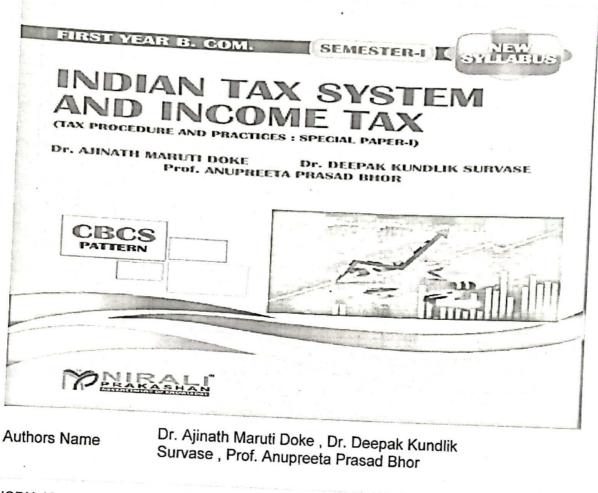




By Gos As Its	Now Restort Syllatic
Dr. NITIN Dr. AIINAT	COME TAX LAXMAN GHORPADE TH MARUTI DOKE Dr. NARSHING SUBHASH GIRI RAMESH BAPUPATIL NAGARE
	MARALI
Authors Name	Dr. Nitin Laxman Ghorpade , Dr. Narshing Subhash Giri , Dr. Ajinath Maruti Doke , Ramesh Bapupatil Nagare
ISBN 13	9789354510380
Publisher	Nirali Prakashan
Edition	First
Pages	493
Language	English
Publishing Year	Oct-21



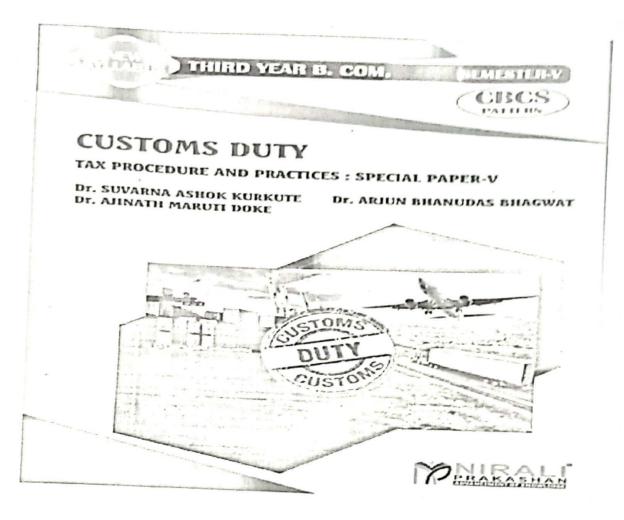


ISBN 13	9789354514166	
Publisher	Nirali Prakashan	
Edition	First	
Pages	104	
Language	English	
Publishing Year	Nov-21	



Authorn Ma	ETT CTORE CONTRACTOR C
Authors Name	Dr. Ajinath Maruti Doke , Dr. Jyoti Jalinder Kirve
ISBN 13	9789354515194
Publisher	Nirali Prakashan
Edition	First
Pages	172
Language	English
Publishing Year	Feb-22





Authors Name	Dr. Suvarna Ashok Kurkute , Dr. Arjun Bhanudas Bhagwat , Dr. Ajinath Maruti Doke
ISBN 13	9789354512544
Publisher	Nirali Prakashan
Edition	First
Pages	111
Language	English
Publishing Year	Feb-22



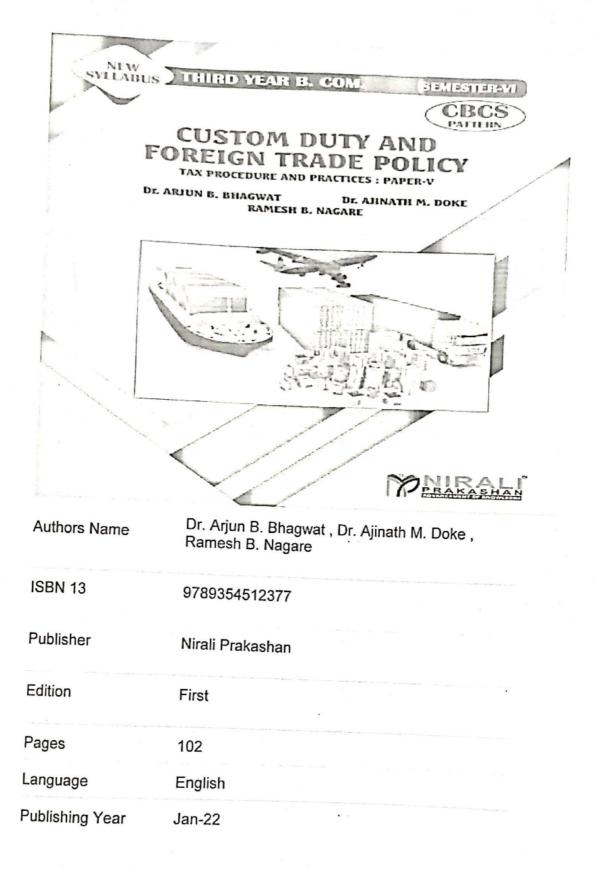
TAX PRO	DDS AND CBCS PATTERN CBCS PATTE
Authors Name	Dr. Arjun Bhanudas Bhagwat , Dr. Ajinath Maruti
ISBN 13	Doke 9789354515170
Publisher Edition	Nirali Prakashan First
Pages	132
Language	English
Publishing Year	Feb-22



स्तीम् गव्यायवन्न विन	Adda and andreas CBCS PATIENT CARTON AND AND AND AND AND AND AND AND AND AN
Authors Name	डॉ. अर्जुनभानुदासभागवत , डॉ. अजिनाथमारुतीडोके
ISBN 13	9789354515323
Publisher	Nirali Prakashan
Edition	First
Pages	160
Language	Marathi
-	

Publishing Year Feb-22



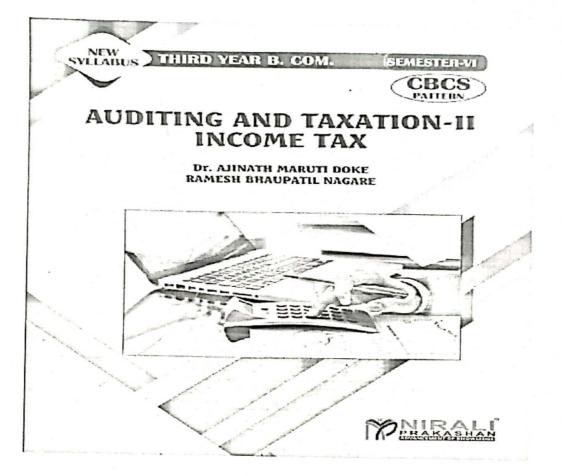




NEW	
SYLLAPPUS I SECOND VECTOR	
SVILABUS SECOND YEAR B. COM. SEMESTER-IV	
PATTERN	
INCOME TAX TAX PROCEDURE AND PRACTICES : SPECIAL PAPER-III	-
Dr. SUVARNA ASHOK KURKUTE	
Dr. AJINATH MARUTI DOKE	
STREET IN THE YOUR	
SINCOMETAR SON ISTITUTE	
TAX FUE	

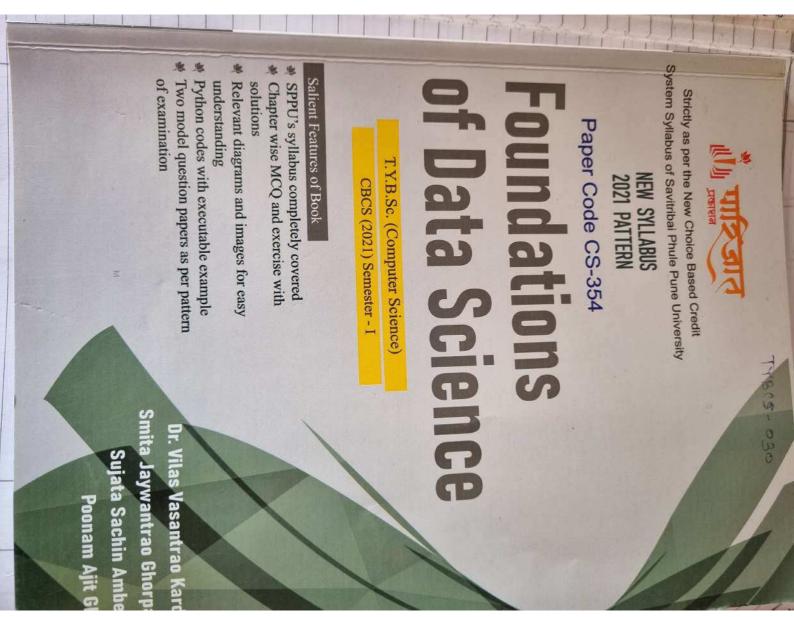
Authors Name	Dr. Suvarna Ashok Kurkute , Dr. Arjun Bhanudas Bhagwat , Dr. Ajinath Maruti Doke
ISBN 13	9789354515187
Publisher	Nirali Prakashan
Edition	First
Pages	132
Language	English
Publishing Year	Mar-22





Authors Name	Dr. Ajinath Maruti Doke , Ramesh Bhaupatil Nagare	
ISBN 13	9789354516030	
Publisher	Nirali Prakashan	
Edition	First	
Pages	246	
Language	English	
Publishing Year	Apr-22	







40, Budhwar Peth, Appa Balwant Chowk, Jogeshwari Lane, Vishveshwar Society, Pune - 411002 Mobile: +91 9370010756

ALL TEXT BOOKS OF B.Sc.(Computer Science)

F.Y.B.Sc.(Computer Science)

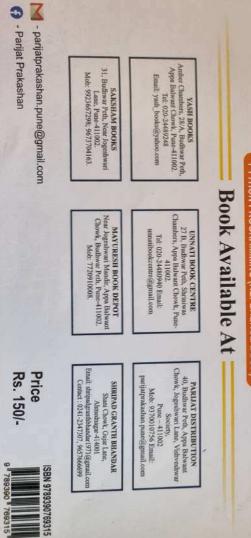
- Problem Solving Using Computer & C Programming
- Database Management System
- Matrix Algebra
- Discrete Mathematics
- Descriptive Statistics
- Mathematical Statistics
- Semiconductor Devices & Basic Electronic Systems
- Principles Of Digital Electronics

