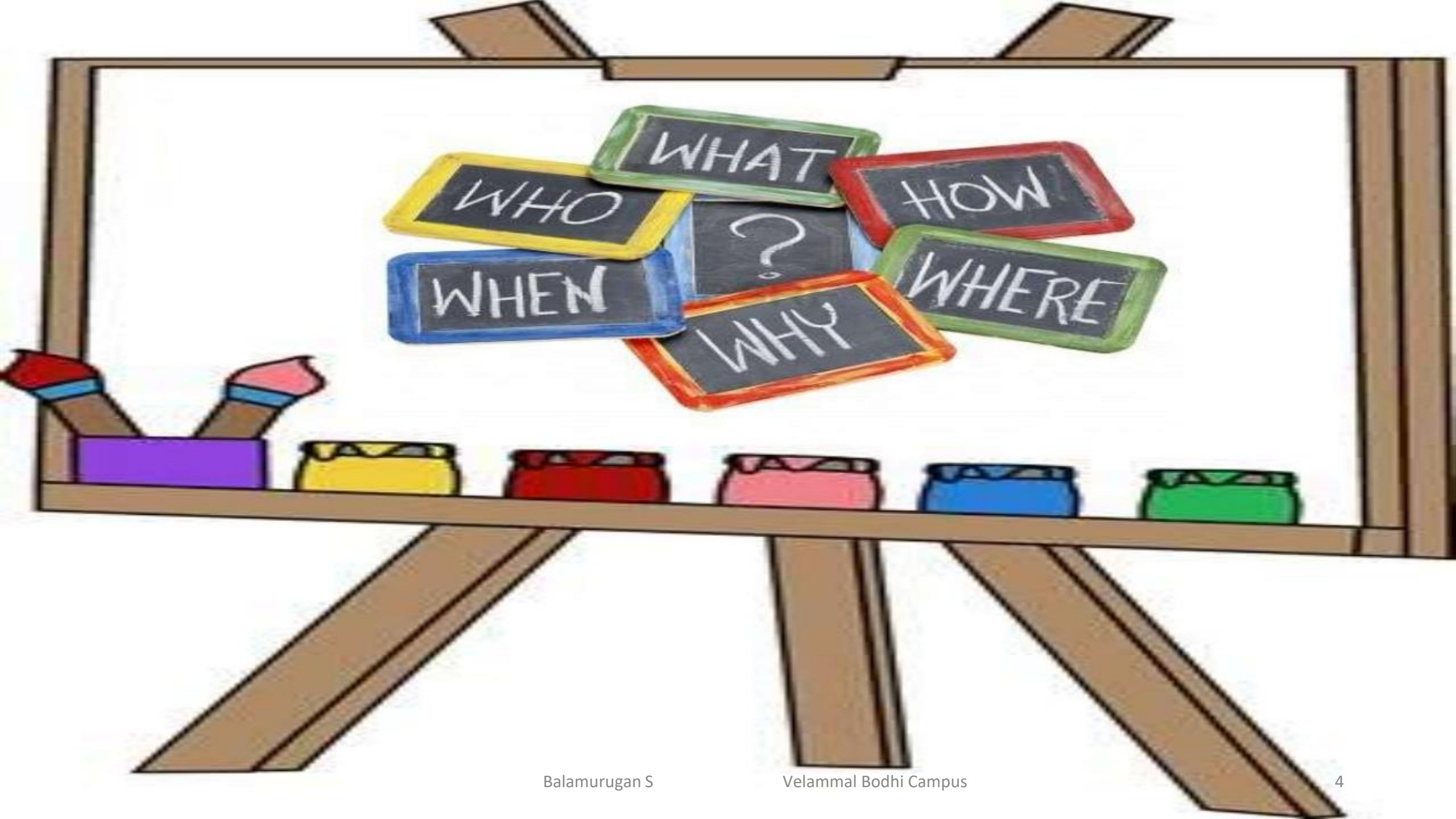
The background features a collage of educational symbols: a clock on the left, a stack of books at the bottom left, and various numbers (7, 2, 3, 1, 5, 2, 5, 2, 3) scattered across the top and right. A large, faint watermark of an open book is centered behind the text.

The function of education is to teach one to think intensively and to think critically. Intelligence plus character - that is the goal of true education.

Martin Luther King, Jr.



Who doesn't love brands????

Don't you want to live a branded life

??????



