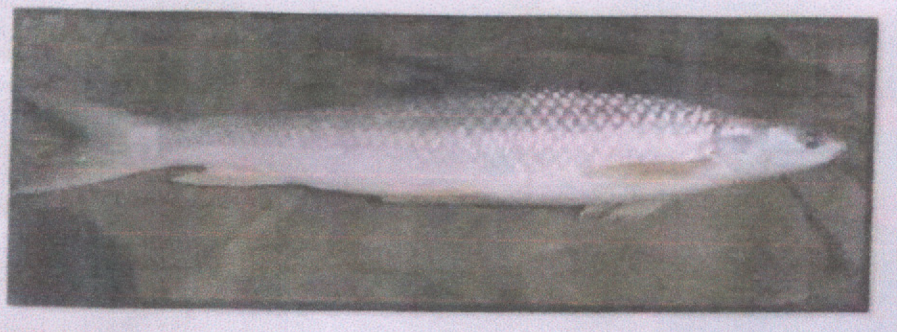
* It is one of the fresh water carp.
* It is found in Rakkasagi lake.
* Its body is spindle like but more arched dorsally & is covered with scales.
* It head is scale less. It has large mouth with prominent lips.
* It has large rounded eyes.
* It is blackish grey above and silvery on the sides.
* This fish is over 90cm in length.
* It feeds on plankton and decayed vegetation.
* It is a prolific breeder. It lays eggs in July and August.
* It inhibits all the rivers of India.





Anu

# 4. MRIGALA ( CIRRHINUS MRIGALA)



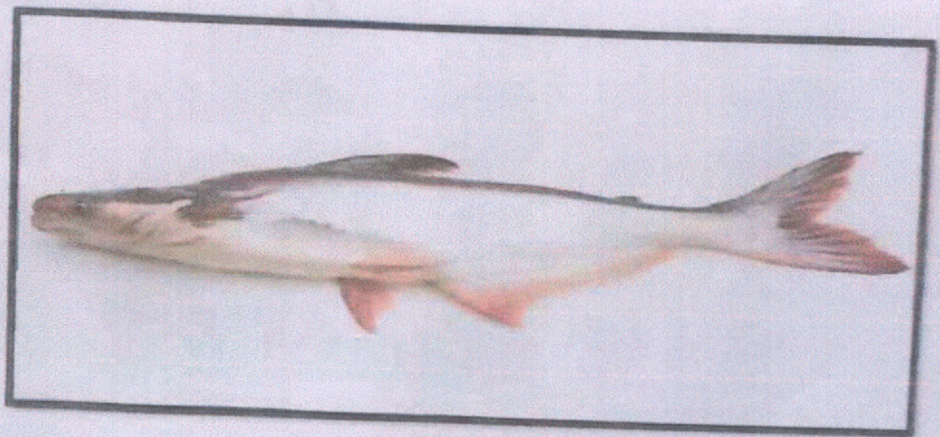
**CLASSIFICATION :-**

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actinopterygii |
| Order | - | Cypriniformes |
| Family | - | Cyprinidae |
| Genus | - | Cirrhinus |
| Species | - | mrigala |

**MORPHOLOGICAL CHARACTERS :-**

* It is a fresh water carp.
* It is found in basarkod tank.
* Its body is covered by large cycloid scales. Scales are absent on head.
* It has a wide mouth with thin lips.
* It may have barbels when present are very small and are folded in the lip.
* It has a sharply forked caudle fin.
* Dorsal surface of its body is silvery dark grey in colour.
* The maximum length acquired is 66cm and its weight is about 1.4 to 2.8 kg
* It is found in fresh water habitat throughout India.

# 5.PANGASIUS



**CLASSIFICATION :-**

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actinopterygii |
| Order | - | Siluriformes |
| Family | - | Pangasiidae |
| Genus | - | Pangasius |
| Species | - | bocourti |

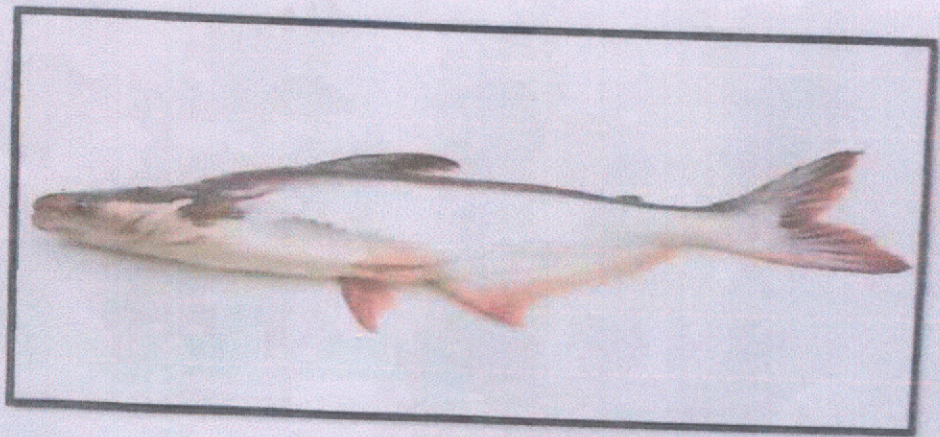
**MORPHOLOGICAL CHARACTERS :-**

* It is also one of the fresh water fishes.
* It is found in madari tank.
* The body of Pangasius is stout and heavy.
* The head is rounded and broader than long with blunt snout
* It is a medium to large sized fresh water.
* This species grows to a maximum length of 120cms.
* These fish are important food fish with an international market.
* Pangasius is the commercially important fish.



Arlu

# 5.PANGASIUS



## CLASSIFICATION :-

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actinopterygii |
| Order | - | Siluriformes |
| Family | - | Pangasiidae |
| Genus | - | Pangasius |
| Species | - | bocourti |

## MORPHOLOGICAL CHARACTERS :-

* It is also one of the fresh water fishes.
* It is found in madari tank.
* The body of Pangasius is stout and heavy.
* The head is rounded and broader than long with blunt snout
* It is a medium to large sized fresh water.
* This species grows to a maximum length of 120cms.
* These fish are important food fish with an international market.
* Pangasius is the commercially important fish.



Anu

# 6. ROHU ( Labeo Rohita)

## CLASSIFICATION :

| | | |
|---|---|---|
| Phylum | - | Chordata |
| Class | - | Actinopterygii |
| Order | - | Cypriniformes |
| Family | - | Cyprinidae |
| Genus | - | Labeo |
| Species | - | rohita |

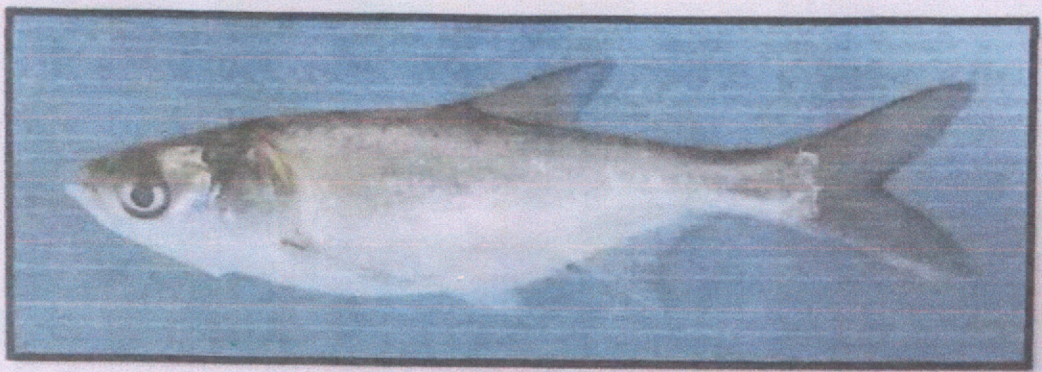
## MORPHOLOGICAL CHARACTERS :-

* It is a large carp fish.
* It is found in Hokrani tank.
* Its body is elongated with a fairly rounded abdomen. The head is prominent with blunt snout.
* Its body is about 1 meter in length.
* Its body is grayish on the black and silvery- white on the sides and belly.
* Its pelvic fins are ventral and opposite to the dorsal fin.
* Its caudal fin is sharply forked and symmetrical.
* This fish is carnivorous when young. Young fishes feed on crustacean and insects larvae, but adult is herbivorous feed on phytoplankton.
* It breeds in July and August.



Anu

# 7.SILVER CARP



**CLASSIFICATION :-**

| | | |
|---|---|---|
| Kingdom | - | Animalia |
| Phylum | - | Chordata |
| Class | - | Actionopterygii |
| Order | - | Anabantiformes |
| Family | - | Channidae |
| Genus | - | Hypophthalmichthys |
| Species | - | molitrix |

**MORPHOLOGICAL CHARACTERS :-**

* It is a fresh water fish.
* It is found in mudnal river.
* It has a wide mouth with thin lips.
* It may barbells. Barbells when present are very small and are folded in the lip.
* It has a sharply forked caudle fin.
* It is a deep bodied fish that is laterally compressed.
* It is a very silvery in colour when young.
* When they get older they fade from a greenish colour on the back to silver on the belly.
* They have very tiny scales of their body.



Anu

# 8. SNAKE FISH

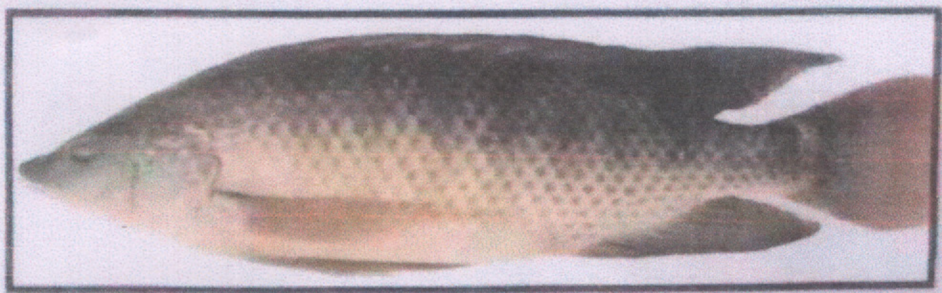
**CLASSIFICATION :-**

| | | |
|---|---|---|
| Kingdom | - | Animalia |
| Phylum | - | Chordata |
| Class | - | Actionpterygii |
| Order | - | Anabantiformes |
| Family | - | Channidae |
| Genus | - | Channa |
| Species | - | argus |

**MORPHOLOGICAL CHARACTERS :-**

- It is a fresh water fish.
- It is found in Narayanapur dam.
- Its body is elongated, laterally compressed with a straight back.
- Its body is shorter near the head narrower the trunk is 25cm (10 inch).
- It is predatory fish are distinguished by their long dorsal fins large mouths.
- It has shiny teeth they breath air with gills.
- Which allows them to migrate short distances over land.
- It is lazy and is usually found at the bottom of pond.
- This fish is found in lakes and rivers throughout India.