S.Y.B.Sc. (Computer Science)

- Data Structures and Algorithms-I
- Software Engineering-II
- Microcontroller Architecture & Programming-I
- Digital Communication and Networking-II
- Groups and Coding Theory-I
- Numerical Techniques-II

T.Y.B.Sc.(Computer Science)

- Operating Systems- I
- Computer Networks II
- Web Technologies- I
- Foundation of Data Science
- Object Oriented Programming Using Java I
- Theoretical Computer Science
- PYTHON PROGRAMMING (REFERENCE BOOK)



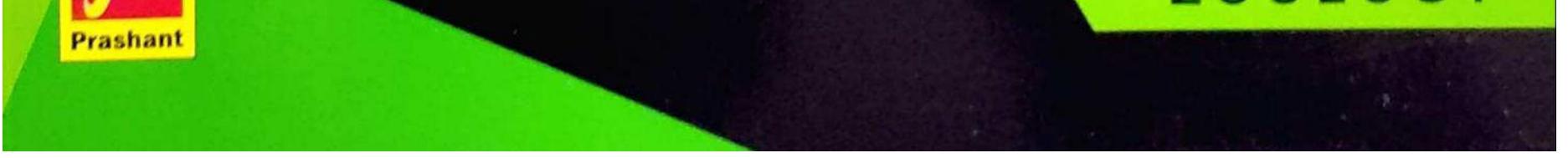
As per Revised Syllabus of SAVITRIBAL PHULE PUNE UNIVERSITY

Choice Based Credit System (CBCS)

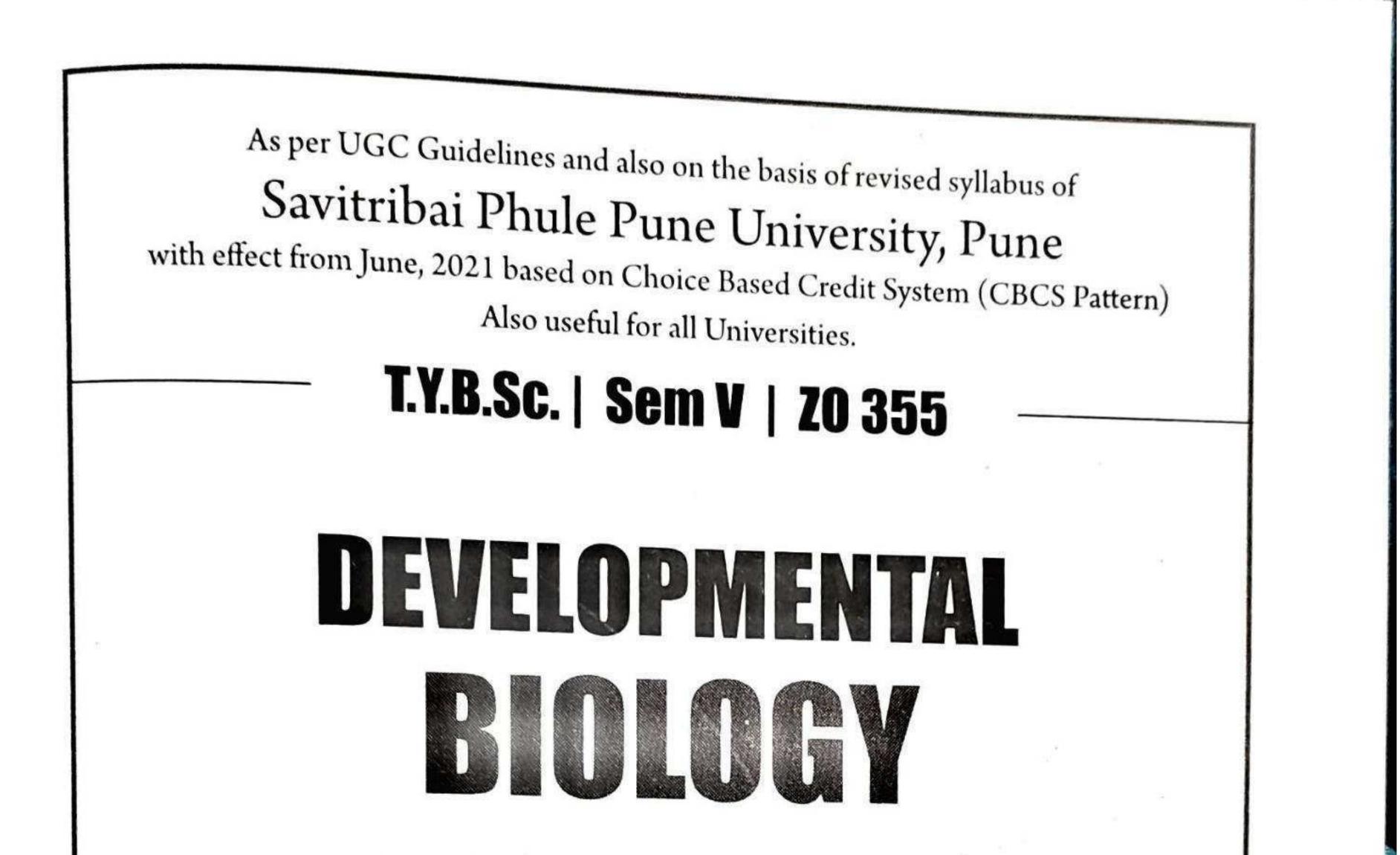
T.Y.B.Sc. ZO 355 Semester V

DEVELOPMENT BIOLOGY

- Dr. Sharad Giramkar
- Dr. Rasul Jamadar
- Prof. (Dr.) Resham Bhalla
- Prof. (Dr.) Sandeep Pokale



Scanned by TapScanner



- AUTHORS -

DR. SHARAD V. GIRAMKAR

Head, Department of Zoology, PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune - 28

DR. RASUL JAMADAR

Department of Zoology, Gramonnati Mandal's Arts, Commerce & Science College, Narayangaon, Tal. Junnar, Dist. Pune

PROF. (DR.) RESHAM BHALLA

Department of Zoology, LVH Arts, Science and Comm. College, Nasik.

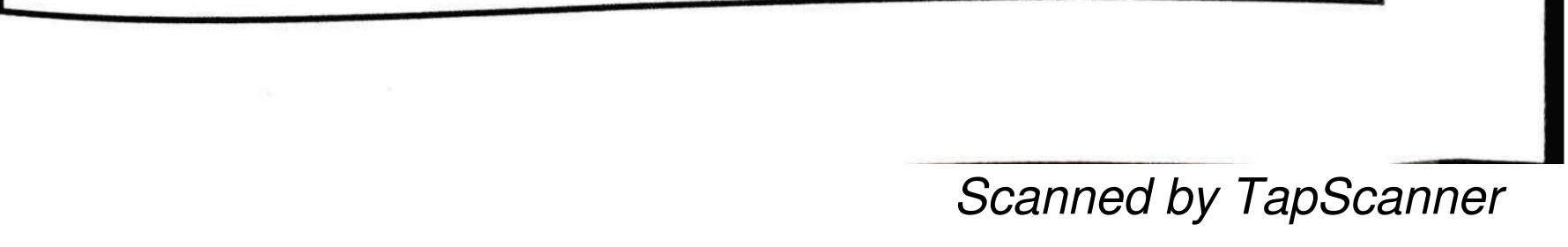
PROF. (DR.) SANDEEP POKALE

SPECIMEN COPY

Professor and HOD, Dr BNP Arts, Smt SGG Commerce and Smt SAM Science College, Lonavala, Tal. Maval, Dist. Pune.



Prashant Publications





DEVELOPMENTAL BIOLOGY T.Y.B.Sc. | Sem V | ZO 355

Publisher and Printer

Prashant Publications 3, Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road,

Near Nutan Maratha College, Jalgaon 425001.

Phone Website E-mail (0257) 2235520, 2232800 www.prashantpublications.com prashantpublication.jal@gmail.com

First Edition . ISBN . Type Setting

September, 2021 978-93-91391-67-6 Prashant Publication

Price : ₹ 95/-

e -Books are available online at www.prashantpublications.com

kopykitab.com • amazon.com • play.google.com

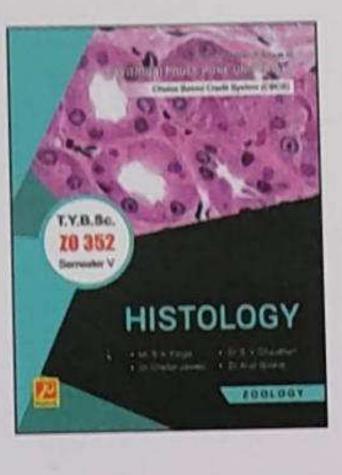
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying (xerox copy), recording or otherwise, without the prior permission.