Brands In Education



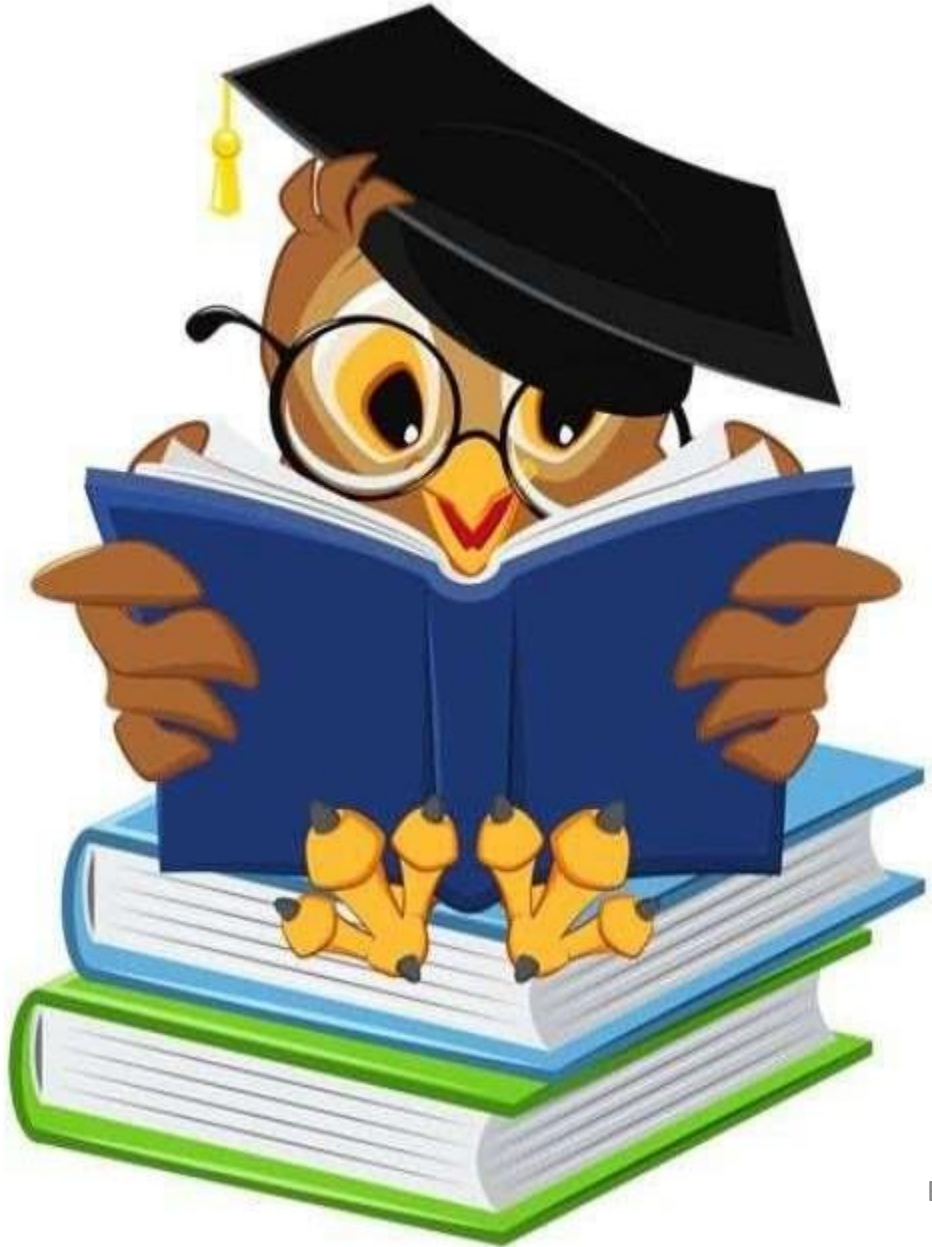
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Balamurugan S

Velammal Bodhi Campus

Brands in Education

MOTIVATE YOURSELF FOR COMPETITIVE EXAM PREPARATION



Ask yourself few questions

If you get clear answer for these questions, no one can stop you from achieving your goal (dream job).

1. What thing is making you bored in preparation ??

- ✓ Are you weak in reasoning?
- ✓ Do you find calculation difficult in aptitude or do you find English as a nightmare in exam hall?
- ✓ You need to find out the subject which is difficult for you and making you bored while studying.
- ✓ Then plan accordingly. Find creative ways to study that subject like group study or learn from online video lectures like YouTube.
- ✓ Definitely gradually you will find it interesting to prepare.