# 9. TILAPIA MOSSAMBICA



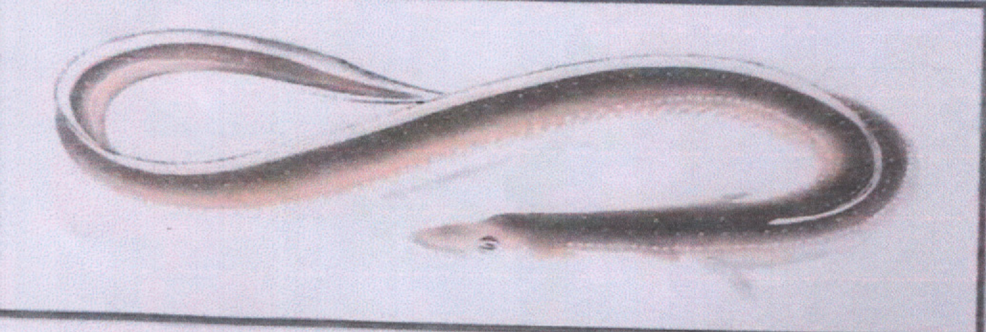
**CLASSIFICATION :-**

| | | |
|---|---|---|
| Kingdom | - | Animalia |
| Phylum | - | Chordata |
| Class | - | Actionpterygii |
| Order | - | Perciformes |
| Family | - | Cyprinidae |
| Genus | - | Oreochromis |
| Species | - | aureus |

**MORPHOLOGICAL CHARACTERS :-**

* It is culture fish which breeds freely and survives in fresh water.
* Its body is long with rounded snout. Its mouth is large and wide.
* Its body is covered by cycloid scales.
* It dorsal fin is single large and spinous. Its pectoral fin is as long as the head.
* The colour of the body varies from brownish to blackish.
* It is herbivorous. It feeds on unicellular filaments algae and aquatic plants.
* Male fish grows rapidly in early part of life.
* During breeding season female lays about 70-120 eggs at the time.
* It breed on large scale in fresh water ponds.
* Its flesh is not tasty when compared to other fishes.

# 10. ANGUILLA



CLASSIFICATION :-

| | | |
|---|---|---|
| Phyllum | - | chordata |
| Subphylum | - | vertibrata |
| Class | - | Ostichthyes |
| Superclass | - | pisces |
| Order | - | anguilliformes |
| Genus | - | anguilla |

MORPHOLOGICAL CHARACTERS :-

* It is commonly called as "eel"

* Body is elongated cylindrical and snake like and colour is brown on the back and yellowish below

* Dorsal, ventral and anal fins are confluent Pectoral is small and pelvic is absent

* Gill opening is narrow and minute

* It is fresh water form found in ponds, river, and damping grass

* Anguilla has a peculiar life history spending most of their in fresh or brackish water but returning to sea to spawn

-1

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Ref. No. : 642/21 Date : 2021-22

## DEPARTMENT OF ZOOLOGY

### Project work on 'BEAK MODIFICATION IN BIRDS' for the year 2021-2022

**Semester: IVth Semester**

| Sl.No | Seat No. | Student Name |
|---|---|---|
| 1. | S2031601 | Abhishek Nanagoud Patil |
| 2. | S2031602 | Aisha Dawal Tumbagi |
| 3. | S2031603 | Aishwarya Sangangouda Patil |
| 4. | S2031605 | Akshaykumar B patil |
| 5. | S2031606 | Ambika Revanasiddayya Shankinamath |
| 6. | S2031610 | Anusha Dodamani |
| 7. | S2031611 | Anushasaniya Nandwadagi |
| 8. | S2031614 | Bhagyalakshmi Kasheenath Kashetti |
| 9. | S2031618 | Danamma Malingayya Hiremath |
| 10. | S2031619 | Druvakumar Nayak |
| 11. | S2031623 | Kavya Nalatwad |
| 12. | S2031627 | Lalita Kareppa Beli |
| 13. | S2031629 | Mahmad Arif Haveli |
| 14. | S2031633 | Mohammedazaroddin K Bagwan |
| 15. | S2031634 | Monika Irayya Hiremath |
| 16. | S2031639 | Ningamma Ningappa Kalari |
| 17. | S2031642 | Nisarga vishwanath Patil |
| 18. | S2031647 | Pooja Sharanappa Kumbar |

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| | | |
|---|---|---|
| 19. | S2031649 | Prajwal Prakash Madiwalar |
| 20. | S2031653 | Rafeek Bannetti |
| 21. | S2031656 | Ramangouda |
| 22. | S2031657 | Ramesh A Hampangoudar |
| 23. | S2031658 | Rohan Kashinath Sulibhavi |
| 24. | S2031659 | Sabaalam Nazerahmad Dakhani |
| 25. | S2031660 | Sabiyya D Satihal |
| 26. | S2031661 | Samarth Prabhuraj patil |
| 27. | S2031665 | Sangayya Hiremath |
| 28. | S2031668 | Seema Sothe |
| 29. | S2031671 | Shivaraj Prabhugouda meti |
| 30. | S20316 | Shravankumar K Pyati |
| 31. | S2031674 | Shreekant V Lamani |
| 32. | S2031675 | Siddangouda Biradar |
| 33. | S2031683 | Sunita |
| 34. | S2031688 | Tayyabamuskan Soudagar |
| 35. | S2031691 | Ummebarira N Shabhai |
| 36. | S2031692 | Vandana V Rathod |
| 37. | S2031694 | Vinayaka A pujari |
| 38. | S2031695 | Yalaguradappa S kodaganoor |
| 39. | S2031696 | Yasmin H B |

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# DEPARTMENT OF BOTANY

**PROJECT WORK 2021-22 B.Sc IInd SEMESTER**

| Sl.No | Seat No | Name of the Students | Project |
|---|---|---|---|
| 1 | U15NU21S002 | Khwajabandenawaz Mulawad | Bryophytes |
| 2 | U15NU21S004 | Tasneem.Soudagar | Bryophytes |
| 3 | U15NU21S023 | Tanveer Attar | Bryophytes |
| 4 | U15NU21S024 | Manjula.Lakkanavar | Bryophytes |
| 5 | U15NU21S027 | Pratiba.Dodamani | Bryophytes |
| 6 | U15NU21S032 | Muskan.Mujawar | Bryophytes |
| 7 | U15NU21S034 | Vidyashree.Sasnur | Bryophytes |
| 8 | U15NU21S035 | Sangeeta | Bryophytes |
| 9 | U15NU21S040 | Sohail.Desai | Bryophytes |
| 10 | U15NU21S042 | Sachin | Bryophytes |
| 11 | U15NU21S065 | Vinuta | Bryophytes |
| 12 | U15NU21S093 | Bhagyashree.K | Bryophytes |
| 13 | U15NU21S072 | Muskan | Bryophytes |
| 14 | U15NU21S086 | Rajiyabegum.Rudrawadi | Bryophytes |
| 15 | U15NU21S090 | Malappa.Kashinakunti | Bryophytes |

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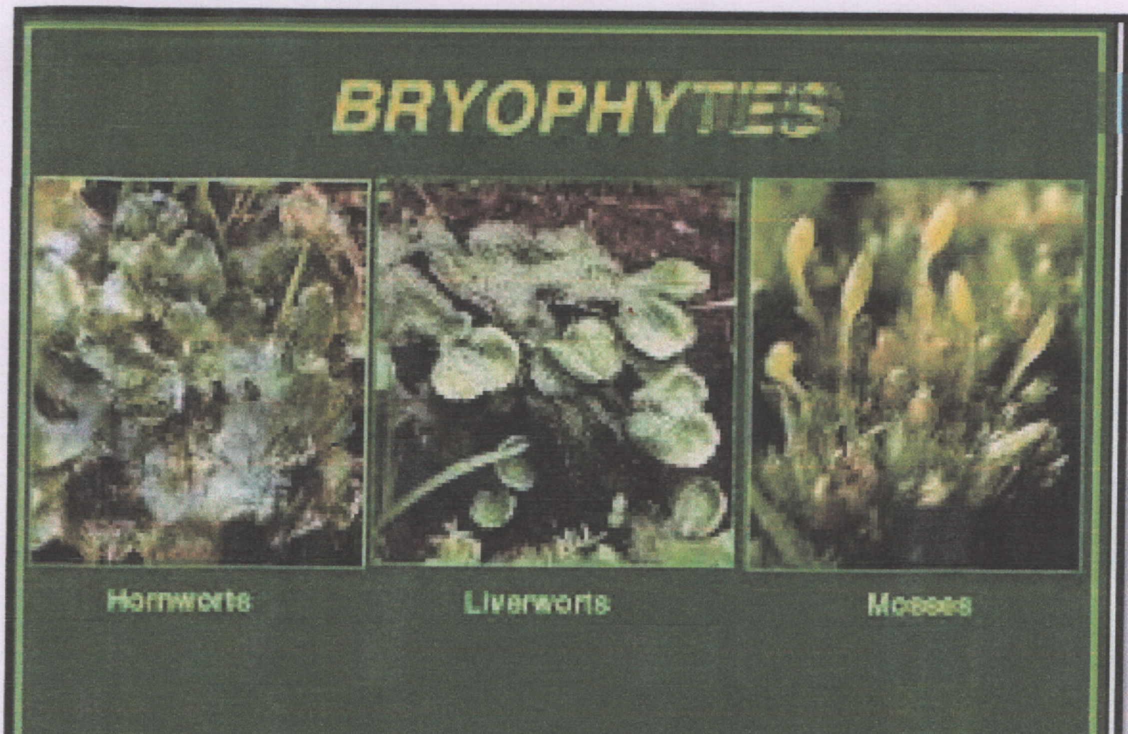
# M.G.V.C ARTS, COMMERCE , AND SCIENCE COLLEGE MUDDEBIHAL

## DEPARTMENT OF BOTANY

## PROJECT WORK

## ON

## "BRYOPHYTES"



Dept. Botany MUDDEBIHAL -586212 M.G.V.C. Arts, Commerce & Science College

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# M.G.V.C ARTS, COMMERCE , AND SCIENCE COLLEGE MUDDEBIHAL

## DEPARTMENT OF BOTANY

# CERTIFICATE

**EXAMINATION SEAT NO : U15NU21S0093 CLASS; B.Sc II SEM**

This is to certity that Mr/Mrs. : **BHAGYASHREE K** has satisfactorily completed project work on : **BRYOPHYATES in** botany as prescribed by the rani channamma

Staff Member in charge

DEPARTMENT OF BOTANY

*Head of the Department of Botany*
M.G.V.C. College, MUDDEBIHAL-586212
Dist: Bijapur.