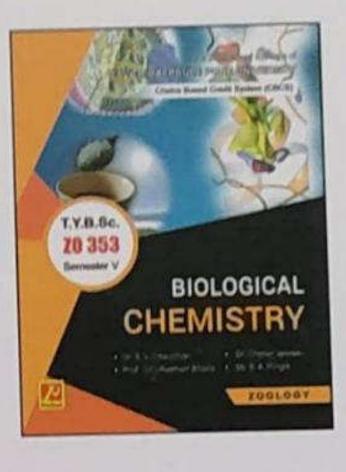
In Scanned by TapScanner

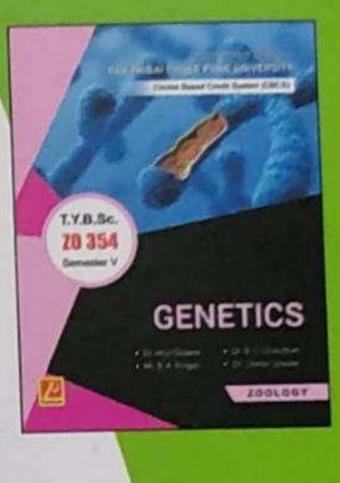
As per Revised Syllabus of SAVITRIBAI PHULE PUNE UNIVERSITY w.e.f. June 2021, (CBCS PATTERN)

T.Y.B.Sc. TEXT BOOKS



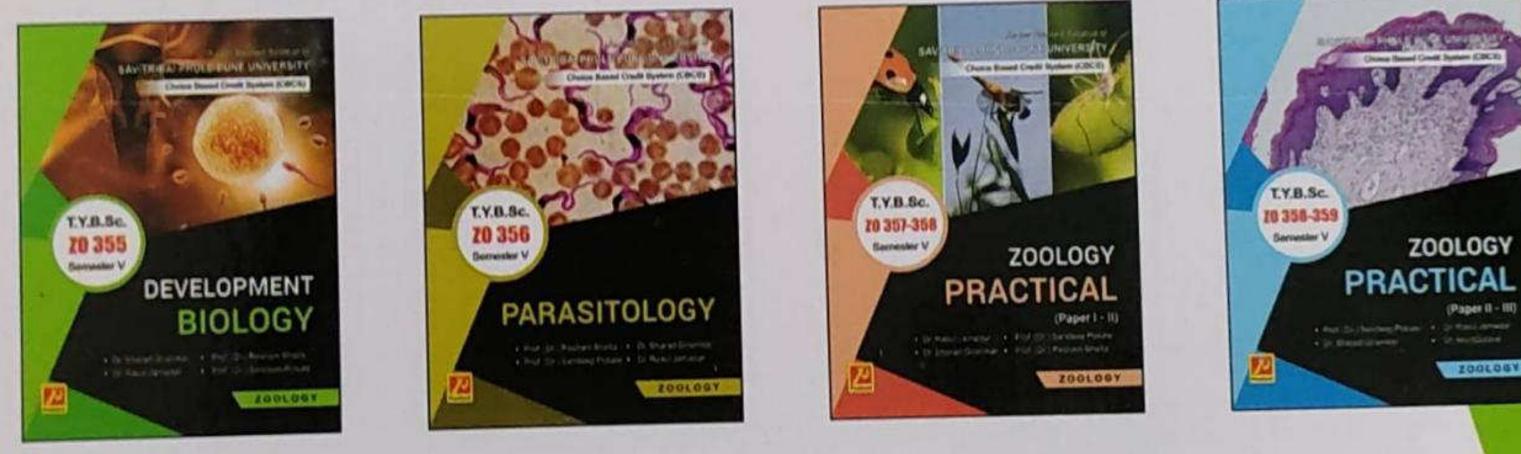














Download Prashant Publications app for e-Books

PRASHANT PUBLICATIONS

3, Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon - 425 001. (India) Ph.: 0257-2235520, 2232800, Mob.: 9421636460

E-Mail : prashantpublication.jal@gmail.com Visit us at www.prashantpublications.com

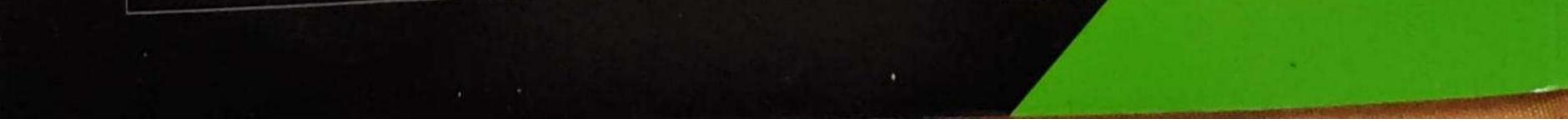


Prashant

Also Available in e-Book kopykitab.com

ISBN 978-93-91391-67-6

₹ 95



Scanned by TapScanner

As per Revised Syllabus of SAVITRIBAI PHULE PUNE UNIVERSITY

Choice Based Credit System (CBCS)

T.Y.B.Sc. ZO 356 Semester V

PARASITOLOGY

- Prof. (Dr.) Resham Bhalla
- Prof. (Dr.) Sandeep Pokale
- Dr. Sharad Giramkar
 - Dr. Rasul Jamadar



Scanned by TapScanner

As per U.G.C. Guidelines and also on the basis of revised syllabus of Savitribai Phule Pune University, Pune with effect from June, 2021 (CBCS Pattern), Also useful for all Universities,

T.Y.B.Sc. | Sem V | ZO 356

PARASITOLOGY

- AUTHORS -

PROF. (DR.) RESHAM BHALLA

Department of Zoology, LVH Arts, Science and Comm. College, Nasik.

PROF. (DR.) SANDEEP POKALE

Professor and HOD, Dr BNP Arts, Smt SGG Commerce and Smt SAM Science College, Lonavala, Tal. Maval, Dist. Pune.

DR. SHARAD GIRAMKAR

Head, Department of Zoology, PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune-28

DR. RASUL JAMADAR

Department of Zoology, Gramonnati Mandal's Arts, Commerce & Science College, Narayangaon, Tal. Junnar, Dist. Pune



SPECIMEN COPY

Prashant Publications

Scanned by TapScanner





PARASITOLOGY

T.Y.B.Sc. | Sem V | ZO 356

Publisher and Printer

Prashant Publications

 Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon 425001.

. Phone . Website . E-mail

(0257) 2235520, 2232800 www.prashantpublications.com prashantpublication.jal@gmail.com

First Edition . ISBN . Type Setting

September, 2021 978-93-91391-75-1 Prashant Publication

Price : ₹ 110/-

e -Books are available online at www.prashantpublications.com **Prashant Publications** *app for e-Books*kopykitab.com • amazon.com • play.google.com

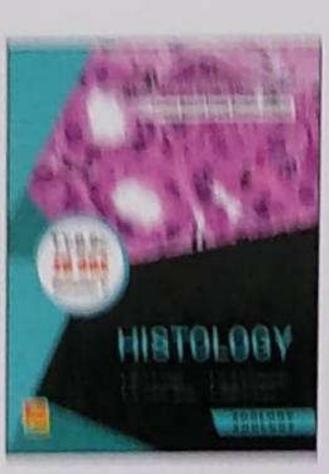
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying (xerox copy), recording or otherwise, without the prior permission.

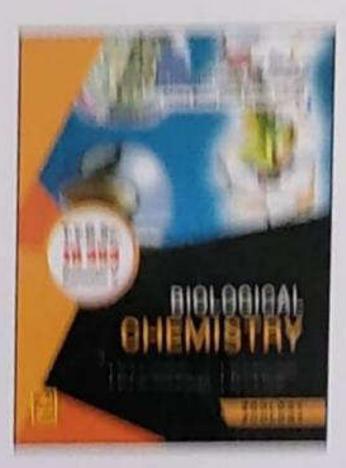


As per Revised Syllabus of SAVITRIBAL PHULE PUNE UNIVERSITY w.e.f. June 2021, (CBCS PATTERN)

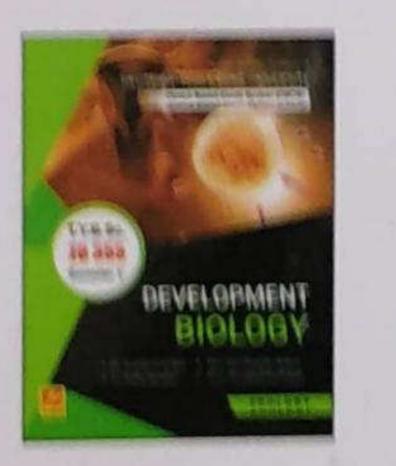
T.Y.B.Sc. TEXT BOOKS

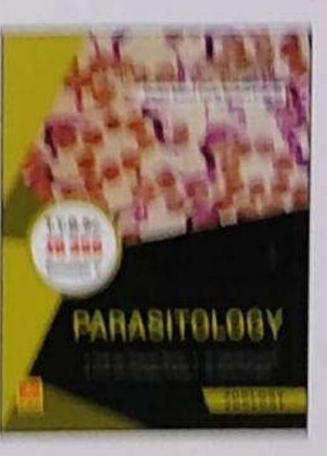


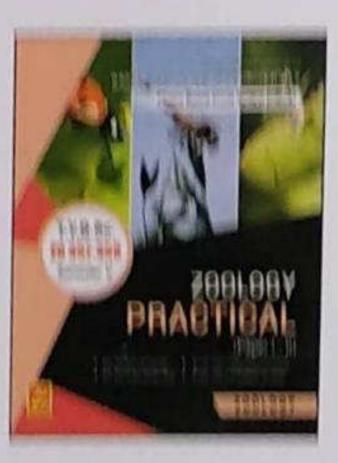


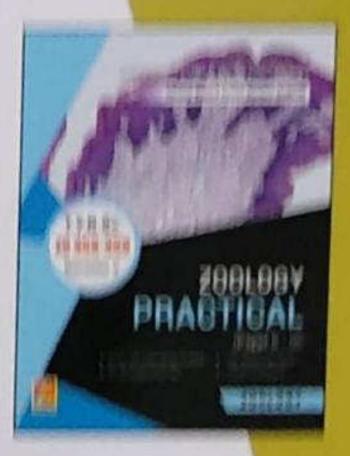












Download Prashant Publications app for e-Books

PRASHANT PUBLICATIONS 3, Pratap Nagar, Shri Sant Bryaneshwar Mandir Read, Near Nutan Maratha Gellege, Jalgaen = 425 001, (India)

Near Nutan Maratha Cellege, Jalgaen = 428 001, (india Ph, 1 0257-2235520, 2232600, Meb, 1 9421636460

E-Mail : prashantpublication.jal@gmail.com Visit us at www.prashantpublications.com









Scanned by TapScanner

SAVITRIBAL PHULE PUNE UNIVERSITY

Choice Based Credit System (CBCS)



ZO 357-358

Semester V

ZOOLOGY PRACTICAL (Paper I - II)

Pest Management • Histology • Biological Chemistry

- Dr. Rasul Jamadar Prof. (Dr.) Sandeep Pokale
- Dr. Sharad Giramkar
 Prof. (Dr.) Resham Bhalla





Scanned by TapScanner

As per U.G.C. Guidelines and also on the basis of revised syllabus of Savitribai Phule Pune University, Pune with effect from June, 2021 (CBCS Pattern), Also useful for all Universities.