2. What is the importance of this exam for you???

- ✓ You know very well why you are preparing for this exam.
- ✓ This job will give you a sense of security, respect in society and eye catching salary and other benefits.
- ✓ If you work hard now, then definitely you will get the reward after few months.
- ✓ Think about what are the reasons which inspired you to apply for this job.

3. What will you get from this job if you are able to crack it ???

- ✓ **As you know Reward is the best motivator towards your goal hence just think about what will you get if you crack this exam.**
- ✓ **How your lifestyle will be changed. You don't have to feel ashamed in front of your relatives, friends. You will earn respect in society.**
- ✓ **Think about the reaction of your family members, when they will know that you have got your dream job.**

4. HOW MUCH STRUGGLE YOU HAVE FACED TILL NOW??

Think about your parents, your family members who are supporting you to get this job. When you don't feel interested to study, think about your father/mother who worked whole life to give you a better education so that you will fulfil their dream. Isn't it your duty now to give them rest and take the responsibility?

Your father/ mother is still working to earn money even at this old age because you don't need to worry about the Financial condition and you can concentrate on your studies and interviews. Think about the countless days you have spent to prepare for the school board exams and college exams because at the end of the day you can get a good job.

5. Where you see yourself after 5 years from now ???

If you still feel disheartened, then one of the strongest reason to motivate you towards your goal is imagination of future. Just isolate yourself from outside world and give yourself 10 minutes. Then ask yourself “Where I see myself after 5 years from now ” .

If you are visualizing yourself doing a prestigious job , having your own car or any vehicle spending good times with your family. Then you must act right now, it's high time for you to take action to make that dream in to reality


FEW TIPS FROM MY SIDE

- ✓ Always stay positive towards your goal no matter how many times you have failed.
- ✓ Make friendship with positive people who can inspire you and avoid negativity or negative people who are saying that you can't do it. They will say you can't do it because they compare your capability with theirs. (hope you got my point)
- ✓ It's never late to start taking action, start preparing for the exam today.
- ✓ Don't quit until you win it. Think about all the people who are having hope on you.

i'm not telling
you it is going to
be easy, i'm
telling you it's
going to be
worth it.




LIST OF ENTRANCE EXAMS FOR M.Sc. And Ph.D. in INDIA



1	CSIR-UGC NET exam	June December
2	DBT	February
3	ICMR	July
4	NCBS	December
5	TIFR	November / May
6	GATE	February
7	JNU PhD Entrance	May
8	NIMHANS	February
9	NIPER PhD Entrance Exam	June





10	GTU PhD Entrance Exam	April
11	University of Hyderabad PhD Entrance Exam	June
12	IISc PhD Entrance Exam	April
13	AIIMS PhD Entrance Exam	January July
14	BITS Pilani PhD Entrance Examination	June July
15	NBRC PhD Entrance Examination	May
16	NDRI PhD Entrance Examination	June
17	BARC PhD Admission Test	February
18	IARI PhD Entrance Examination	April



19	IISER Mohali PhD Program	No entrance exam. DBT, ICMR, CSIR qualified can apply
20	BINC	February / March
21	IVRI Bareilly PhD Admission Test	May
22	IITB-Monash Research Academy	March (No entrance exam - GATE qualified can apply)
23	PhD Program 2016 Admission @ National Institute of Pathology	Feb (No entrance exam - DBT, ICMR, CSIR qualified can apply)
24	PhD Programmes @ Indian Institute of Technology, Roorkee	March (No entrance exam)
25	Admissions open for Joint Masters and PhD Programs @ Amrita University	May
26	Admission Notification for MSc / M Tech / PhD @ Tezpur University	Entrance exam
27	NIV PhD Admission 2016 Biotechnology, Microbiology	March (No entrance exam)



Time for Exams

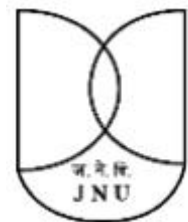


28	JNU Combined Biotechnology Entrance Exam 2016 - 2017 MSc or M. Tech Programs	May
29	TERI University MSc Plant Biotechnology Admission Notification	May
30	Admission Notification for MSc in Human Disease Genetics	March





YOUR TARGET INSTITUTES



The Tata Institute of Fundamental Research

Courses Offered:- Int.PhD In biological sciences ; MS. In biological sciences, MSc in Wild life biology

Admission notification:- Mid September

Entrance held:- second Sunday of December

Nature Of Entrance:- Written(objective) (BIOLOGY “extreme basics”) round usually held on 11nd Sunday of December.