## Bryophytes :

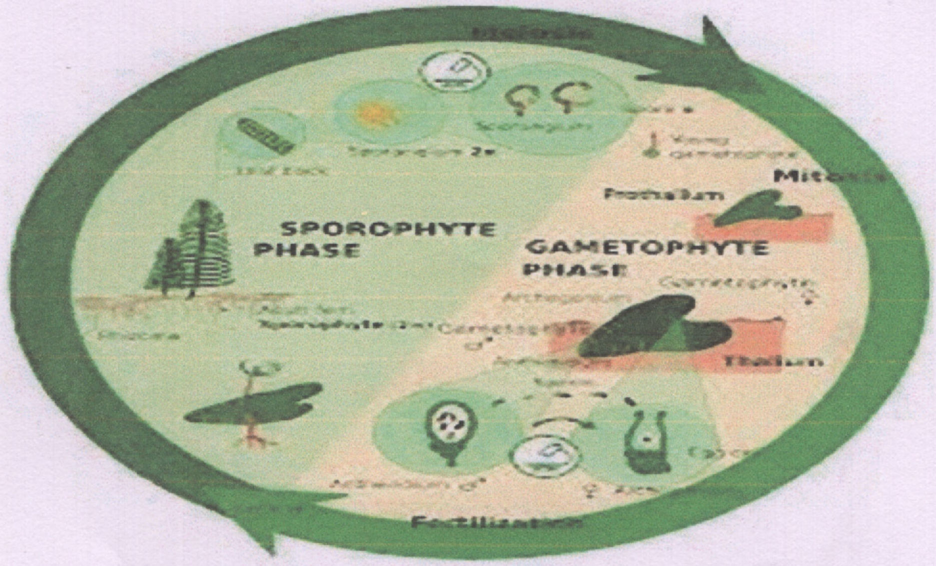
The term Bryophyte originates from the word ' Bryon meaning mosses and python meaning plants.

Bryophyte includes embryophytes like mosses hornworts and liverworts these are small plants that grow in shady and damp areas. They lack vascular tissues.

## General characteristics of bryophytes ;

- Plants occur in damp and shaded areas.
- The plant dody is thallus like, I e prostate or erect
- It is attached to the substratum by rhizoids which are unicellular or multicelluar
- They lack true vegetative structure and have a root like stem like and leaf like structure.
- Plants lack the vascular system (xylem phloem)
- Bryophytes show alternation of genetation between independent gametophyte with sex organs which produces sperm and eggs and dependent sporophyte which contains spores.
- The dominant part of the plant body is gametophyte which is haploid.
- The thalloid gametophyte is differentiated into rhizoids, axis and leaves
- The gametophyte bears multicellular sex organs and is photosynthetic.
- The antheridium produces atherozoids. Which are biflagellted
- The shape of an archegonium is like a flask and produces one egg
- The atherozoids fuse with egg to form a zygote
- The zygote develops into a multicelluar sprorophyte
- The sporophyte is semi parasitic and dependent on the gametophyte for its nutrition.
- Cells if sporophyte undergo meiosis to from haploid gametes which from a gametophyte.
- The juvenile gametophyte is known as protonema.
- The sporophyte is differentiated into foot seta and capsule.

# LIFE CYCLE OF BRYOPHYT




## Classification of bryophyte

**a. Hepaticopsida ( Liveroworts)**

**b. Anthocerotopside( Hornworts)**

**c. Bryopsida ( Mosses)**

# RICCIA



**Classification ;**

| | | |
|---|---|---|
| **Division** | ; | Bryophyta |
| **Class** | ; | Hopaticopsida |
| **Order** | : | Marchantiales |
| **Family** | ; | Ricciaceae |
| **Genus** | : | Riccia |

**Occurrence ;** the genus named alter an Italian botanist F F ricci all the species grow as terrestrial plants on damp soils except riccia flultars which grows in water.

**Gametophytic plant body ;** thallold body small flat, dorsiventral. Dichotomously branched, dorsal surface shows prominent midrib growing point is situated in the apical notch ventral surface shows the presence of a lange number of rhizoids and scales.

Scales and Rhizoids two types of rhizoids smooth inner walls living cells main function is absorption.

## INRERNAL STRUCTURE PHOTOSYNTHIREC ZONE;

1. consists of compactly arranged vertical rows of chiorenchymatous cells (assimilatory filaments ) separated by narrow vertical air chambers.
2. cells possess chioroplasts and perform photosynthesis.

## REPRODUCTION ;

Vegetative Reproducation.

1. Fragmentation
2. Formation of advenitilous brances
3. Porsistent gorwing apices
4. Formation of tubers

## SEXUAL REPRODUCATION ;

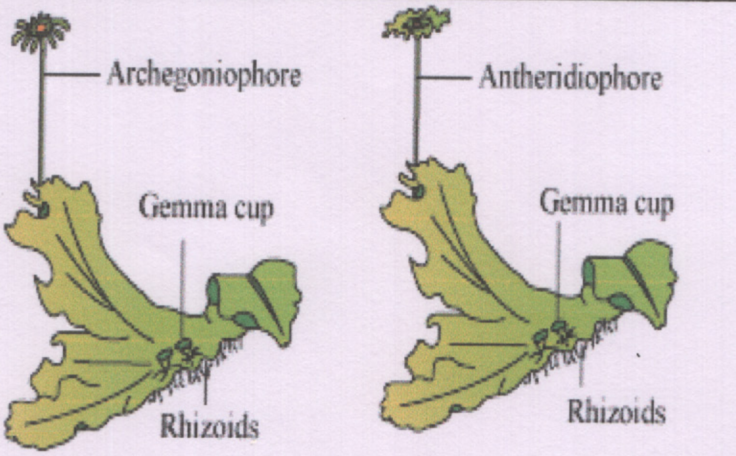
Oogamous male sex organs are antheridla borne in athericial chambers and female sex organs are archgont borne in antheridial chambers some of the species are monoecious and some are dioecious sex organs arise singly in acroperal succession youngest at the apex and oldest at the base.

## STRUTURE OF ANTHERIDIUM :

Differetiat into two parts : stalk and body of antheridium body of antheridum consists of single layered jacket enclosing a mass of androcytes each androcyte differentiates to produce single diflagellated antherozoid.

## STRUCTRURE Of ARCHEGONIUM :

It is a flask shaped structure differentiated into three parts : 1) Stalk 2)Swollen Venter : consists of single layered wall it encloses a venter canal cell and a large naked egg. 3) long nack : consists of 6-9 tiers of cells arranged in sex vertical rows surrounding a narrow nack canal.



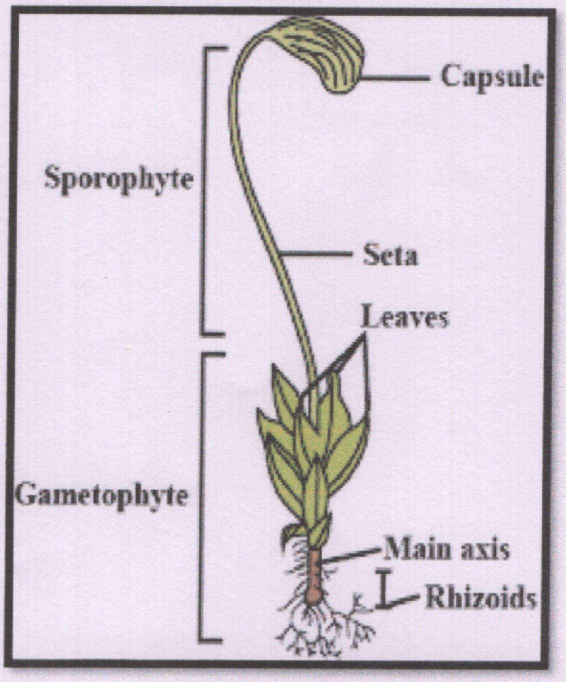

(a) Female thallus of *Marchantia* (b) Male thallus of *Marchantia*

## Fertilization ;

1. Occurs In the presence of water provided by rain or dew.
2. water is needed for dehiscence of antheridia liberation of antherozoids
3. a single antherozoid which reaches first fuses with the egg.
4. fusion results In the formation of diploid zygote the gametophytic phase of the life cycle ends with the formation of zygote.
5. the zyote is relained inside the venter and starts germinating it produces dipioid sporophytic plant body.
6. spores are haploid and are the first cells of sporophytic generation the germination requires presence of light low temperature and sufficient moisture.
7. Alternation of generation ; is hereromorphic type since the plant bodies to two generatons ae morphologically dissimllar.

# Funaria






**Classfication ;**

| | | |
|---|---|---|
| **Division** | : | Bryophyte |
| **Class** | : | Bryopsida |
| **Order** | : | Funariales |
| **Family** | ; | Funariacese |
| **Genus** | ; | Funaria |

**OCCURRENCE :** it grows in class tufts on rocks, trunks of trees damp walls and damp soils they help In the process of soil formation.

**INTERNAL STRUCTURE:** the epidermis is the outermost layer and contain chloroplast bearing cells the cortex is made up of parenchymatous tissue the cells of the young axis bear chloroplasts in mature stems the outemost cells become reddish brown colour and become thick walled.
They help in the conduction of water and minerals.

# Reproducation :

## VEGETATIVE REPRODUCTION

1. fragmentation of primary protonema.
2. Formation of secondary protonema from any part of the gametophyte.
3. formation of gemmae on terminal cells of the protonema.
4. development of bulbits on the rhizoids.

## Sexual Reproduction :

Funaria is monoecious the male and female reproeductive sex organs are borne on different branches of the same gametophyte.

Male sex organ is antheridium and it is formed in groups on the antheridial branch.

The female sex organ are the archegonia and are borne in clusters on the archegonial branch archegonial branches arise laterally at the base of the male branch.

A large number of antherozoids enter the neck of the archegonium enter neck of the archegonium but only one fuses with the egg to form a diploid zygote represents the first cell of sporophytic generation and divides to form a sporophyte.