T.Y.B.Sc. | Sem V | ZO 357-358

ZOOLOGY PRACTICAL (Paper I & II)

PEST MANAGEMENT - HISTOLOGY - BIOLOGICAL CHEMISTRY

She made a support of a straight

and all all and the second second

- AUTHORS -

DR. RASUL JAMADAR

Department of Zoology, Gramonnati Mandal's Arts, Commerce & Science College, Narayangaon, Tal. Junnar, Dist. Pune

DR. SHARAD GIRAMKAR

Head, Department of Zoology, PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune-28

PROF. (DR.) SANDEEP POKALE

Professor and HOD, Dr BNP Arts, Smt SGG Commerce and Smt SAM Science College, Lonavala, Tal. Maval, Dist. Pune

PROF. (DR.) RESHAM BHALLA

Department of Zoology, LVII Arts, Science and Comm. College, Nasik.



SPECIMEN COPY

Prashant Publications

Scanned by TapScanner



ZOOLOGY PRACTICAL (Paper I & II) T.Y.B.Sc. | Sem V

Reserved

Publisher and Printer

Prashant Publications

 Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon 425001.

. Phone . Website . E-mail

(0257) 2235520, 2232800 www.prashantpublications.com prashantpublication.jal@gmail.com

. First Edition . ISBN . Type Setting

November, 2021 978-93-91391-83-6 Prashant Publication

Price : ₹ 115/-

e-Book s are available online at www.prashantpublications.com Prashant Publications app for e-Books kopykitab.com • amazon.com • play.google.com

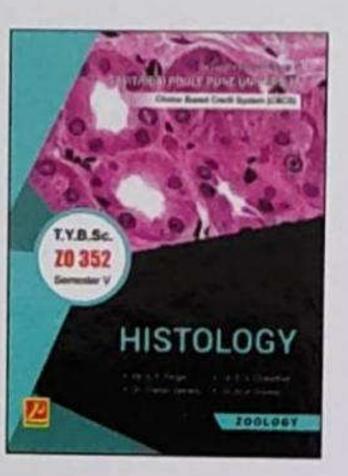
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying (xerox copy), recording or otherwise, without the prior permission.

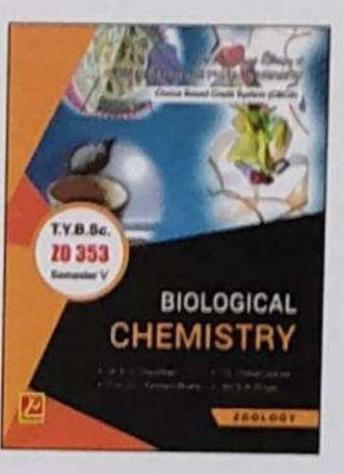


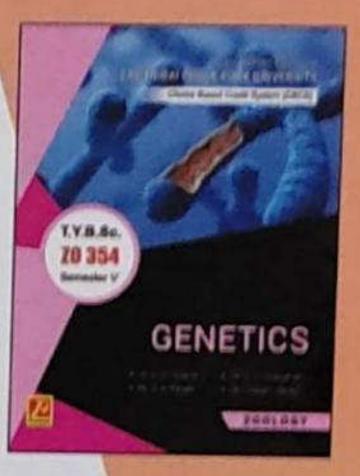
As per Revised Syllabus of SAVITRIBAI PHULE PUNE UNIVERSITY w.e.f. June 2021, (CBCS PATTERN)

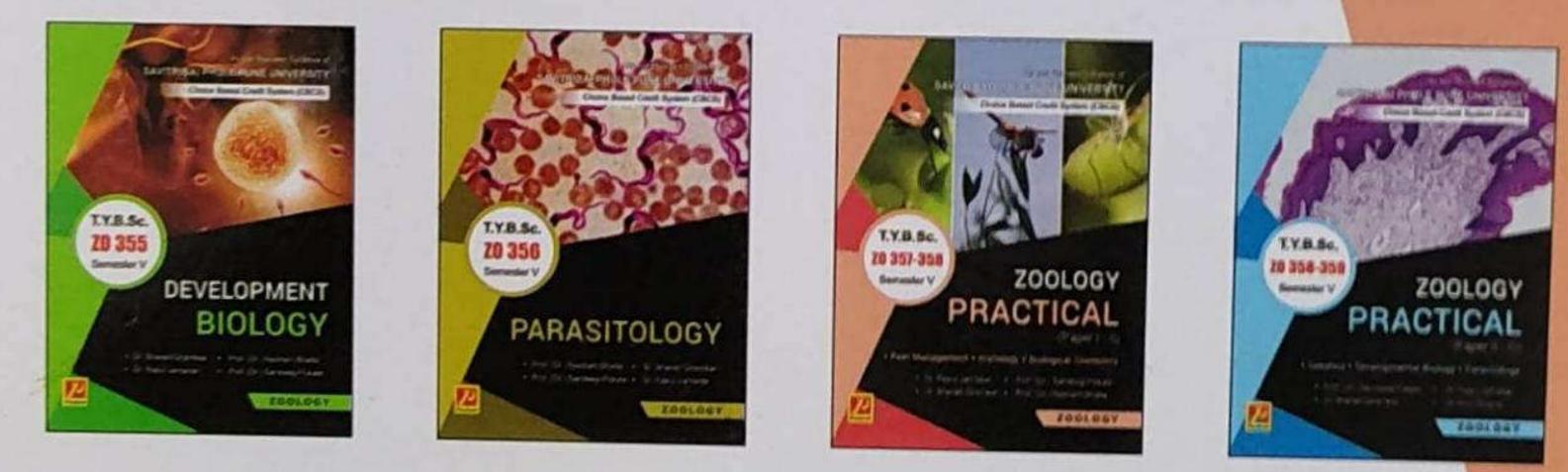
T.Y.B.Sc. TEXT BOOKS











Download Prashant Publications app for e-Books

PRASHANT PUBLICATIONS

3, Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon - 425 001. (India) Ph.: 0257-2235520, 2232800, Mob.: 9421636460

E-Mail : prashantpublication.jal@gmail.com Visit us at www.prashantpublications.com





Scanned by TapScanner

As per Revised Syllabus of SAMITRIBAL PHULE PUNE UNIVERSITY

Choice Based Credit System (CBCS)

T.Y.B.Sc. **ZO 358-359**

Semester V

ZOOLOGY PRACTICAL (Paper II - III)

Genetics Developmental Biology Parasitology

- Prof. (Dr.) Sandeep Pokale
- Dr. Sharad Giramkar
- Dr. Rasul Jamadar
- Dr. Arun Gulave





Scanned by TapScanner

ZOOLOGY

As per U.G.C. Guidelines and also on the basis of revised syllabus of Savitribai Phule Pune University, Pune with effect from June, 2021 (CBCS Pattern), Also useful for all Universities.

T.Y.B.Sc. | Sem V | ZO 358-359

ZOOLOGY PRACTICAL (Paper II & III)

GENETICS DEVELOPMENTAL BIOLOGY PARASITOLOGY

- AUTHORS

PROF. (DR.) SANDEEP POKALE

Professor and HOD, Dr BNP Arts, Smt SGG Commerce and Smt SAM Science College, Lonavala, Tal. Maval, Dist. Pune

DR. SHARAD GIRAMKAR

Head, Department of Zoology, PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune-28

DR. RASUL JAMADAR

Department of Zoology, Gramonnati Mandal's Arts, Commerce & Science College, Narayangaon, Tal. Junnar, Dist. Pune

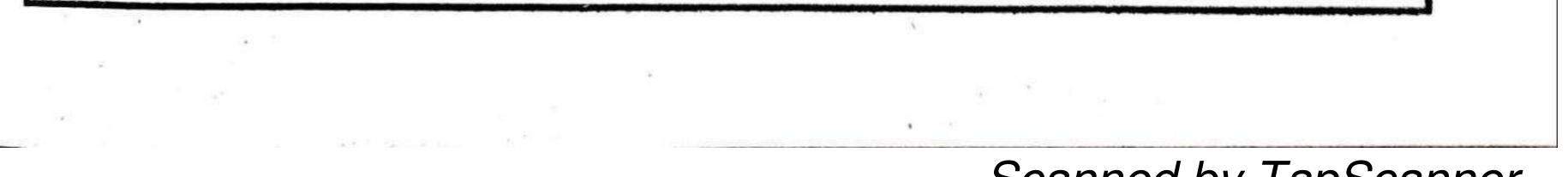
Dr. ARUN GULAVE

Head, Department Of Zoology Hon. Balasaheb Jadhav Arts, Commerce and Science College Ale, Tal. Junnar, Dist. Pune.



SPECIMEN COPY

Prashant Publications



Scanned by TapScanner



ZOOLOGY PRACTICAL (Paper II & III)

T.Y.B.Sc. | Sem V

Publisher and Printer

Prashant Publications

3, Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon 425001.

. Phone . Website . E-mail

(0257) 2235520, 2232800 www.prashantpublications.com prashantpublication.jal@gmail.com

First Edition . ISBN . Type Setting

November, 2021 978-93-91391-91-1 **Prashant Publication**

Price : ₹ 115/-

e-Books are available online at www.prashantpublications.com **Prashant Publications** app for e-Books kopykitab.com • amazon.com • play.google.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying (xerox copy), recording or otherwise, without the prior permission.