Calls for proposal (Round 2) comes in 11nd week of January.then final interviews are held in March for DBS and last week of may/ 1st week of June for NCBS

Website <http://www.ncbs.res.in/>

<http://www.tifr.res.in/~dbs/web/Home.html>

I I Sc (Indian Institute of Science)

Courses Offered:- Integrated PhD in biological sciences, M.S in biological sciences

Admission notification:- October - November

Entrance held:- second Sunday of february(IIT-JAM-BL)

Nature Of Entrance:- Written Test (Objective Biology) Then final interviews are held in 1st or 11nd week of June

website: <http://www.iisc.ernet.in/>

IIT-Bombay

Courses Offered:- MSc-PhD Dual Degree Programme in Environmental Science and Engineering

MSc-PhD Dual degree Programme in Biotechnology, MSc biotechnology,

Admission notification:- October - November

Entrance held:- second Sunday of february(IIT-JAM-BT)

Nature Of Entrance:- IIT-JAM Written Test Comprises

physics(18%)+Chemistry(20%)+Maths(18%)+Biotechnology(44%)

Website: <http://www.iitb.ac.in/>

IIT-Roorkee

Courses Offered:- MSc biotechnology

Admission notification:- October - November

Entrance held:- second Sunday of february(IIT-JAM-BT)

Nature Of Entrance:- IIT-JAM Written Test Comprises

physics(18%)+Chemistry(20%)+Maths(18%)+Biotechnology(44%)

Website: <http://www.iitr.ac.in/>

NBRC(National Brain Research Centre)

Courses Offered:- M.Sc. in Neurosciences

Admission notification:-Mid September

Entrance held:-second Sunday of December **(with TIFR entrance)**

Website: <http://www.nbrc.ac.in/>

IARI (Indian agriculture research institute)

Courses Offered:- M.Sc. Animal biotechnology and Plant Sciences

Admission notification:- December -January

Entrance held:- April

Nature Of Entrance:- Written test (objective) syllabus varies course wise

Website: www.iari.res.in

JNU- School of Life Sciences

Courses Offered:- MSc In Life Science

Admission notification:-

Last week of January

Entrance held:- Mid MAY

Nature Of Entrance:-

Written Test Having
Biology+ Math + physics
+chemistry

Website: www.jnu.ac.in

JNU Combined Biotech Entrance

Courses Offered:- MSc In BioTechnology

Admission notification:- Last week of January

Entrance held:- Mid May

Nature Of Entrance:- Written Test
Having Biology+ Math + physics
+chemistry

JNU- School of Environmental Sciences

Courses Offered:- MSc In Environmental Sciences

Admission notification:- Last week of January

Entrance held:- Mid May

Nature Of Entrance:- Written Test Having Biology+ Math + physics +chemistry

But Environmental Science and Geology questions are also there

Website: www.jnu.ac.in

MKU (Madurai Kamaraj University)

Courses Offered:- M.Sc. Genomics, biochemical technology, Microbial gene technology

Admission notification:- January

Entrance held:- Mid March

Nature Of Entrance:- Written + Those qualify the written they have to present a Seminar at MKU then an Interview will be held

Website: www.mkuniversity.org

PGI, Chandigarh

Courses Offered:- M.Sc. Biotechnology and M.Sc. Biochemistry

Admission notification:- April

Entrance held:- July

Nature Of Entrance:- written Test having Biology Chemistry and Biostatistics

Website: www.pgimer.nic.in

Central Food Technological Research Institute

Courses Offered:- M.Sc. [FOOD TECHNOLOGY], M.Sc. (FOOD SCIENCE)

Admission notification:- third week of May every year

Entrance held:- July

Nature Of Entrance:- OBJECTIVE BIOLOGY+CHEMISTRY+MATHEMATICS

Website: www.cftri.com

Banaras Hindu University, Varanasi

Courses Offered:- M.Sc.
Genetics and biochemistry

Admission notification:- January
-February

Entrance held:- Held in 1st week
of June Question paper comprises
objective questions of biology

Nature Of Entrance:- OBJECTIVE
BIOLOGY

Website: www.bhu.ac.in

Delhi University North Campus

Courses Offered:- M.Sc in
Botany and Zoology

Admission notification:- Mid
May

Entrance held:- 1st week of
July

Nature Of Entrance:- Written
test and Interview

Website: www.south.du.ac.in

Delhi University South campus

Courses Offered:- M.Sc in Plant molecular Biotechnology and M.Sc in Genetics

Admission notification:- Mid May

Entrance held:- 1st week of July

Nature Of Entrance:- Written test and Interview

Website: www.south.du.ac.in

University of Hyderabad, Hyderabad

Courses Offered:- M.Sc Animal Biotechnology, Biochemistry and Plant Biotechnology