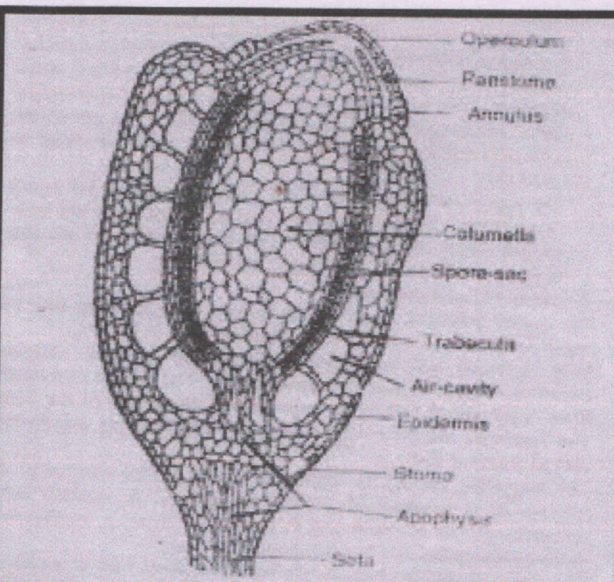


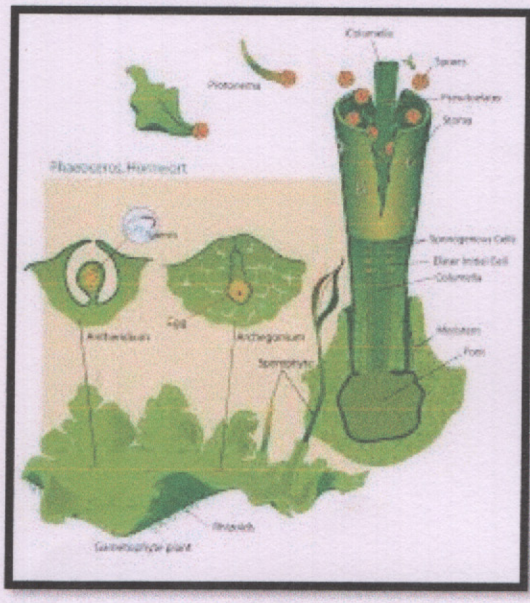

Fig: Section of Sporogonium

## FIRTILIZATION :

- Occurs in the presence of wafer provided by rain or dew.
- Water is needed for dehiscence of antheridia liberation of atheridia antherazoids.
- A single antherozoid which reaches first fuses with the egg
- Fusion results n the formation of diploid zygote. The gametophytic phase of the life cycle ends with the formation of zygote.
- The zygote is retained inside the venter and starts geminating it produces diploid sporophytic plant body.
- Spores are haploid and are first cells of sporophytic generation the germination requires presence of light low lemperature and sufficient moisture.

# Anthoceros






**\Classification ;**

| | | |
|---|---|---|
| **Divisions** | ; | Bryothyta |
| **Class** | ; | Anthocerotopsida |
| **Order** | ; | Anthocerotaies |
| **Family** | : | Anthocerortacane |
| **Genus** | ; | Anthoceros |

**OCCURRENCE** : Anthoceros gorws of moist soil they are present in shady places tru trevices of rocks.

**INTERNAL STRUCTION** ; Anthoceros has thallus it is lobed and it has irregular or dichotomous branches the lobes have a wavy margin

# REPRODUCTION ;

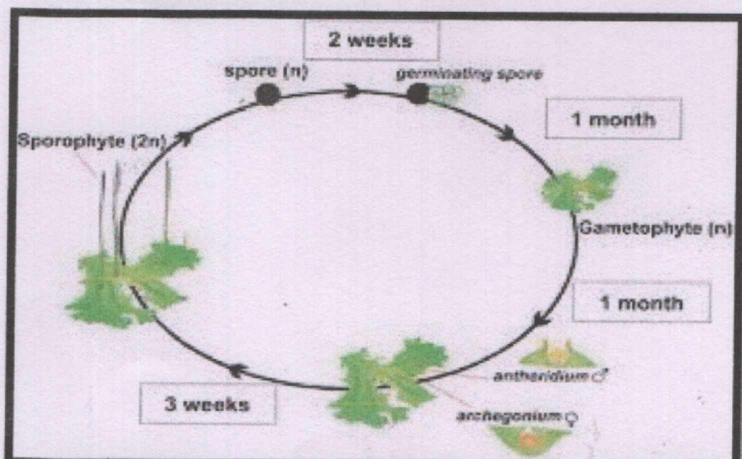
Vegetative Reproduction
1. Death of older pans
2. Tuber
3. Gammae.

**Sexual reproduction** : the atheridia are present on the upper side of the thallus in small cavities.
Archegonia are produce close to the growing point archegoia are embedded in the tissue of the thallus.

**Fertilization ;** the plant becomes wet with dew rain during fertilization atherozoids enter the archegonium through the nack canal. One of them fuses with the egg to complete the fertilization the zygote increases in size and completely fills the venter.

**Sporophyte or sporogonium** ; the sporophyte of anthoceros has certain unique features spogogogium is borne on the gametophyte.

Anthoceros shows heteromorphic alternation thallus is a gametophyte it develops sex organs which produce the gametes the gametes fuse to form oospore oospore gives rise to the sporophyte the sporpphytes are semi independent the tissues of the sporophyte is diploid the spore mother cells undergo meisosis and give rise to spores spores mother cells undergo meiosis and give rise to spores spores germinate to form haploid gametopyte.



## ECOLOGY AND ECONOMIC IMPORTANCE OF BRYPHYTES



A) Pioneer of the land plants Bryophyes are pioneer of the land plants because they are the first plants to grow and colonize the barren rocks and lands.

B) soil erosion Bryophytes prevent soil erosion they usually grow densely and hence act as soil binders mosses grow in dense strands forming mat or carpet like structure.

## They prevent soil erosion by:

I) Bearing the impact of falling rain drops.

II) holding much of the falling water and reducing the amount of run off water.

III) formation of soil mosses and lichens are slow but efficient soil formers the acid secreted by the lichens and progressive death and decay of mosses help In the formation of soil.

IV) Bog succession peat mosses change the banks of likes of shallow bodies of water into solid soil which supports vegetation e g sphagnum.

V) Rock builders. Some mosses in association with some green algae ( e.g chara ) grow in water of streams and lakes which contain large amount of calcium bicarbonate these mosses bring about decomposition of bicarbonic ions by abstracting free carbon dioxide the insoluble calcium carbonate precipitates and on exposure hardens calcateous (lime 0 rock like deposits.

## In Medicines :

Some bryophytes are used medicinally in various diseases for e g

1. Pulmonary tuberculosis and affliction of liver marchantia spp

2) acute hemorrhage and diseases of eye – decoction of sphagnum

3) stone of kidney and gall bladder polytrichum commune

4) antiseptic properties and healing of wonds sphagnum leaves and extracts of some bryophytes for e g conocephalum conicum dumortiera. Sphagnum rotoricens s strictum show antiseptic properties.

# M G V C ARTS COMMERCE & SCIENCE COLLEGE MUDDEBIHAL

## DEPARTMENT OF STATISTICS

### SEMINAR

### YEAR -2021-22

| Sl.No | Program Name | Course Name | Name of the Title |
|---|---|---|---|
| 01 | B.Sc | statistics | Normal Distribution |
| 02 | B.Sc | statistics | Probability |
| 03 | B.Sc | statistics | Poisson Distribution |
| 04 | B.Sc | statistics | Baye's Theorem |
| 05 | B.Sc | statistics | Random Variable |
| 06 | B.A | Applied statistics | Time series Analysis |
| 07 | B.A | Applied statistics | Index Number |
| 08 | B.A | Applied statistics | Fishers I.P. Index number |
| 09 | B.A | Applied statistics | Laspeyre's Price Index number |
| 10 | B.A | Applied statistics | Paasche's Price Index number |

Head
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M.G.V.C. Arts, Science & Commerce College
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S.G.V.C Vidya Prasarak Trust's

M.G.V.C ARTS ,COMMERCE AND SCIENCE COLLEGE MUDDEBIHAL

DEPARTMENT OF STATISTICS

2021-2022

# SEMINAR ON

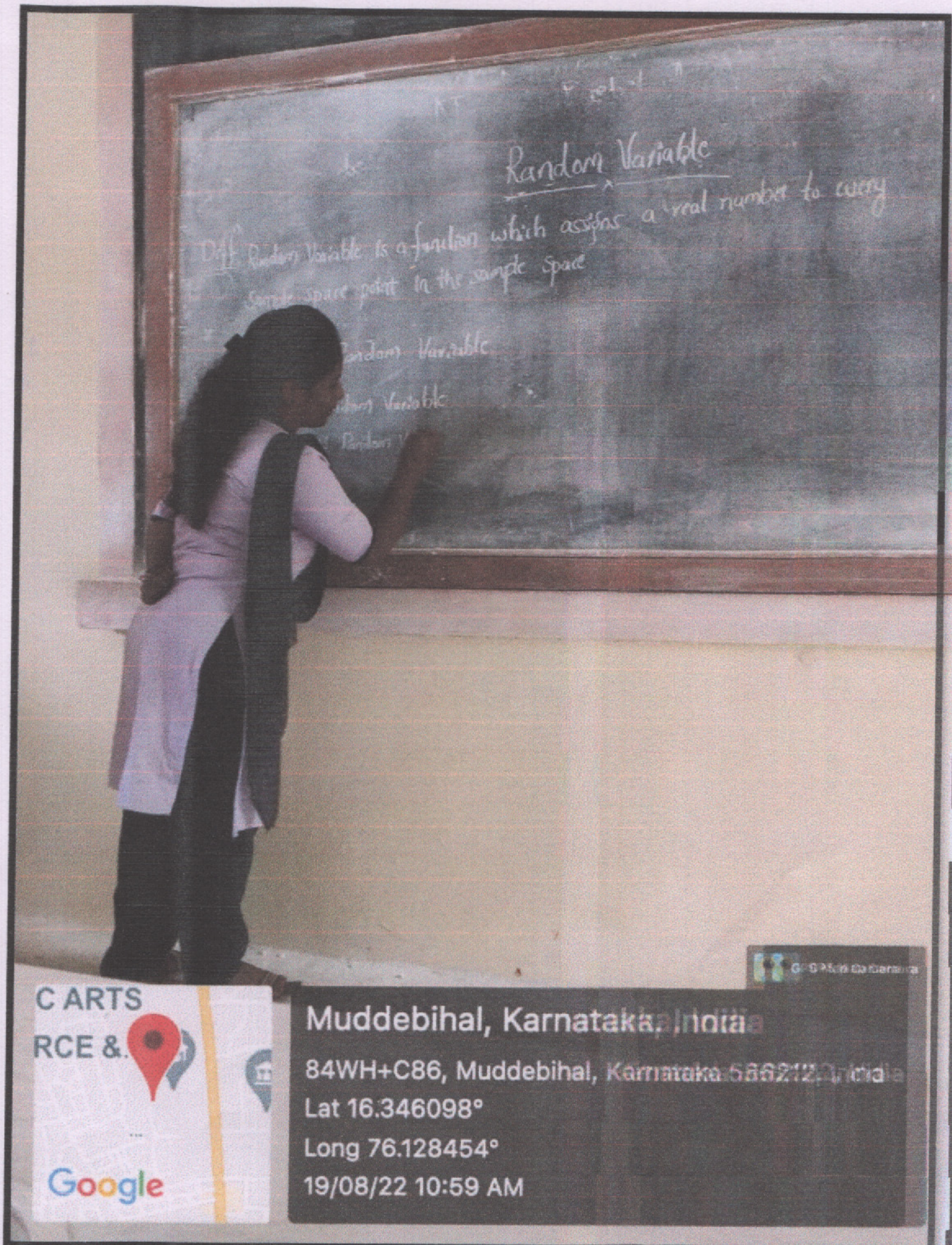
# RANDOM VARIABLE

| | | |
|---|---|---|
| NAME | : | AISHWARYA NAYAKODI |
| CLASS | : | B Sc II SEM |
| SUBJECT | : | STATISTICS |
| REG. NO | : | U15NU21S0058 |
| GUIDED BY | : | Prof. S.N. BIDARAKUNDI |

STAF MEMBER

HEAD DEPARTMENT OF STATISTICS

PRINCIPAL,
M.G.V.C. Arts, Commerce & Science College
MUDDEBIHAL-586212. Dist: Vijayapur.