п

Scanned by TapScanner

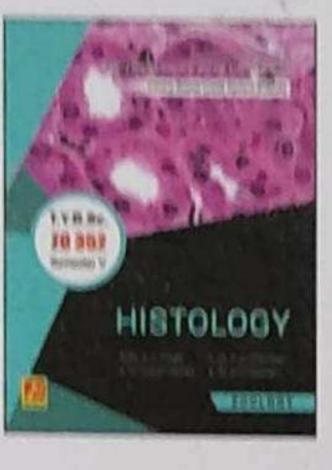
© Reserved

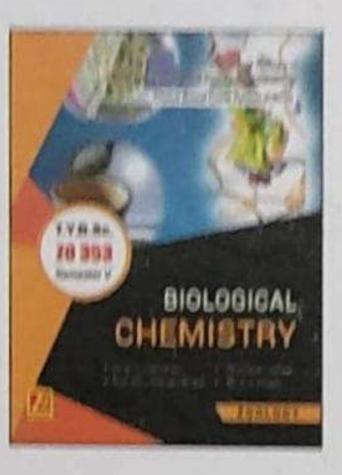
As per Revised Syllabus of SAVITRIBAI PHULE PUNE UNIVERSITY w.e.f. June 2021, (CBCS PATTERN)

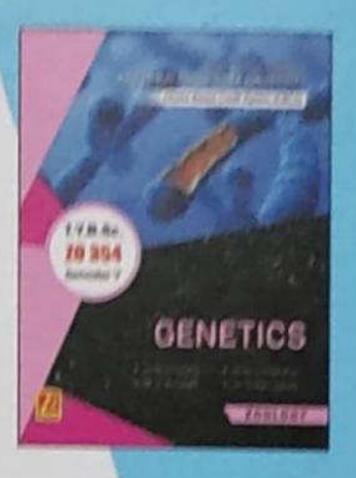
T.Y.B.Sc. TEXT BOOKS

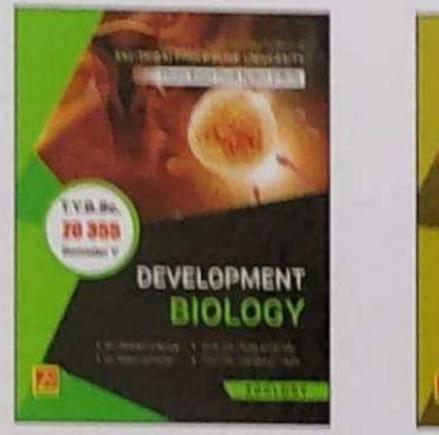
A MATTIN MARTIN







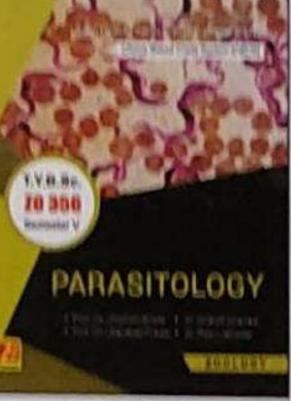


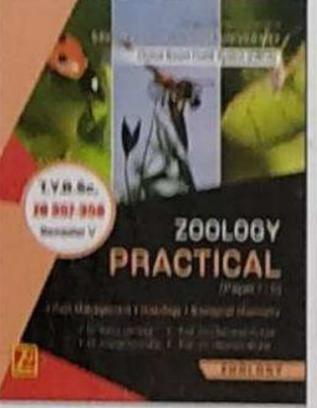


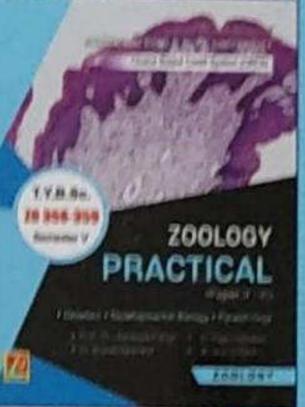












Download Prashant Publications app for e-Books

PRASHANT PUBLICATIONS

3, Pratap Nagar, Shri Sant Dnyaneshwar Mandir Road, Near Nutan Maratha College, Jalgaon - 425 001. (India) Ph.: 0257-2235520, 2232800, Mob.: 9421636460

E-Mail : prashantpublication.jal@gmail.com Visit us at www.prashantpublications.com



Also Available in **e-Book** kopykitab.com

ISBN 978-93-91391-91-1

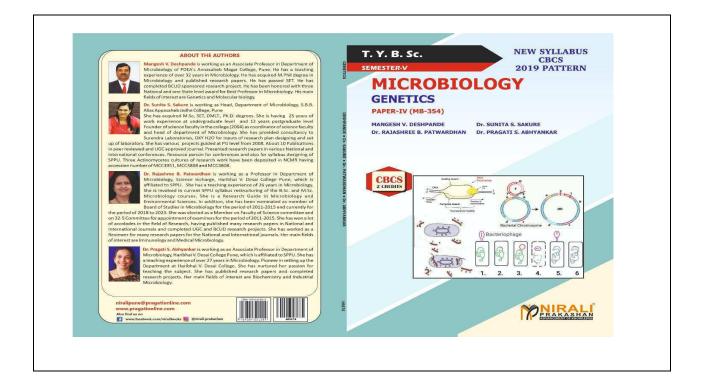
₹ 115



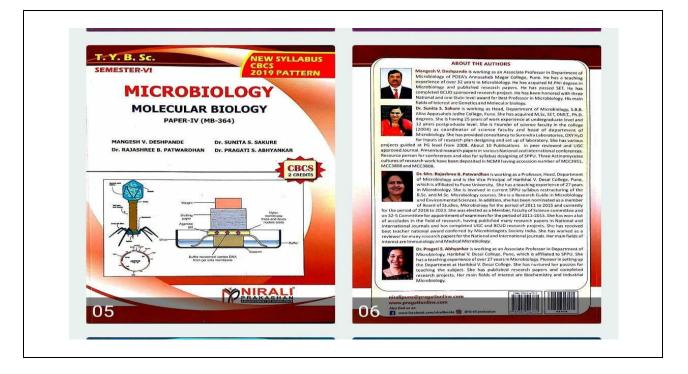


Scanned by TapScanner

1. Books Published



2.



GUIDELINES FOR SCIENTIFIC COMMUNICATION

I

DR. APARNA B. GUNJAL MS. MEGHMALA WAGHMODE Published by Seire Science, India

Authored by Dr. Aparna B Gunjal Ms. Meghmala Waghmode

Copy right © authors, 2021

The author(s) is (are) solely responsible for the contents. Neither Editors nor Publisher

or Printers would be liable for the same in any way. All rights reserved

No part of this work may be reproduced, copied, translated or stored in any computer of other retrieval system or transmitted in any form by any means electronic, mechanica photocopying, recording or otherwise without prior written permission of the publisher Any breach will entail legal action without further notice.



Printed by Indhu Systems, India

This book is sold on the condition and understanding that it shall not, by way of trade of otherwise, be lent, resold, hired out, or otherwise circulated, without the publisher's priconsent, in any form of binding or cover other than that in which it is published.

1E



1

T. Y. B. Sc. COMPUTER SCIENCE SEMESTER-VI

NEW SYLLABUS CBCS PATTERN

2

WEB TECHNOLOGIES-II

Dr. A. B. NIMBALKAR



Our Text Books for Third Year B. Sc. : Computer Science As per New Syllabus CBCS Pattern : Semester-VI OPERATING SYSTEMS-II Dr. Ms. Manisha Bharambe, Mrs. Veena Gandhi SOFTWARE TESTING Dr. Ms. Manisha Bharambe, Niket Tajne WEB TECHNOLOGIES-II Dr. A. B. Nimbalkar DATA ANALYTICS Dr. Ms. Manisha Bharambe, Dr. Mrs. Harsha Patil OBJECT ORIENTED PROGRAMMING USING JAVA-II Dr. Ms. Manisha Bharambe, Ms. Manisha Gadekar COMPILER CONSTRUCTION Dr. Ms. Manisha Bharambe SOFTWARE TESTING TOOLS Ms. Smita Ghorpade, Ms. Kirti More **BOOKS AVAILABLE AT** PRAGATI BOOK CENTER - Email: pbcpune@pragationline.com 157 Budhwar Peth, Opp. Ratan Talkies, Next To Balaji Mandir, Pune 411002 • Mobile : 9657703148 676/B Budhwar Peth, Opp. Jogeshwari Mandir, Pune 411002 Tel : (020) 2448 7459 • Mobile : 9657703147 / 9657703149 152 Budhwar Peth, Near Jogeshwari Mandir, Pune 411002 Mobile: 8087881795 PRAGATI BOOK CORNER - Email: niralimumbai@pragationline.com Apurva Building, Shop No. 1, Bhavani Shankar Road, Opp. Shardashram Society, Dadar (W), Mumbai 400028. Tel: (022) 2422 3526/6662 5254 • Mobile : 9819935759 niralipune@pragationline.com www.pragationline.com Also find us on

www.facebook.com/niralibooks 🗿 @nirali.prakashan

THIRD YEAR B. Sc. COMPUTER SCIENCE SEMESTER-V

WEB TECHNOLOGIES-I

1.0

Dr. A. B. NIMBALKAR

.wor80

C.A

0.82



NEW SYLLABUS CBCS PATTERN

Our Text Books for Third Year B. Sc. : Computer Science As per New Syllabus CBCS Pattern : Semester-V

- OPERATING SYSTEMS–I Dr. Ms. Manisha Bharambe, Mrs. Veena Gandhi
- COMPUTER NETWORKS-II
 Dr. Ms. Manisha Bharambe, Dr. Mrs. Harshita Vachhani
- WEB TECHNOLOGIES-I Dr. A. B. Nimbalkar
- FOUNDATIONS OF DATA SCIENCE
 Dr. Ms. Manisha Bharambe, Dr. Mrs. Harsha Patil
- OBJECT ORIENTED PROGRAMMING USING JAVA–I
 Dr. Ms. Manisha Bharambe, Ms. Manisha Gadekar
- THEORETICAL COMPUTER SCIENCE Dr. Ms. Manisha Bharambe
- **PYTHON PROGRAMMING** Dr. Ms. Manisha Bharambe
- BLOCKCHAIN TECHNOLOGY . Dr. Ms. Manisha Bharambe, Ms. Manisha Gadekar

BOOKS AVAILABLE AT

 PRAGATI BOOK CENTER - Email: pbcpune@pragationline.com
 157 Budhwar Peth, Opp. Ratan Talkies, Next To Balaji Mandir, Pune 411002 • Mobile : 9657703148

 676/B Budhwar Peth, Opp. Jogeshwari Mandir, Pune 411002 Tel : (020) 2448 7459 • Mobile : 9657703147 / 9657703149
 152 Budhwar Peth, Near Jogeshwari Mandir, Pune 411002 Mobile : 8087881795

PRAGATI BOOK CORNER - Email: niralimumbai@pragationline.com

Apurva Building, Shop No. 1, Bhavani Shankar Road,

Opp. Shardashram Society, Dadar (W), Mumbai 400028. Tel: (022) 2422 3526/6662 5254 • Mobile : 9819935759

niralipune@pragationline.com www.pragationline.com

Also find us on

www.facebook.com/niralibooks 🔘 @nirali.prakashan



Strictly as per the New Choice Based Credit System Syllabus of Savitribai Phule Pune University

NEW SYLLABUS 2021 PATTERN Paper Code CS-351 Operating

Systems - I

CBCS (2021) Semester ~1

Salient Features of Book

- Appropriate & precise notes of all topics
- Unit wise question bank is given for the convenience of the student

T.Y.B.Sc. (Computer Science)

- Previous examination papers are included to get the idea of examination paper pattern
- Maximum concepts are supported with relevant diagrams and images for easy understanding

Sunita J. Saykar Mayuri Bapat Tripti N. Mah**abare** Jyoti R. Nandkar

BOOK NAME: Operating Systems- I

ISBN: 978-93-90769-28-5

First Edition: 2022

Copyright © with Parijat Publication. All rights reserved. No part of this publication may be reproduced, distributed or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in case of bried quotations embodied in reviews and certain other non-commercial uses permitted by copyright law.