Admission notification:- usually in April

Entrance held:- 1st week of June

Nature Of Entrance:- Written test having mathematics + biology + Chemistry

Website: www.uohyd.ernet.in

Jamia Hamdard, New Delhi

Courses Offered:- M.Sc
Biotechnology, Biochemistry, Life
sciences, Toxicology

Admission notification:- March

Entrance held:- May

Nature Of Entrance:- Written test
+ Interview

Website: www.jamiahamdard.edu

Jamia Millia Islamia New Delhi

Courses Offered:- M.Sc
Biotechnology, Biological
Sciences

Admission notification:- March

Entrance held:- June

Nature Of Entrance:- Written test
and Interview

Website: www.jmi.nic.in

ACBR(Ambedkar Centre For Biomedical Research)

Courses Offered:- M.Sc. & M.Sc.-Ph.D. Combined Degree

Admission notification:- April First week

Entrance held:- July First week

Nature Of Entrance:- (1) written test & (2) Interview and group discussion.

Written test: An objective (multiple choice questions) test consisting of 200 questions will be administered.

The written test will comprise 2-parts. Part I will comprise reasoning test, general awareness, data interpretation and test of English language. Part II will comprise of questions from Chemistry, Botany, Zoology, Biochemistry, Environmental Sciences, Microbiology, Genetics, Immunology, Biotechnology, Medicine, Pharmacy and other allied sciences.

Website: <http://www.acbrdu.edu/admission.html>

National Institute of Virology

Courses Offered:- MSc in Virology

Admission notification:- april

Entrance held:- June

Nature Of Entrance:-

Paper I: General knowledge, quantitative aptitude and intelligence

Paper II: Section A:

10+2 courses in Physics, Chemistry and Biology.

Section B:

Graduate level questions:

One of

1. Botany
2. Biotechnology
3. Chemistry
4. Life sciences
5. Medical Sciences
6. Microbiology
7. Veterinary Sciences
8. Zoology

Website: <http://www.niv.co.in/>

Pune University

Courses Offered:- MSc Bioinformatics

Admission notification:- April-May

Entrance held:- June

Nature Of Entrance:- written test (objective and subjective)

Paper 1 (90 minutes)

Which is of the objective type consists of 100 multiple choice questions up to Intermediate (10+2) level covering Physics, Chemistry, Botany, Zoology, Mathematics, Statistics, Logic, Reasoning and English.

Paper II (75 minutes)

consists of subjective type questions to be answered in 10-15 lines. Ten questions are required to be solved from the given set of questions divided into:

Section A:

Covering areas of Life Sciences (botany, microbiology, biochemistry, zoology, cell biology, genetics, environmental biology, evolution, molecular biology etc.)

Section B:

Physical and Mathematical Sciences (Physics, Chemistry, Mathematics, Statistics, and Computer Science) at the Master's degree level for Advanced Diploma in Bioinformatics and Bachelor's degree level for M.Sc. The candidate shall solve atleast three questions from each of the two sections.

In addition there will be a Section C (General) :

which includes one compulsory question on scientific aptitude. The language of the examination will be English only.

Website: <http://www.unipune.ac.in/pgadmissions/>



Combined Biotechnology Entrance Examination is held for admission in M.Sc. Biotechnology for following Universities.

- **Jawaharlal Nehru University** , New Delhi www.jnu.ac.in
- **University of Allahabad, Allahabad** www.allduniv.ac.in
- **Annamalai University, Tamil Nadu** www.annamalaiuniversity.ac.in
- **Banaras Hindu University, Varanasi** www.bhu.ac.in
- **University of Calicut, Kerala** www.universityofcalicut.info
- **Devi Ahilya Vishwavidyalaya, Indore** www.dauniv.ac.in
- **Goa University, Goa** www.unigoa.ac.in
- **Gulbarga University, Gulbarga** www.gulbargauniversity.kar.nic.in
- **Guru Jambheshwar University, Hisar** www.gju.ernet.in
- **Guru Nanak Dev University, Amritsar** www.gnduonline.org
- **Himachal Pradesh University, Shimla** www.hpuniv.nic.in
- **University of Hyderabad, Hyderabad** www.uohyd.ernet.in