Random Variable
Def: Random Variable is a function which assigns a real number to every sample space point in the sample space
C ARTS
RCE &.
Google
Muddebihal, Karnataka, India
84WH+C86, Muddebihal, Karnataka 586212, India
Lat 16.346098°
Long 76.128454°
19/08/22 10:59 AM

# -: Random Variable :-



Let 3 coins are tossed, then the sample space is

$S = \{HHH, HHT, HTH, THH, HTT, THT, TTH, TTT\}$

Suppose two each of the 8 sample points in this sample space, A number is assingned as follows.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample points : | TTT, | TTH, | THT, | HTT, | THH, | HTH, | HHT | HHH |
| Number : | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 |

Here the assigned number indicate the number of heads obtaine in each case.

Let the number of heads is denoted by x,
Then x is a function on the sample space, it takes the values 0, 1, 2, and 3 with probabilities.

$P(X=0) = P(\text{no. heads occurs}) = 1/8$

$P(x=1) = P(\text{one head occurs}) = 3/8$

$P(x=2) = P(\text{two head occurs}) = 3/8$

$P(x=3) = P(\text{three head occurs}) = 1/8$

Here x is called as Random Variable,

The probability function or distribution of x is

| | | | | |
|---|---|---|---|---|
| $x$ : | 0 | 1 | 2 | 3 |
| $P(x) = P(X=x)$ : | $1/8$ | $3/8$ | $3/8$ | $1/8$ |

The total probability, $= \Sigma P(x) = \frac{1}{8} + \frac{3}{8} + \frac{3}{8} + \frac{1}{8} = 1$

$\Sigma P(x) = 1.$

$x = 0, 1, 2, 3.$



Defination of Random Variable:

Random variable is a function which assigns a real number to every sample point in the sample space, The set of such real values is the range of the random variable.

Types of Random Variable:

There are two types of random variable namely.

1) Discrete Random variable.

2) Continuous Random variable.

01) Discrete Random Variable:

If a random variable takes atmost a countable number of values then it is called as descrete random variable.

A variable 'X' with takes the values $x_1, x_2, x_3 ---- x_n$ with probabilities.

$P_1, P_2, P_3 ----- P_n$ is called descrete Random variable.

Here the values $x_1, x_2, x_3 ---- x_n$ form a range of the random variable.

eg: Let x denote the number obtained while throwing a die. Then x is descrete random variable. taking values 1, 2, 3, 4, 5, 6 with probability $\frac{1}{6}$ each.

02) Continuous Random Variable:

A Random variable X said to be continuous, if it can take all possible values between certain limits.



eg: Let x denote the weight of mangoes in a tree. Then X is called continuous random variable and range of X is $-\infty$ to $+\infty$.

* Probability function:

A systemetic presentation of the values taken by a random variable and the corresponding probability is called probability function or probability distribution of the random variable.

| $x$ | $x_1$ | $x_2$ | $x_3$ | ------- $x_n$ |
|---|---|---|---|---|
| $P(x)$ | $P_1$ | $P_2$ | $P_3$ | ------- $P_n$ |

$\sum_{i=1}^{n} p_i = 1$.

* Probability mass function: (Pmf)

Let X be a descrete random variable and let $p(x)$ be a function such that $P(x) = P[X=x]$, Then $P(x)$ is called the probability mass function of X.

Here, i) $P(x) \geq 0 \ \forall x$.

ii) $\sum_{x=0}^{\infty} P(x) = 1$

## Probability density function [Pdf]

Let $x$ be a continuous random variable and let $f(x)$ be a function such that $f(x) = P(x) = P[X=x]$ then $f(x)$ is called probability density function of $X$. function.

Here i) $f(x) \geq 0$

ii) $\int_{-\infty}^{\infty} f(x)\,dx = 1$

## Cumulative distribution function

If $X$ is a continuous random variable. with pdf $f(x)$, then the function $f(x) = P[X=x]$ is called the ~~mt~~ cumulative distribution.

$$= \int_{-\infty}^{x} f(x)\,dx.$$

### Properties:

If $x$ is a continuous random variable with pdf $f(x)$, the corresponding distribution function $F(x)$ has the following properties.

1. $0 \leq F(x) \leq 1, \quad -\infty < x < \infty$.
2. From analysis we know that,

$$F'(x) = \frac{dF(x)}{dx} = f(x)$$

Here,

$f(x) > 0 \;\forall x$ which implies that $F(x)$ is non decreasing function of $x$.

3. $F(-\infty) = \lim_{x \to -\infty} \quad F(x) = \lim_{x \to -\infty} x \int_{-\infty}^{x} f(x)\,dx.$

$$= \int_{\infty}^{-\infty} f(x)\,dx = 0$$

$$F(-\infty) = 0.$$

$$F(+\infty) = \lim_{x \to +\infty} F(x)$$

$$= \lim_{x \to \infty} x \int_{-\infty}^{x} f(x)\,dx$$

$$= \int_{-\infty}^{\infty} f(x)\,dx = 1$$

$$F(\infty) = 1$$

Let a & be are two real numbers $P(a<b)$

$$P(a<x<b) = \int_{a}^{b} f(x)\,dx$$

$$P(a<x<b) = \int_{-\infty}^{b} f(x)\,dx - \int_{-\infty}^{a} f(x)\,dx$$

$$P(a<x<b) = P[x \le b] - P[x \le a]$$

$$P(a<x<b] = F(b) - F(a).$$

Examples:

1). Find the value of K for the following pmf and also obtain the distribution function. $P(x) = Kx$ $K = 1, 2, 3, 4, 5$.



Solution: The Given Pmf is

| x | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| P(x) | K | 2K | 3K | 4K | 5K. |

We know that,

$$\Sigma P(x) = 1$$
$$K + 2K + 3K + 4K + 5K = 1.$$
$$15K = 1$$
$$K = 1/15$$

Distribution function $f^n$: $F(x)$

$$F(x) = \int_{-\infty}^{x} f(x)\,dx.$$
$$F(x) = \int_{-\infty}^{x} \frac{1}{15}\, x\,dx$$
$$F(x) = \frac{1}{15}\left\{\frac{x^2}{2}\right\}^{x}$$
$$F(x) = \frac{1}{15} \times \frac{1}{2}\left[x^2 - 1\right]$$
$$F(x) = \frac{1}{30}(x^2 - 1)$$

02). Find the value of k for the following Pdf and also obtaine the $P\left[-1/2 \le x < \frac{1}{2}\right]$ $f(x) = \begin{cases} Kx^2 & 0 < x < 1 \\ 0 & \text{otherwise.} \end{cases}$

Solution: The Given Pdf is $f(x) = Kx$ $0 < x < 1$

WKT, $\int_{-\infty}^{\infty} f(x)\,dx = 1$

$$F(x) = \int_{0}^{1} Kx^2\,dx = 1$$
$$F(x) = \int_{0}^{1} Kx^2\,dx = 1$$
$$F(x) = K \times \left\{\frac{x^3}{3}\right\}_{0}^{1} = 1$$
$$F(x) = K \times 1/3\,\{1 - 0\} = 1$$
$$= K \times 1/3 = 1 \qquad \therefore f(x) = 3x^2.$$

# M.G.V.C. Arts, Commerce and Science College Muddebihal

## Department of Hindi

## Project list

## 2021-22

M.G.V.C. Arts, Commerce & Science College, Muddebihal NAAC A+ GRADE

| Sl.no | Name of the Students | Topic |
|---|---|---|
| 01 | Annapoorna B Somanal | Nirmal Varma.Kuvar Narayan &Kedarnath Sinha ka Parichay |
| 02 | Akshata Naykodi | Naresh Mehata Nirmal Varma Amarkant Kuvar Narayan ka Parichay |
| 03 | Triveni Lamani | Gyanapeet puraskrut Mahadevi Varma Sumitranandan Panth Ramadhari Sinha Dinakar ka Parichay |
| 04 | Shilpa Pawar | Bhasha ki visheshataye |
| 05 | Sandeep Rathod | Hindi Bhasha ka Itihas |
| 06 | Sagar Chavan | Sansar ki Bhashayo ka vargikaran |
| 07 | Maktumbi Awati | Bhasha vigyan ke anga |
| 08 | Shreeshail Pawar | Bhasha ke laxan |
| 09 | Sona | Bhasha ke visheshataye |
| 10 | Reshma Pawar | Sansar ki Bhashayo ka vargikaran |
| 11 | Laxmi Kadlimatti | Bhasha vigyan ke anga |
| 12 | Mallikarjun Upanal | Harivansha Rai Bachchan Kedarnath Agrawal Kuvar Narayan ka Parichay |
| 13 | Supriya Rathod | Sohan lal Dwivedi Maithili Sharan GuptaVaidyanath Mishra & Makhan lal Chaturvedi ka Parichay |
| 14 | Soundarya Rathod | Kuvar NarayanKumar Ambuj Pavan Karan ka Parichay |
| 15 | Sudha Rathod | Bhasha ke visheshataye |
| 16 | Mohammadhanif Korawar | Ramadhari sinha Dinakar Sumitranandan Panth Mahadevi Varma Agyey ka parichay |

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# M.G.V.C.Arts Commerce and Science College Muddebihal

M.G.V.C. Arts, Commerce & Science College, Muddebihal
NAAC A+ GRADE

## DEPARTMENT OF HINDI

## PROJECT

Name : Triveni . B. Lamani

Register no : A2056896

Course : B.A.