Published by:

Parijat Prakashan: 40, Budhwar Peth, Appa Balwant Chowk, Jogeshwari Lane, Vishweshwar Society, Pune – 411002

Printer: S. S. Arts, S. No. 75, Yash Heights, Railkar Mula Pune- 41

Price: - 195/-

(Note: Every possible effort has been made to present the information strictly according to the new approved syllabus in this book. Necessary care has been taken to verify the information presented in the book. It is notified that neither the author nor the publisher or seller of the book shall be responsible for any mistake or discrepancy that may have somehow crept in. If any mistake or discrepancy is noticed in the book could be notified to us on our mail parijatprakashan.punc@gmail.com shall be considered for the next edition.)

0

CBCS PATTERN

M.Sc. : COMPUTER SCIENCE : SEMESTER-I

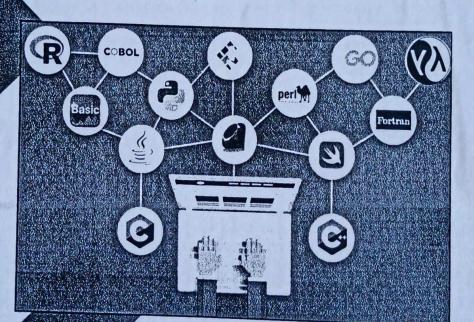
Chief - Stearly a

PARADIGM OF PROGRAMMING LANGUAGE

Mrs. DIPALI MALI (MAHAJAN)

Mrs. MONICA DESHMANE (DHOTRE)

NEW SYLLABUS





ABOUT THE AUTHOR



Asst. Prof. Dipali Mali (Mahajan) is a faculty member in the Department of Computer Science, Annasaheb Magar College, Pune since 2007. She has been teaching for more than 14 years. She has completed her M.C.A. (Science) from Annasaheb Magar Mahavidyalaya, Pune and B.C.S. from K.T.H.M. College, Nasik under Savitribai Phule Pune University. She has qualified CBSE-UGC NET in June 2015. She has teaching experience at under-graduation and postgraduation level. Till now, she has taught computer subjects to M.C.A.

(Science), B.Sc. (Computer Science), M.Sc. (Computer Science) and B.Voc. (Software Development). She worked as a visiting faculty in some colleges. She has participated in syllabus restructuring, many state, national and international level workshops, seminars, Faculty Development Program (FDP), webinars and conferences.

Books written:

- Paradigm of Programming Languages, M.Sc.(C.S.) Sem.I
- Database Management System, M.C.A.-Sem.I
- Database Management System, Mewar University.
- Network Technology, MCM-Sem.IV.



Asst. Prof. Monica Deshmane (Dhotre) has completed her MCS from Annasaheb Magar Mahavidyalaya under Savitribai Phule Pune University at 2011. She has qualified UGC NET in first attempt at June 2012. She has total 10 years of an experience in various reputed colleges. Currently she is working in Haribhai V. Desai College of Commerce, Arts and Science. She has academic experience at undergraduation and post-graduation level. Till now, she has taught computer subjects to MSc. Computer Science, BSc. Computer Science,

MCA science, MCA Commerce, BCA students. She has organized many activities and events, competitions at college level. Also She has published research paper on fuzzy logic theory. She has participated in many state, national and international level workshops, seminars, FDP, webinars, conferences etc.

Books published-

M.Sc. Computer Science : Semester-I

- Design And Analysis of an Algorithms
- Paradigm of Programming Languages

niralipune@pragationline.com | www.pragationline.com Also find us on
www.facebook.com/niralibooks

o @nirali.prakashan



IMG-20220413-WA0020.jpg

CBCS PATTERN

M.Sc. : COMPUTER SCIENCE : SEMESTER-II



SOFTWARE PROJECT MANAGEMENT

MS. DIPALI MALI (MAHAJAN) Mrs. MONALI S. PATH.

ABOUT THE AUTHOR



Asst. Prof. Dipali Deepak Mali (Dipali Shailesh Mahajan) is a faculty member in the Department of Computer Science, PDEA's Annasaheb Magar College, Hadapsar, Pune since 2007. She has been teaching for more than 14 years. She has completed her M.C.A. (Science) from Annasaheb Magar Mahavidyalava, Pune and B.C.S. from K.T.H.M. College, Nasik under Savitribai Phule Pune University. She has qualified CBSE-UGC NET in June 2015. She has teaching experience at undergraduation and post graduation level. Till now , she has taught

computer subjects to M.C.A. (Science), B. Sc.(Computer Science), M.Sc. (Computer science) and B. Voc(Software Development). She works as a visiting faculty in some colleges, She has participated in syllabus restructuring, many state, national and international level workshops seminal scPaculty development program (FDP), webinars and conferences Books written.

- Software Propert Management, M.Sc. (C.S.) Sem II
- Advanced Operating System, M.Sc. (C.S.). Sem II
- Paraeligm of Programming Languages, M.Sc.(C.S.) Sem 1
- Database Management System, MCA Sem -I
- · Database Management System, Mewar University
- · Network Technology, MCM-Sem-IV.

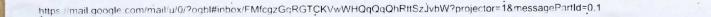
Asst. Prof. Monali Sagar Patil is a faculty member in the postinduction department of Computer Science, managery Jesur College, Plune since 2016 She has been teaching for more than 8 years the has completed her NLCS from PC Nanata olige, 81 million of Kavayitri Bahinabai Chaladhar North Maharantia University religion Science againtee Occ NLL in December 2012. She has each by experience at under graduation and pust grad, atom level to new the nastaught computer catients (ESC).

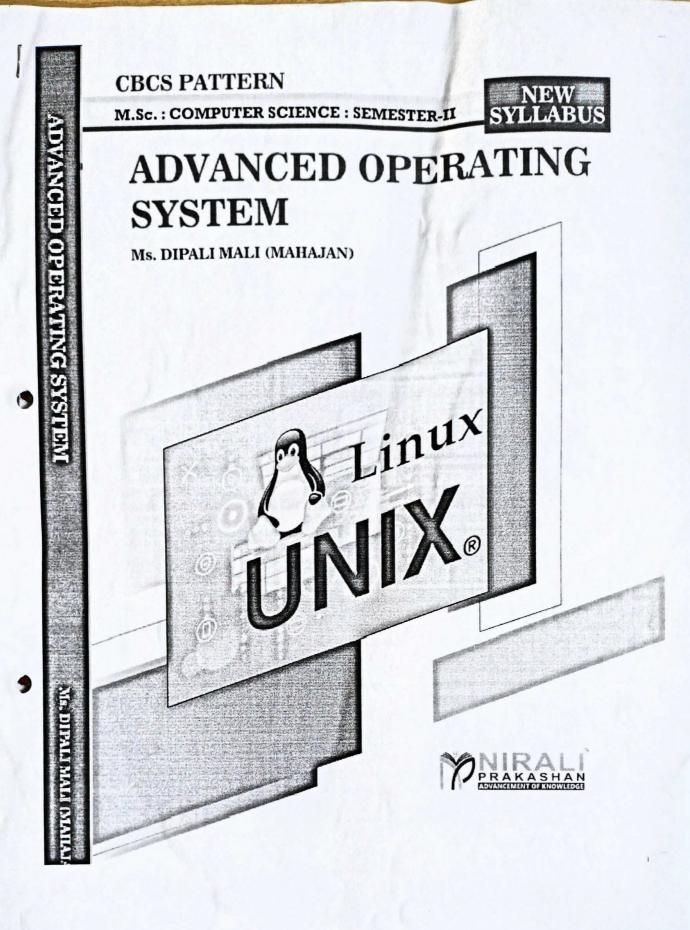
Mital reconsiderers, ender, Miccik (science), 3 Black View, and 8 CA (science), consists, she has had obtained morely activated and events, competitions of college revel. She has parts particular many date and national even workshops, seminars, faculty Development Program (FDP), websiters conferences.

Books written

- Duration in the layers N.S. C.S. Source
- Settivar: Project Minagement MiSc. (C.S.). Sem II

niralipune@pragationline.com | www.pragationline.com Also find us on 2 a www.facebook.com/niralibooks





ABOUT THE AUTHOR



Asst. Prof. Dipali Deepak Mali (Dipali Shailesh Mahajan) is a faculty member in the Department of Computer Science, PDEA's Annasaheb Magar College, Hadapsar, Pune since 2007. She has been teaching for more than 14 years. She has completed her M.C.A. (Science) from Annasaheb Magar Mahavidyalaya, Pune and B.C.S. from K.T.H.M. College, Nasik under Savitribai Phule Pune University. She has qualified CBSE-UGC NET in June 2015.

She has teaching experience at under-graduation and pcst-graduation level. Till now, she has taught computer subjects to M.C.A. (Science), B. Sc.(Computer Science), M.Sc. (Computer science) and B. Voc(Software Development). She works as a visiting faculty in some colleges. She has participated in syllabus restructuring, many state, national and international level workshops, seminars, Faculty development program (FDP), webinars and conferences.

Books written :

- Software Project Management, M.SC. (C.S.) Sem-II
- Advanced Operating System, M.SC. (C.S.) Sem-II
- Paradigm of Programming Languages, M.SC.(C.S.) Sem-I
- Database Management System, MCA Sem-I
- Database Management System, Mewar University
- Network Technology, MCM-Sem-IV.