Semester : IV (Sem)

Paper :

Year : 2021 - 22

M. G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE MUDDEBIHAL

DEPARTMENT OF HINDI

# CERTIFICATE

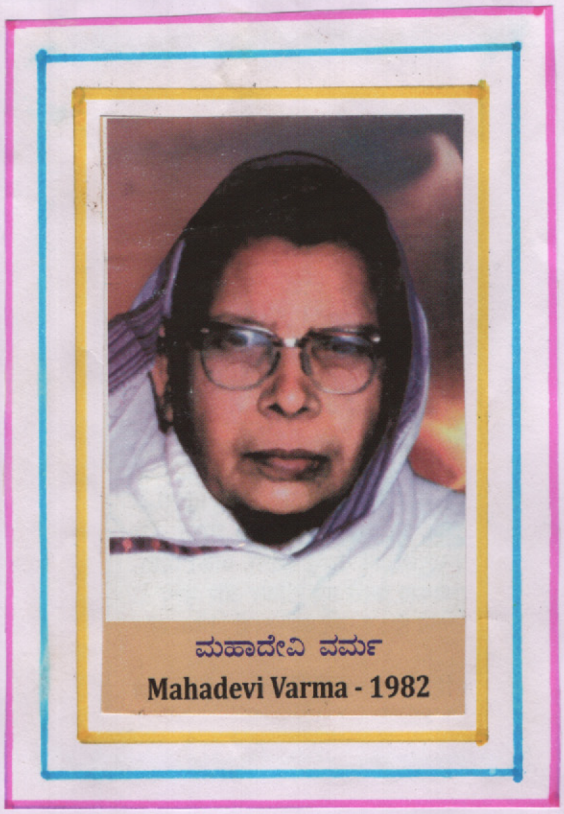
This is to certify that Dr/ Prof S. C. Angadi has satisfactorily completed syllabus as prescribed by the Rani Channamma University Belagavi for B.A/B.Com IV semester class in the college during the year 2021 2022

Staff Member

Head Department

# ज्ञानपीठ पुरस्कार

पुरस्कार




नाम :=> महादेवी वर्मा

जन्म :=> 26 मार्च 1907

मृत्यु :=> 11 सितम्बर 1987

कार्यक्षेत्र :=> अध्यापक , लेखक

राष्ट्रीयता :=> भारतीय

भाषा :=> हिंदी

काल :=> आधुनिक काल

उल्लेखनीय कार्य :=> यम , मेरा परिवार, पथ के साथी

उल्लेखनीय सम्मान :=> 1956 पद्म भूषण, 1982 : ज्ञानपीठ पुरस्कार, 1988 पद्म विभूषण

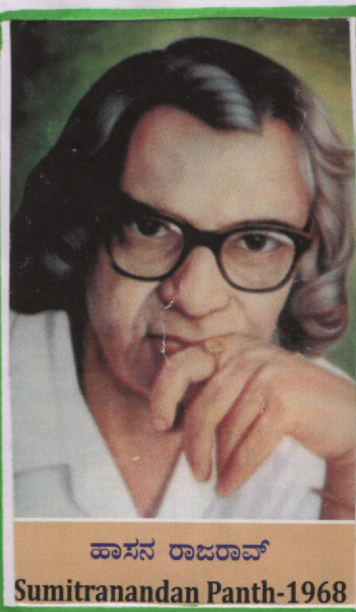
महादेवी वर्मा का जन्म 26 मार्च सन 1907 में उत्तरप्रदेश राज्य के सबसे प्रसिद्ध नगर फर्रूखाबाद में होलिका दहन के पुण्य पर्व के दिन हुआ था। महादेवी वर्मा के पिता जी श्री गोविंद प्रसाद वर्मा थे. जो भागलपुर के एक महाविद्यालय में प्राध्यापक के पद पर आसीन थे। तथा इनकी माता जी का नाम हेमरानी देवी था। इनकी माता बड़ी ही संस्का-रवान और धार्मिक प्रवृत्ति की थी जो घंटों कई धर्म ग्रंथों का अध्ययन किया करती थी। जिसका प्रभाव उनकी बेटी महादेवी वर्मा से हुआ था। महादेवी वर्मा का निधन सन 1987 ईस्वी में इलाहा-बाद उत्तर प्रदेश में हुआ था

महादेवी वर्मा ने अपनी प्रारंभिक शिक्षा इंदौर के मिशन विद्यालय से ही प्रारंभ की। महादेवी वर्मा साहित्य लेखन में इतनी अधिक रूचि लेती थी कि उन्होंने 7 वर्ष की अवस्था से ही कविताएँ लिखना प्रारंभ कर दिया था। महादेवी वर्मा ने संस्कृत, अंग्रेजी, चित्रकला आदि की शिक्षा घर पर ही प्राप्त की सन 1932 में उन्होंने इलाहाबाद विश्वविद्यालय से संस्कृत विषय में एम. ए पास किया।

महादेवी वर्मा ने विद्यार्थी जीवन से ही राष्ट्रीय जागरण की कविताएँ लिखना आरंभ कर दिया था और वह ऐसी कविताएँ लिखती थी, जिनमें मानवीय संवेदना साफ झलकती थी। महादेवी वर्मा ने लेखन संपादन और अध्यापन में अपना अमूल्य योगदान दिया। भारत के राष्ट्रपति से इन्होंने पद्मभूषण की उपाधि प्राप्त की और 1983 ई० मे यामा पर ज्ञानपीठ पुरस्कार से सम्मानित किया गया। 11 सितम्बर 1987 ई. को इस महान कवयित्री का स्वर्गवास हो गया।

रचनाएँ - महादेवी जी की प्रमुख कृतियाँ इस प्रकार हैं।

1. नीहार - यह इनका प्रथम प्रकाशित काव्य-संग्रह है।
2. रश्मि - इसमें आत्मा-परमात्मा विषयक आध्यात्मिक गीत हैं।
3. नीरजा - इस संग्रह के गीतों मे इनकी जीवन-दृष्टि का विकसित रूप दृष्टिगोचर होता है।
4. सान्ध्यगीत - इसमे इनके श्रृंगारपरक गीतो को संकलित किया गया है।
5. दीपशिखा - इसमें इसके रहस्य-भावना-प्रधान गीतोका संग्रह है।
6. यामा - यह महादेवी जी के भाव-प्रधान गीतो का संग्रह है।






नाम :=> सुमित्रानदन पन्त

जन्म :=> २० मई 1900

मृत्यु :=> 28 दिसम्बर 1977

कार्यक्षेत्र :=> अध्यापक लेखक

राष्ट्रीयता :=> भारतीय

भाषा :=> हिंदी

काल :=> आधुनिक काल

शिक्षा :=> हिन्दी साहित्य

उल्लेखनीय सम्मान :=> पद्म भूषण (1961)

ज्ञानपीठ पुरस्कार (1968)

सुमित्रानंदन पंत का जन्म अल्मोड़ा (उत्तराखंड)
के कैसोनी गाँव में 20 मई 1900 को हुआ
था। इनके माँ चल बसी आपका पालन -पोषण
आपकी दादी ने ही किया, आपका वास्तविक
नाम गुसाई दत्त रखा गया हिंदी साहित्य
में छायावादी युग के चार प्रमुख स्तंभों में से
एक हैं। इस युग को जयशंकर प्रसाद, महादेवी वर्मा,
सूर्यकांत त्रिपाठी निराला और रामकुमार वर्मा जैसे
कवियों का युग कहा जाता है। उनका जन्म
कौसानी बागेश्वर में हुआ था। झरना, बर्फ,
पुष्प, लता, भ्रमर-गुंजन, उषा -किरण, शीतल
पवन, तारों की चुनरी ओढ़े गगन से उतरती
संध्या ये सब तो सहज रूप से काव्य का
उपादान बने। निसर्ग के उपादानों का प्रतीक
वबिम्ब के रूप में प्रयोग उनके काव्य की विशेषता
रही। उनका व्यक्तित्व भी आकर्षण का केंद्र
बिंदु था। गौर वर्ण, सुंदर सौम्य मुखाकृति,
लंबे घुघराले बाल सुगठित शारीरिक सौष्ठव
उन्हें सभी से अलग मुखरित करता था।

साहित्यिक परिचय

कवि सुमित्रानन्दन पन्त सात वर्ष की आयु से ही कविताओ की रचना करने लगे थे।। इन्होंने 'रूपाभा, पत्रिका का सम्पादन किया तत्पश्चात पन्त जी का परिचय अरविन्द धोष से हुआ और ~~अ~~ उनसे प्रभावित होकर अनेक रचनाएँ की 1961 ई. मे पद्मभूषण, सम्मान मिला तथा कला और बूढा चाँद पर साहित्य अकादमी पुरस्कार मिला। इनकी छायावादी कविताएँ अत्यन्त कोमल ~~२~~ एंव मृदुल भावो को अभिव्यक्त करती हैं इन्ही कारणो से पन्त जी को प्रकृति का सुकुमार कवि कहा जाता हैं। सुमित्रानंदन पंत जीको 1968 ई. मे चिदम्बरा केलीए ज्ञानपीठ पुरस्कार मीला। साहित्य सेवा करते हुए पन्त जी का देहावसान सन् 1977 ई. मे हो गया।

रचनाएँ

इनकी प्रमुख रचनाएँ निम्न हैं

1. वीणा
2. ग्रन्थि
3. पल्लव
4. गुंजन
5. लोकायतन

ಮುಲ್ಕರಾಜದ ಆನಂದ್
Ramadhari Sinha Dinakar-1972

नाम :⇒ रामधारी सिंह दिनकर

उपनाम :⇒ दिनकर

जन्म :⇒ 23 सितम्बर 1908

मृत्यु :⇒ 24 अप्रै 1974

कार्यक्षेत्र :⇒ कवि, लेखक

राष्ट्रीयता :⇒ भारतीय

भाषा :⇒ हिंदी

काल :⇒ आधुनिक काल

विधा :⇒ गद्य और पद्य

उल्लेखनीय सम्मान :⇒ 1959 साहित्य अकादमी,
1959 : पद्म भूषण, 1972 ज्ञानपीठ पुरस्कार

जीवन परिचय - रामधारी सिंह दिनकर का 30 सितम्बर 1908 ई. को बिहार राज्य के मुंगेर जिले के सिमरिया नामक ग्राम मे हुआ था। इनके पिता का नाम रवि सिंह और माता का नाम श्री मती मनरूपदेवी था इनकी दो वर्ष की अवस्था मे ही पिता का देहान्त हो गया था अतः बड़े भाई बसन्त सिंह और माता की छत्रछाया मे ही ये बड़े हुए। इनकी प्रारम्भिक शिक्षा गाँव की पाठशाला मे ही हुई। अपने विद्यार्थी जीवन से ही इन्हे अधिक कष्ट झेलने पडें। ~~बि~~ बिद्यालय के लिए घर से पैदल दस मील रोज आना-जाना इनकी विषशता थी। इन्होने हाईस्कूल की परिक्षा मोकामा घाटपर स्थित रेलवे हाईस्कूल से उत्तीर्ण की और हिन्दा मे सर्वाधिक अंक प्राप्त करके भूदेव स्वर्णपदक जीता। 1932 ई० मे पटना से इन्होने बी ए० की परिक्षा उत्तीर्ण की। ग्रामीण परम्पराओ के कारण दिनकर

जी का विवाह किशोरावस्था मे हो गया। अपने
पारिवारिक दायित्वों के प्रति दिनकर जी जीवनभर
सचेत रहे। और इसी कारण इन्हे कई प्रकार
की नौकरी करनी पड़ी सन 1932 ई. मे
बी इन्हे 1972 ई मे उर्वशी, के लिए ~~अ~~
ज्ञानपीठ पुरस्कार से सम्मानित किया गया
इनका स्वर्गवास 24 अप्रेल 1974 ई. को
मद्रास (चेन्नई) मे हुआ।

प्रमुख रचनाएँ : दिनकर जी मूलत : सामाजिक
चेतना के कवि थे। इनके व्यक्तित्व की छाप
इनकी प्रत्येक रचना में स्पष्ट दिखाई देती
है। इनकी प्रमुख रचनाएँ निम्न प्रकार है।
संस्कृति के चार अध्याय उर्वशी हुंकार
रेणुका, कुरुक्षेत्र, रश्मिरथी, धूप और धुआँ
दिल्ली नीम के पत्ते रसवन्ती कवि, हारे
को हरिनाम दिनकर के गीत आदि।

SGVC Vidya Prasarak Trust's

M.G.V.C Arts, Commerce and Science College, Muddebihal

Department of Commerce

List of Student Projects on Law and Practice of Banking for the Year 2021-22

| Sl No | Name of Students | Reg No | Project Topic | Class |
|---|---|---|---|---|
| 01 | Devaraj Handaragall | U15NU21C0007 | Motivational Practices in Bank | B.Com II Sem |
| 02 | Seeta M Hallur | U15NU21C0014 | A Comparative study of retall products in banks | B. Com II Sem |
| 03 | Sachin Nadahalli | U15NU21C0005 | HR Practices in banks | B.Com II Sem |
| 04 | Laxmi Patil | U15NU21C0003 | Rol of technology in banking | B.Com II Sem |
| 05 | Chaitra Meti | U15NU21C0010 | Evolution and seope of ' offshore banking | B.Com II Sem |
| 06 | Rakshita S Lamani | U15Nu21C0011 | CRM in banks | B.Com II Sem |
| 07 | Pavitra B Pawar | U15NU21C0013 | CRM in Banks | B.Com IISem |
| 08 | Ashwini hiremath | U15NU21C0020 | HR Protuction in banks | Bcom IIsem |
| 09 | Aishwary biradar | U15NU21C0034 | Study of coroporate Social responsibility Understaken By state bank of India | Bcom II sem |
| 10 | Sangeeta doddamani | U15NU21C 0015 | Study on exime Bank | Bcom II sem |
| 11 | Vinay dhula | U15NU21C0008 | Pereormance appraisal system in banks | Bcom II sem |
| 12 | Shruti Chavan | U15NU21C0009 | Monitoring System in bank | Bcom II sem |
| 13 | Tausif M Martaznnaver | U15NU21C0006 | Training and development in banks | B Com II sem |
| 14 | Bhagyashree S Biradar | U15NU21C0039 | Modern service of banking with examples | B Com II sem |
| | | | | |

Head,
Department of Commerce,
M.G.V C. College, Muddebihal

PRINCIPAL,
M.G.V.C. Arts, Commerce & Science College
MUDDEBIHAL-586212. Dist: Vijayapur.

S.G.V.C Vidya Prasarak Trust's

**M.G.V.C ARTS ,COMMERCE AND SCIENCE COLLEGE MUDDEBIHAL**

**DEPARTMENT OF COMMERCE**

**2021-2022**

# PROJECT ON

# TRAINING AND DEVELOPMENT IN BANKS

**SUBMITTED BY** : TAUSIF M MARTANNAVER

**CLASS** : B Com II SEM

**SUBJECT** : LAW AND PRACTICE OF BANKING

**REG NO** : U15NU21C0006

**GUIDED BY** : Prof : S.R.HATTI

Faculty Of Commerce MGVC College Muddebihal

# PERFORMANCE ENHANCEMENT, TRAINING AND DEVELOPMENT IN BANKING SECTOR: A REVIEW PAPER

## ABSTRACT

In the present scenario of economic reforms and emerging challenges the banking industry cannot rule out the importance of training programs. It is through training and skill development that the banks meet out their profitability and productivity. Training has to be initiated as training needs assessment which forms the basis for designing, budgeting and implementing the training program. Refresher training for updating with the latest knowhow is essential even if the targeted employees are the best. The primary goal of the banks for conducting training is to equip the employees to bring about customer satisfaction by addressing the customer needs.

## INTRODUCTION

Training and development programmers give impetus to knowledge and skill development and job enrichment of bank employees. It also reduces the attrition rate, increases job retention and provides value addition to the employees. Training and development is a continuous activity equipping the employees to perform more effectively. The result can also be seen as an improved bank culture and profits to the bank. Training has to be an ongoing process as it plays a vital role in improving the productivity, efficiency, and effectiveness of managers. Designing Training and development programmers incurs cost at present whereas the benefit accrues in the form of increased productivity of employees, increased morale, reduced supervision, and increased organizational stability and flexibility for the future. The only way to face the competition in the market is to develop a competent and versatile workforce. To be successful organizations need to add value and this can only be possible through competent employees.

(Ravi, 2001) has suggested that Training and Development (T&D) being a core technique of HRD is the vital tool which contributes effectively towards the competencies of the employees and a remedy for poor performance. Training bridges the gap between the desired level of performance and the actual performance. Training equips the employee with required skills not only to do justice to the current profile but also prepares him to seek responsibility for higher levels in the organization.

The business environment today and intense competition globally have made it mandatory for the business entities to train their human resources constantly and as per the emerging challenges. The training programs have to be designed strategically to meet the business needs, prior to that the training needs must be identified methodically with the use of the appropriate tools so that the training program helps in meeting the current competitive market scenario.

An organization's training needs are assessed using Training Needs Analysis whose roots include the gap analysis. The gap analysis is an assessment of the gap between the knowledge, skills and attitudes that the employees in the organization require to meet the organization's objectives of profitability and productivity and the knowledge, skills and attitudes that the people in the organization currently possess. Therefore the assessment of training needs or the gap analysis is carried out prior to designing, budgeting and delivering the training solutions.

According to Cosh, *et al*, (1998) a firm's expansion, developing its potentials and enhancing its profitability can all be achieved by the implementation of training. Identifying the organization's business objectives or strategy is the basic approach of the HRD.

As per Leigh, et al.,(2000) needs assessment and analysis is considered as the first step in any HRD intervention.

Whereas according to Desimone, et al., (2002) four levels of needs have to be analyzed when analyzing the HRD needs, and these four levels are assessing the needs of the organization, individual employees' skills, knowledge and attitudes, and their functional responsibilities as well as departments' needs (Wilson, 1999 and Harrison, 2000), which seemed to be the most exhaustive technique of analysis.

Kerr & McDougall (1999) contradicted saying that, most companies do not analyze all the four levels, but rather emphasized on individual employees" needs as the basic need requirement.
Wilson (1999) while accomplishing the identification of needs within organization and the methodology to be used suggested the use of simpler methods such as interviews, questionnaires, observations, and focus groups to generate information for HRD needs analysis, which could further be used in designing the appropriate training program

## HISTORY

The English Agency House of Calcutta and Bombay started Banking in India on modern lines. Initially these institutions were functioning on the basis of unlimited liability, also issuing currency until this privilege was withdrawn in 1862. Speculation and mismanagement were the reasons of failure for most of the early banks.

Under Indian Law, in the year 1860, the principle of limited liability for banks was accepted. During the time of Swadeshi movement several of the present leading banks were established because of the encouragement received by the Indian Joint Stock banking. During the period 1900 to 1934 there were a lot of bank failures and crisis in the Indian banking history. The Reserve Bank of India came into existence in 1935"[18] with the passing of "The Reserve Bank of India Act in 1934. Too many bank failures received the attention of the Central banking Enquiry Committee which recommended the passing of a special Act for regulating the banking system. Hence the Banking Regulation Act was passed in the year 1949.

When Reserve Bank of India was established in 1935 there were seventeen exchange banks. These banks were mainly engaged in financial foreign trade and financial internal trade too. The other section of Indian banking comprised of three Presidency banks established under Presidency Bank Act, 1876. These State Banks were reconstituted in 1921 to form the Imperial Bank of India. The Imperial Bank carried out limited central banking functions along with commercial banking business except foreign exchange dealings till 1935.

The Reserve Bank of India received wide powers, through 'The Banking Regulation Act' 1949 to regulate supervise and develop the banking system. The Reserve Bank of India worked hard to institute corporate savings to adopt the banking system to the emerging needs of the economy.

The period following 1949 also witnessed the consolidation of banking structure and emergence of large commercial banks through amalgamations and mergers.

The Banking Regulation Act conferred a wide range of Powers to Reserve Bank of India relating to supervision and control over banking in India, establishment of banks, mergers and amalgamations and maintenance of certain operating standards. With the vesting of licensing powers on Reserve Bank of India, made it mandatory for banks to get its prior permission for opening branches. It also gave the Reserve Bank of India the authority to conduct inspection of banks, thus enabling it to make qualitative assessment of the management including the methods of business from the view point of depositors.