- BOOKS AVAILABLE AT

PRAGATIBOOK CENTER - Email: pbcpune@pragationline.com

- 157 Budhwar Peth, Opp. Ratan Talkies, Next To Balaji Mandir, Pune 411002 • Mobile : 9657703148
- 676/B Budhwar Peth, Opp. Jogeshwari Mandir, Pune 411002
 Tel: (020) 2448 7459 Mobile: 9657703147 / 9657703149
- 152 Budhwar Peth, Near Jogeshwari Mandir, Pune 411002 Mobile: 8087881795

PRAGATI BOOK CORNER - Email: niralimumbai@pragationline.com

 Apurva Building, Shop No. 1, Bhavani Shankar Road, Opp. Shardashram Society, Dadar (W), Mumbai 400028. Tel: (022) 2422 3526/6662 5254 • Mobile : 9819935759

niralipune@pragationline.com | www.pragationline.com Also find us on 🌄 www.facebook.com/niralibooks



CED OPERATING SYST

@nirali.prakashan



Strictly as per the New Choice Based Credit System Syllabus of Savitribai Phule Pune University

NEW SYLLABUS 2021 Pattern

Paper Code CS-352

Computer Network - I

T.M.B.Sc. (Computer Science) CBCS (2021) Semester 1

Salient Features of Book

- M Detailed and easy explanation of concepts
- Reinforces learning through objective and subjective questions
- Comprehensive presentation of basic concepts
- Clearly illustrated concepts with diagrams Simple and reader friendly

Vinita B. Kadlag Sana K. Shaikh Suraj Ramesh Kakade Kavita D. Mahajan

BOOK NAME: Computer Networks- II

ISBN: 978-93-90769-29-2

First Edition: 2022

• •

.[

.

.].

.

• 1

• { • F

NO

Copyright © with Parijat Publication. All rights reserved. No part of this publication may be reproduced, distributed or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in case of brief quotations embodied in reviews and certain other non-commercial uses permitted by copyright law.

Published by:

Parijat Prakashan: 40, Budhwar Peth, Appa Balwant Chowk, Jogeshwari Lane, Vishweshwar Society, Pune – 411002

Printer: S. S. Arts, S. No. 75, Yash Heights, Railkar Mula Pune- 41

Price: - 195/-

(Note: Every possible effort has been made to present the information strictly according to the new approved syllabus in this book. Necessary care has been taken to verify the information presented in the book. It is notified that neither the author nor the publisher or seller of the book shall be responsible for any mistake or discrepancy that may have somehow crept in. If any mistake or discrepancy is noticed in the book could be notified to us on our mail parijatprakashan.pune@gmail.com shall be considered for the next edition.)

THIRD YEAR B. Sc. COMPUTER SCIENCE SEMESTER-V

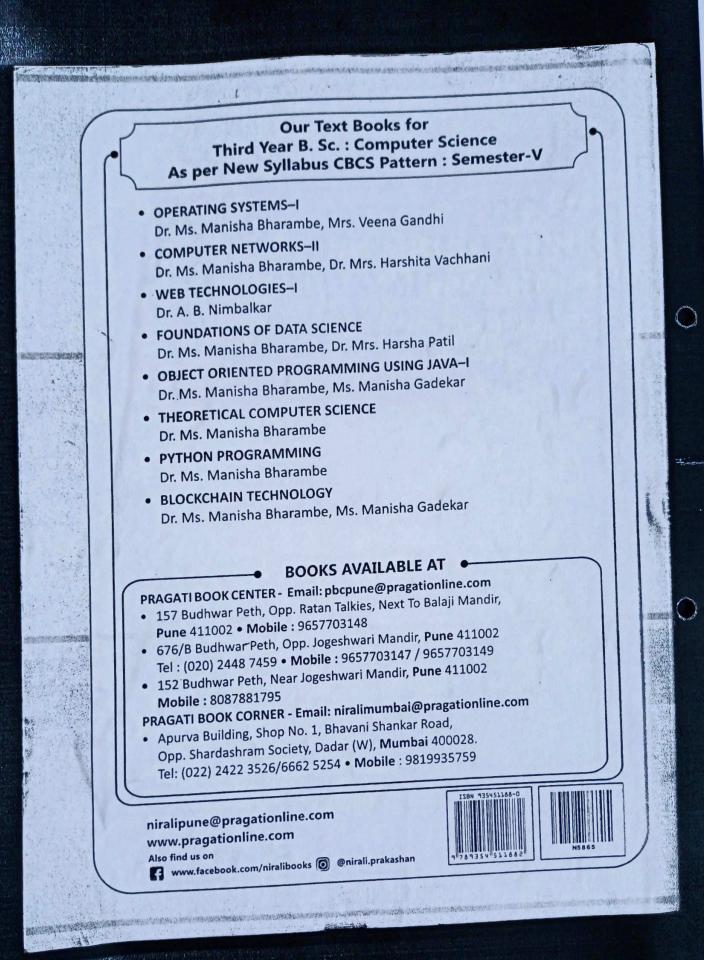
NEW SYLLABUS CBCS PATTERN

OBJECT ORIENTED PROGRAMMING USING JAVA-I

Dr. Ms. MANISHA BHARAMBE Ms. MANISHA GADEKAR

(a)





T. Y. B. Sc. COMPUTER SCIENCE SEMESTER-VI NEW SYLLABUS CBCS PATTERN

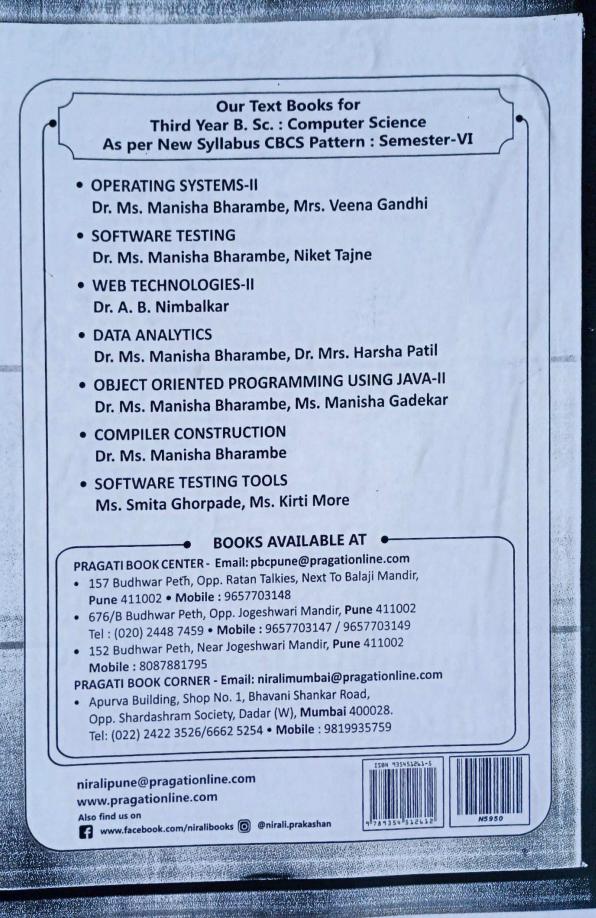
OBJECT ORIENTED PROGRAMMING USING JAVA-II

Dr. Ms. MANISHA BHARAMBE Ms. MANISHA GADEKAR

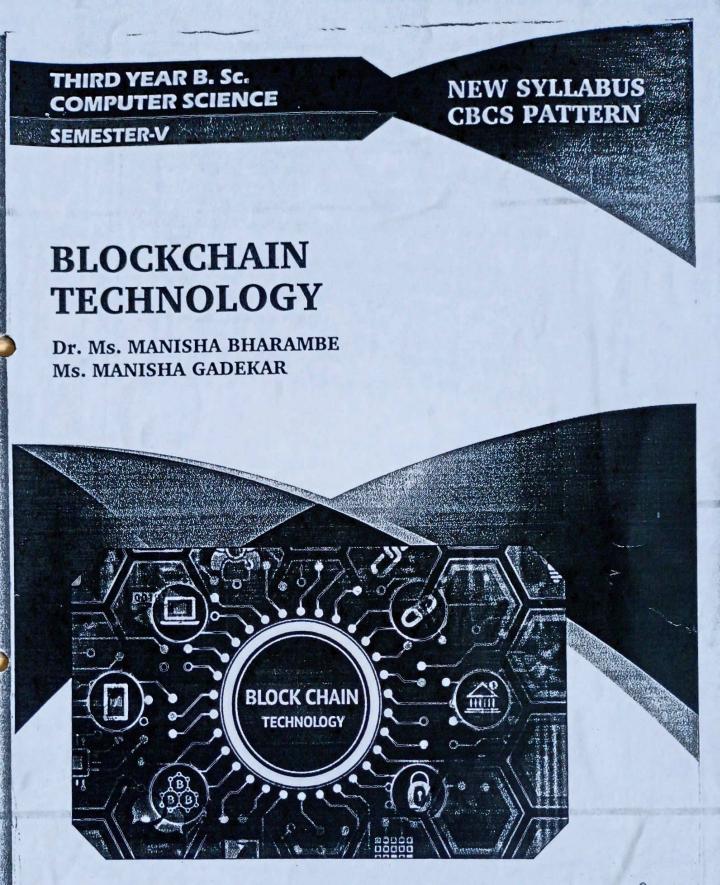
ava

88





and the second second





Our Text Books for Third Year B. Sc. : Computer Science As per New Syllabus CBCS Pattern : Semester-V

- OPERATING SYSTEMS–I Dr. Ms. Manisha Bharambe, Mrs. Veena Gandhi
- COMPUTER NETWORKS–II
 Dr. Ms. Manisha Bharambe, Dr. Mrs. Harshita Vachhani
- WEB TECHNOLOGIES-I Dr. A. B. Nimbalkar
- FOUNDATIONS OF DATA SCIENCE
 Dr. Ms. Manisha Bharambe, Dr. Mrs. Harsha Patil
- OBJECT ORIENTED PROGRAMMING USING JAVA–I Dr. Ms. Manisha Bharambe, Ms. Manisha Gadekar
- THEORETICAL COMPUTER SCIENCE Dr. Ms. Manisha Bharambe
- PYTHON PROGRAMMING Dr. Ms. Manisha Bharambe
- BLOCKCHAIN TECHNOLOGY
 Dr. Ms. Manisha Bharambe, Ms. Manisha Gadekar