For Reserve Bank of India's Supervision of banks the Banking Regulation Act provided the frame work. Standards for evaluating bank performance were drawn up on the basis of working of well managed banks which many small could not meet and thus led to the growth of larger banks. The failure of some banks, mergers, amalgamations etc significantly reduced the number of banks between 1951 and 1968
[18]

The State Bank of India was constituted on July 1, 1955 as a successor to the Imperial Bank of India, under the State Bank of India Act 1955 as per the recommendations of All India Rural Credit Survey Committee for the creation of a state partnered and state sponsored bank. Subsequently in 1959 the State Bank of India (Subsidiary Banks) Act was passed which enabled the State Bank of India to take over eight state-associated banks as its subsidiaries, of which the State Bank of Bikaner and State Bank of Jaipur were merged into one bank as State Bank of Bikaner and Jaipur and the others were State Banks of Hyderabad, Indore, Mysore, Patiala, Saurashtra and Tranvancore. This was done with the intension of accelerating the pace of extension of banking facilities all over the country.

To determine the priorities for grant of loans and advances and to assess the demand for bank credit from various sector of the economy the National Credit Council was set up in 1968. This was done under the scheme of social control for bank announced in Parliament in December 1967 to bring about a wider diffusion of banking facilities and to change the uneven distribution pattern of bank lending. Till then the large industries tended to get bulk of the commercial bank credit, whereas Agriculture and small scale industries were ignored by the commercial banks.

Government nationalized 14 major banks in July 1969, with the intention of acquiring ownership of banks to achieve the objectives of social control and to enable banks to play more effectively the role of catalytic agents for economic growth by extending banking facilities. The 14 Nationalized banks are

1. Central Bank of India
2. Bank of India
3. Punjab National Bank
4. Bank of Baroda
5. United Commercial Bank
6. Canara Bank
7. United Bank of India
8. Dena Bank
9. Syndicate Bank
10. Union Bank of India
11. Allahabad Bank
12. Indian Bank
13. Bank of Maharashtra
14. Indian Overseas Bank.

In 1980, the government acquired 6 more banks which were having a deposit figure of Rs. 200 Crore or more. They were

1. Andhra Bank
2. Punjab and Sind Bank
3. Corporation Bank
4. Oriental Bank of Commerce
5. Vijaya Bank
6. New Bank of India

The total number of public sector Banks became 27 with the merger of New Bank of India with Punjab National Bank in 1993. Another bank included in the list of Public Sector Banks [22] is The Industrial development Bank of India (IDBI) set up in 1964 as an apex bank, which undertakes, besides direct financing of big industrial projects, refinancing of term loans granted by other financial institutions.

## REVIEW OF LITERATURE

Training is a continuous activity that provides the employees with the required skills to perform well in their job and also enhances their knowledge to cope up with the changing market scenario. Training and development programmes are beneficial as they provide value addition to the employees, help in reducing attrition rate, increase job retention and improve the market share and profitability of the bank.

### Requirement for Training

New recruits require induction training so as to perform their task efficiently. A combination of instructions, coaching and guidance help them reach the required level of performance in their jobs quickly and economically by performing well. Training for existing employees is necessary to help them develop capabilities to improve their performance in their present jobs, and also to prepare them by teaching them new technologies to achieve higher positions. Existing employees do require fresh training so as to keep them abreast with the latest and to make them more productive. Training is necessary when a person moves from one to another job so as to bridge the gap as per the new job demands. Also, training equips a person to improve his performance and achieve career goals with sincere efforts.

The Employee Development Programs are tailor made to meet specific objectives like organizational effectiveness, employee productivity and to meet other emerging challenges from time to time. The various sub processes in the process of management development program include strategy to face the emerging challenges, reviewing organizational objectives, evaluating the organization's current management resources, determining individual capabilities and needs, designing and implementing development programs and evaluating the effectiveness of these programs and finally measuring the impact of the training on the individuals work life quality and balance between the two.

Dr John Ldama, Dr Mohammed Isah Bazza (2015) in a study on Nigerian banking industry have analyzed that a major concern to managers is the issue of staff retention, especially skilled staff. Skilled employees enable organizations to gain competitive advantage; hence retaining employees to stay in their jobs through motivation is of utmost priority. According to Awolusi(2013), a highly motivated person works hard towards achievement of organizational goals, given the ability and adequate understanding of the job, hence he is an asset for the organization. Motivational variables employed in retaining bank workers in the past may no longer motivate bank workforce of today is a fact because earlier Monetary motivation such as end of year bonus, and housing allowances given to staff in bulk were common motivators in Nigeria's banking, and this was good methodology for retention. But now there were persistent banks' failure, a study conducted by Adeyemi, (2011), Gunu and Olabisi, (2012), proved that Nigeria's banking sub- sector witnessed tremendous failure at different points in time due to poor performance, as a consequence of inadequate skilled manpower.

Young and enthusiastic bank employees see training as the most important motivational factor for them to stay on their jobs. Training and development are motivators and sources of ideas and innovations that safe guard's organization against future workforce turnover, motivating them to stay with the organization. When employees' job is aligned to organizational needs and the employees are given appropriate training to perform the task, employees' job performance and willingness to work for the organization increases.
When the employees are given appropriate training as per the job requirement and in line with the organizational needs, the employees' job performance and willingness to work for the organization increases, resulting in organizational success.

Barringer (2005), in his study made a comparison of rapid- growth and slow growth firms, he found out that rapid-growth firms used training and development of staff to achieve their objectives and hence they emphasized on development of staff to a significantly greater extent than their slow-growth counterparts, so the author concluded that training is positively related to staff retention and job satisfaction.

**Training and Development**

According to Michel Armstrong, "Training is systematic development of knowledge, skills and attitudes required by an individual to perform adequately a given task or job".
According to Edwin B Flippo, "Training is the act of increasing knowledge and skills of an employee for doing a particular job."
Dale S Beach has defined training as, "Training is usually considered as the organized procedure by which people gain knowledge and increase skills for a definite purpose"

**Training and Development – Distinguishing Features**

The concept of 'Employee training' refers to enhancing the Technical and Operational skills related to workplace whereas 'Management Development' refers to developing the employee specifically in the areas of Administration, Supervision and Principles & Techniques of management.

**Training Needs Identification**

A "need" refers to the gap between what skills are present and what skills have to be acquired so as to improve productivity.
If we conceptualize 'need' then it refers to a gap between the organizational expectations and the present scenario. It actually focuses on improving the substandard performance to achieve organizational expectations.
The main purpose of assessment or analysis is to gauge the way things are and the way they should be as per the organization's expectations, referred to as the performance gap.

Virmani and Seth (1998) state that the need for training should be analyzed, keeping in mind the goals and objectives of the organization. It should help in increasing present efficiency keeping in mind the future needs and growth and development of the organization. The training needs identification process helps in perceiving the goals and objectives of the training activity.

Gautam, V. and Shobhana V., (2003) suggested three types of training needs:

**1. Organizational needs:**
These refer to the aims and aspirations of the organization i.e the overall direction in which the organization as a corporate entity is focusing on / heading towards.
**2. Professional needs:** professional needs mean what is required in terms of skill, knowledge and attitude to efficiently handle the current profile and with best productivity.
**3. Individual needs:** The individual needs refer to those skills which are required by an individual to perform in his job with optimal effectiveness and which will also help him in achieving his career objectives.

Training analysis is part of the system development process which has to be carried out meticulously else failure and wastage of efforts may result and the desired objectives may not be achieved.

Training Needs Assessment (TNA) used to assess an organization's training needs is an assessment of the gap between the knowledge, skills and attitudes required to meet the organization's objectives and the knowledge, skills and attitudes that people in the organization currently possess.
Training needs analysis has to be carried out keeping in mind the objectives and projected growth of the organization that is facing the emerging challenges.
TNA has to be carried out very methodically before designing, budgeting and delivering the training program. The output of the TNA is considered to be a guideline for designing the training programs. It is also very useful to set appropriate goals for training and ensure that trainees are ready to participate because it contains a thorough needs assessment before training is designed and delivered.
Training Needs Identification is a perennial activity taking place in the organization as every change in the business environment will have its impact on the training system and it has to be redesigned to meet the emerging challenges.

## Training and Skill Development in Banks

The banking sector in India is undergoing rapid transformational growth on year to year basis, hence to face the future challenges there has to be fullest support of all the employees to the best of their abilities, to face the rapid technology advancement, increasing market competition and stringent viability norms implemented on time to time basis. Training is one such HRD measure that helps the banks to face the emerging challenges.

The banking staff needs to be rigorously trained in handling customer care services, behavioral and operational areas of banking business.

- Thrust for more in-house training programs through STCs as better analysis of training needs, and specialized training programs designed for delivery
- Brainstorming activity in the beginning and feedback at the end should be a mandatory process at the STCs.
- Faculties at STCs on a permanent basis and not temporarily, for full commitment.
- STC should have an excellent building structure with wide class rooms, library, computer lab, conference room, meeting hall and relaxation hall in it.
- Trainers to act more like a counselor and assist the trainees in implementing the new skills gained by the training.
- Regular and compulsory workshops and seminars on Yoga, Meditation and Relaxation techniques on a regular basis so as to relieve the employees from stress, depression and interpersonal problems
- More of visiting faculties with expertise to be invited at the STCs
- STCs to conduct more training programs on risks like operational risks, credit risks, liquidity risks, foreign exchange risks, strategic risks and in the field of International Banking, External Trade and Foreign Currency Borrowings
- STC faculties to have substantial autonomy in designing training plans, training programs and their scheduling, changes to be implemented, training budget, program contents and level of training programs
- The banks should have a systematic training budget.

## CONCLUSION

Coherent corporate culture rather than ad-hoc programs bring about development of integrated and proactive training and development strategy. Training and skill development whether at entry level or middle management level of the career always helps in bringing about a positive change. Updated knowledge on current trends in IT and business acumen are visible changes in the banking scenario present days. Banks are competing with one other while facing the emerging challenges and going global. Banks in order to meet the growing challenges have to fill up the information gaps and stop traditional mundane banking activities.

The role of Human Resource Management is very well defined and it is meant "to integrate all personal activities with each other and strategically with organizational objectives" in the most beneficial manner both for the employee and the organization. The first major objective of HRM is to serve the organizational interest in the most beneficial manner; hence it is more of an investment rather than a cost to the organization. The other resources are best utilized once the human resources are efficiently utilized. With increase in complexity of jobs in the banking sector, the importance of employee training has increased tremendously. In order to maintain a viable and knowledgeable workforce, employee training has to be a commitment with resources. Effective training of the employees equips them to perform well and also influences the growth and profitability of the bank. Employee behavior too plays a vital role in improving the productivity of the bank. Incorporating personality development program through group discussion, business games and role plays, the senior subordinate relationship can be strengthened, hereby improving productivity. Banks should proactively implement training sessions so that the employees take it up with full dedication to enhance their performance and productivity and to give customer satisfaction so that the banks could face emerging challenges.