BOOKS AVAILABLE AT

PRAGATI BOOK CENTER - Email: pbcpune@pragationline.com

- 157 Budhwar Peth, Opp. Ratan Talkies, Next To Balaji Mandir, Pune 411002 • Mobile : 9657703148
- 676/B Budhwar Peth, Opp. Jogeshwari Mandir, Pune 411002 Tel : (020) 2448 7459 • Mobile : 9657703147 / 9657703149
- 152 Budhwar Peth, Near Jogeshwari Mandir, Pune 411002 Mobile: 8087881795

PRAGATI BOOK CORNER - Email: niralimumbai@pragationline.com

 Apurva Building, Shop No. 1, Bhavani Shankar Road, Opp. Shardashram Society, Dadar (W), Mumbai 400028. Tel: (022) 2422 3526/6662 5254 • Mobile : 9819935759

niralipune@pragationline.com www.pragationline.com Also find us on www.facebook.com/niralibooks () @nirali.prakashan



RECENT ADVANCES IN PHYTOREMEDIATION

Editor: Dr. Aparna B. Gunjal

Assistant Professor, Department of Microbiology, Dr. D. Y. Patil, Arts, Commerce and Science College, Pimpri, Pune, Maharashtra, India



CIRE SCIEN

Published by Scire Science, India

Edited by Dr. Aparna B Gunjal

Copy right $\ensuremath{\mathbb{C}}$ authors and editor, 2022

The author(s) is (are) solely responsible for the contents. Neither Editors nor Publishers or Printers would be liable for the same in any way. All rights reserved

No part of this work may be reproduced, copied, translated or stored in any computer or other retrieval system or transmitted in any form by any means electronic, mechanical, photocopying, recording or otherwise without prior written permission of the publisher. Any breach will entail legal action without further notice.



Printed by Indhu Systems, India

This book is sold on the condition and understanding that it shall not, by way of trade or otherwise, be lent, resold, hired out, or otherwise circulated, without the publisher's prior consent, in any form of binding or cover other than that in which it is published.

3. Phytoremediation of Heavy Metals

Meghmala S.Waghmode^{1*}, Madhuri S. Bhandwalkar² and Neha N. Patil¹ ¹PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune, Maharashtra, India.

²Department of Microbiology, Someshwar Shikshan Prasarak Mandal's Someshwar Science

College, Someshwarnagar, Baramati, Pune, Maharashtra, India *Corresponding Author E-mail: <u>meghmicro@gmail.com</u>

Introduction

Heavy metals are generated through various anthropogenic and natural activities. Heavy metals have an atomic number greater than 20 and an elemental density greater than 5 g cm³. Heavy metals include cadmium (Cd), chromium (Cr), mercury (Hg), lead (Pb), arsenic (As), silver (Ag), cobalt (Co), copper (Cu), zinc (Zn), iron (Fe), nickel (Ni), and platinum group elements (Ali et al. 2013; Ali and Khan 2018a, Saxena *et al.*, 2020). Soils contaminated by different heavy metals and waters pose significant environmental and human health problems due to their non-biodegradable nature. Different physicochemical methods like ion exchange, precipitation, reverse osmosis, evaporation and chemical reduction and mechanical methods have been employed for their removal from the environment.

Effect of heavy metals on the environment

Chromium (Cr) is one of the pollutants mentioned as a non-essential element and ranks seventh in abundance in the earth's crust. Cr's major pollution or contamination is by the leather tanning industries, electroplating, and stainless steel industries (Dheri *et al.*, 2007). Chromium pollution showed an impact on

Recent advances in phytoremediation

Agro- Bioremediation

Dr. Shubhangi R. Shinde

strategies in Maharashtra

Lulu Publication 2021



Price: /-

Agro- Bioremediation strategies in Maharashtra

Dr. Shubhangi R. Shinde

© 2021 by Author

All rights reserved. No part of this publication may be reproduced or transmitted, in any form or by any means, without prior permission of the author. Any person who does any unauthorized act in relation to this publication may be liable to criminal prosecution and civil claims for damages. [The responsibility for the facts stated, conclusions reached, etc., is entirely that of the author. The publisher is not responsible for them, whatsoever.]

ISBN: 978-1-257-63106-3

Published by, Lulu Publication 3101 Hillsborough St, Raleigh, NC 27607, United States.

Printed by,

Laxmi Book Publication, 258/34, Raviwar Peth, Solapur, Maharashtra, India. Contact No. : 9595359435 Website: http://www.lbp.world Email ID: apiguide2014@gmail.com

RECENT ADVANCES IN PHYTOREMEDIATION

Editor: Dr. Aparna B. Gunjal

Assistant Professor, Department of Microbiology, Dr. D. Y. Patil, Arts, Commerce and Science College, Pimpri, Pune, Maharashtra, India



CIRE SCIEN

Published by Scire Science, India

Edited by Dr. Aparna B Gunjal

Copy right $\ensuremath{\mathbb{C}}$ authors and editor, 2022

The author(s) is (are) solely responsible for the contents. Neither Editors nor Publishers or Printers would be liable for the same in any way. All rights reserved

No part of this work may be reproduced, copied, translated or stored in any computer or other retrieval system or transmitted in any form by any means electronic, mechanical, photocopying, recording or otherwise without prior written permission of the publisher. Any breach will entail legal action without further notice.



Printed by Indhu Systems, India

This book is sold on the condition and understanding that it shall not, by way of trade or otherwise, be lent, resold, hired out, or otherwise circulated, without the publisher's prior consent, in any form of binding or cover other than that in which it is published.

3. Phytoremediation of Heavy Metals

Meghmala S.Waghmode^{1*}, Madhuri S. Bhandwalkar² and Neha N. Patil¹ ¹PDEA's Annasaheb Magar Mahavidyalaya, Hadapsar, Pune, Maharashtra, India.

²Department of Microbiology, Someshwar Shikshan Prasarak Mandal's Someshwar Science

College, Someshwarnagar, Baramati, Pune, Maharashtra, India *Corresponding Author E-mail: <u>meghmicro@gmail.com</u>

Introduction

Heavy metals are generated through various anthropogenic and natural activities. Heavy metals have an atomic number greater than 20 and an elemental density greater than 5 g cm³. Heavy metals include cadmium (Cd), chromium (Cr), mercury (Hg), lead (Pb), arsenic (As), silver (Ag), cobalt (Co), copper (Cu), zinc (Zn), iron (Fe), nickel (Ni), and platinum group elements (Ali et al. 2013; Ali and Khan 2018a, Saxena *et al.*, 2020). Soils contaminated by different heavy metals and waters pose significant environmental and human health problems due to their non-biodegradable nature. Different physicochemical methods like ion exchange, precipitation, reverse osmosis, evaporation and chemical reduction and mechanical methods have been employed for their removal from the environment.

Effect of heavy metals on the environment

Chromium (Cr) is one of the pollutants mentioned as a non-essential element and ranks seventh in abundance in the earth's crust. Cr's major pollution or contamination is by the leather tanning industries, electroplating, and stainless steel industries (Dheri *et al.*, 2007). Chromium pollution showed an impact on

Recent advances in phytoremediation



Rayat Shikshan Sanstha's S. M. Joshi College, Hadapsar,Pune-28

(NAAC Re-accreditied "A" Grade & Affiliated to Savitribai Phule Pune University, Pune)

Department of Botany, Microbiology in Association with Internal Quality Assurance Cell (IQAC)

Organized International Conference

Fungal Diversity & Its Novel Applications

CERTIFICATE OF PUBLICATION

This is to certify that, Dr. Sunita Danai-Tambhale from Annasaheb Magar Mahavidyalaya HadapsarPune-28has participated in ORAL Presentation (Title- Biocontrol of Aquatic Fungal Disease ofFishes) in the International Conference held at Rayat Shikshan Sanstha's S. M. Joshi College,Hadapsar, Pune-28, entitled "Fungal Diversity & Its Novel Applications"Date:9 April 2022Certificate Id:FDNA-2022-BMIC106



Coordinato



।। कर्मवीर ।

Dr. Shilpa Shitole Convener



Dr.Kishor Kadade

ice Principa

ice Principa

Dr. Chandrakant Khilare Principal S. M. Joshi College



DEPARTMENT OF BIOTECHNOLOGY INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY

CERTIFICATE OF APPRECIATION

THIS CERTIFIES THAT THE PRESENTATION OF

Mrs. Ujwala Khisti

HAS BEEN SELECTED AS THE **BEST PRESENTATION** AT THE INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY HELD ON SEPTEMBER 24-25, 2021.



DR. SUDHA J. KULKARN COORDINATOR

DR. KALPANA S. JOSHI CONVENER, PROFESSOR & HEAD, DEPARTMENT OF BIOTECHNOLOGY





DEPARTMENT OF BIOTECHNOLOGY INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY

CERTIFICATE OF PARTICIPATION

THIS CERTIFIES THAT

DR. NEHA PATIL

HAS **PRESENTED** HIS/HER RESEARCH WORK ON AT THE INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY HELD ON SEPTEMBER 24-25, 2021.

DR. SUDHA J. KULKARN COORDINATOR

DR. KALPANA S. JOSHI CONVENER, PROFESSOR & HEAD, DEPARTMENT OF BIOTECHNOLOGY





DEPARTMENT OF BIOTECHNOLOGY INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY

CERTIFICATE OF PARTICIPATION

THIS CERTIFIES THAT

Mangesh Deshpande HAS **PRESENTED** HIS/HER RESEARCH WORK AT THE INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY HELD ON SEPTEMBER 24-25, 2021.

DR. SUDHA J. KULKARN COORDINATOR

DR. KALPANA S. JOSHI CONVENER, PROFESSOR & HEAD, DEPARTMENT OF BIOTECHNOLOGY





DEPARTMENT OF BIOTECHNOLOGY INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY

CERTIFICATE OF PARTICIPATION

THIS CERTIFIES THAT

Dr.Shinde Shubhangi R. HAS **PRESENTED** HIS/HER RESEARCH WORK AT THE INTERNATIONAL CONFERENCE ON INDUSTRIAL BIOTECHNOLOGY HELD ON SEPTEMBER 24-25, 2021.

DR. SUDHA J. KULKARN COORDINATOR

DR. KALPANA S. JOSHI CONVENER, PROFESSOR & HEAD, DEPARTMENT OF BIOTECHNOLOGY