- 
- **University of Jammu, Jammu** www.jammuniversity.in
 - **Kumaun University , Nainital** www.kumaununiversity.org
 - **University of Lucknow, Lucknow** www.lkuniv.ac.in
 - **Madurai Kamaraj University, Madurai** www.mkuniversity.org
 - **M.S. University of Baroda, Vadodara** www.msubaroda.ac.in
 - **University of Mysore, Mysore** www.uni-mysore.ac.in
 - **University of North Bengal, Siliguri** www.nbu.ac.in
 - **Pondicherry University, Pondicherry** www.pondiuni.org
 - **University of Pune, Pune** www.unipune.ernet.in
 - **Punjabi University, Patiala** www.universitypunjabi.org
 - **R.T.M. Nagpur University, Nagpur** www.nagpuruniversity.org
 - **Sardar Patel University, Gujarat** www.spuvvn.edu
 - **Tezpur University, Tezpur (Assam)** www.tezu.ernet.in
 - **Thapar Institute of Engineering & Technology, Patiala** www.tiet.ac.in
 - **Utkal University, Bhubaneswar** www.utkal-university.org
 - **Visva-Bharati University, Santiniketan** www.visva-bharti.ac.in



IIT-JAM SUBJECTS

Iit Jam Is Conducted For -

- ✓ Biological Sciences (BL) 17
- ✓ Biotechnology (BT) 18
- ✓ Chemistry (CY) 19
- ✓ Geology (GG) 21
- ✓ Mathematics (MA) 22
- ✓ Mathematical Statistics (MS) 23
- ✓ Physics (PH)

IIT-JAM WHAT'S NEW ??

IIT Delhi is the organizing Institute for JAM 2017.

JAM 2017 Examination will be conducted online only as a Computer Based Test (CBT) for all test papers.

All the seven test papers of JAM 2017 will be of fully objective type with three different patterns of questions, namely –

Multiple Choice Question (MCQ)

Multiple Select Question (MSQ)

Numerical Answer Type (NAT) Questions.

All candidates have to apply online

HOW TO PREPARE FOR IIT-JAM

KNOW THE IIT JAM SYLLABUS

- Checking the syllabus is First part of Exam Preparation
- To crack IIT-JAM – Checkout the latest Syllabus

CHECK IIT-JAM EXAM PATTERN

- ✓ Prepare yourself with the Latest Exam Pattern
- ✓ Understand the Exam Pattern and Prepare accordingly
- ✓ Biotechnology – Only Objective No descriptive

IIT JAM MARKING SCHEME

- As there is Negative Marking for each wrong Answer
- Understanding the Marking Scheme is Very Important
- MCQ Negative marking $1/3$ or $2/3$

A decorative border made of yellow pencils with pink erasers and sharpened tips, arranged in a rectangular frame around the text.

IIT-JAM PREVIOUS YEAR QUESTION PAPERS

Solving Previous Year Question Papers is Really Important Part of Preparation

Solve as many as Previous Year Papers
It will help you-




- ✓ *To understand difficulty level and Pattern*
- ✓ *Solving question quickly*
- ✓ *Make you confident*

TAKE IIT JAM MOCK TESTS

IIT Jam Is Online Test, So Mock Tests Are Really Important For You

Take Mock Tests For The Best Preparation

IT WILL HELP YOU

-  To enable you to have a strategy in exams
-  To prioritizing the topics to be tackled first
-  Time management



Mock Test
Sharpen your brain

REFER GOOD BOOKS

Using good Study material and Books will help you to understand theory

© Don't read same topic from too many books

© Refer Good Books for Studies.....

Which covers-



The complete syllabus



Sample Question papers



Solved papers





IIT – JAM EXAM TIPS



Stay Stress Free



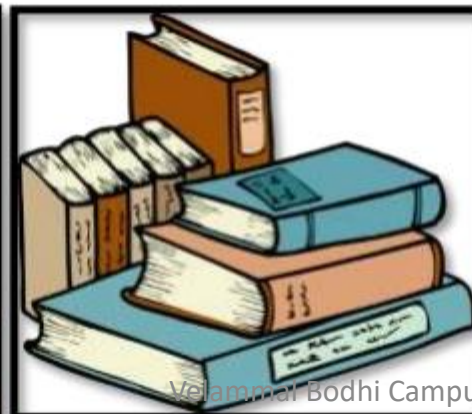
Sleep at least 7-8 hours in a day



Have Positive Attitude



Balamurugan S



Velammal Bodhi Campus





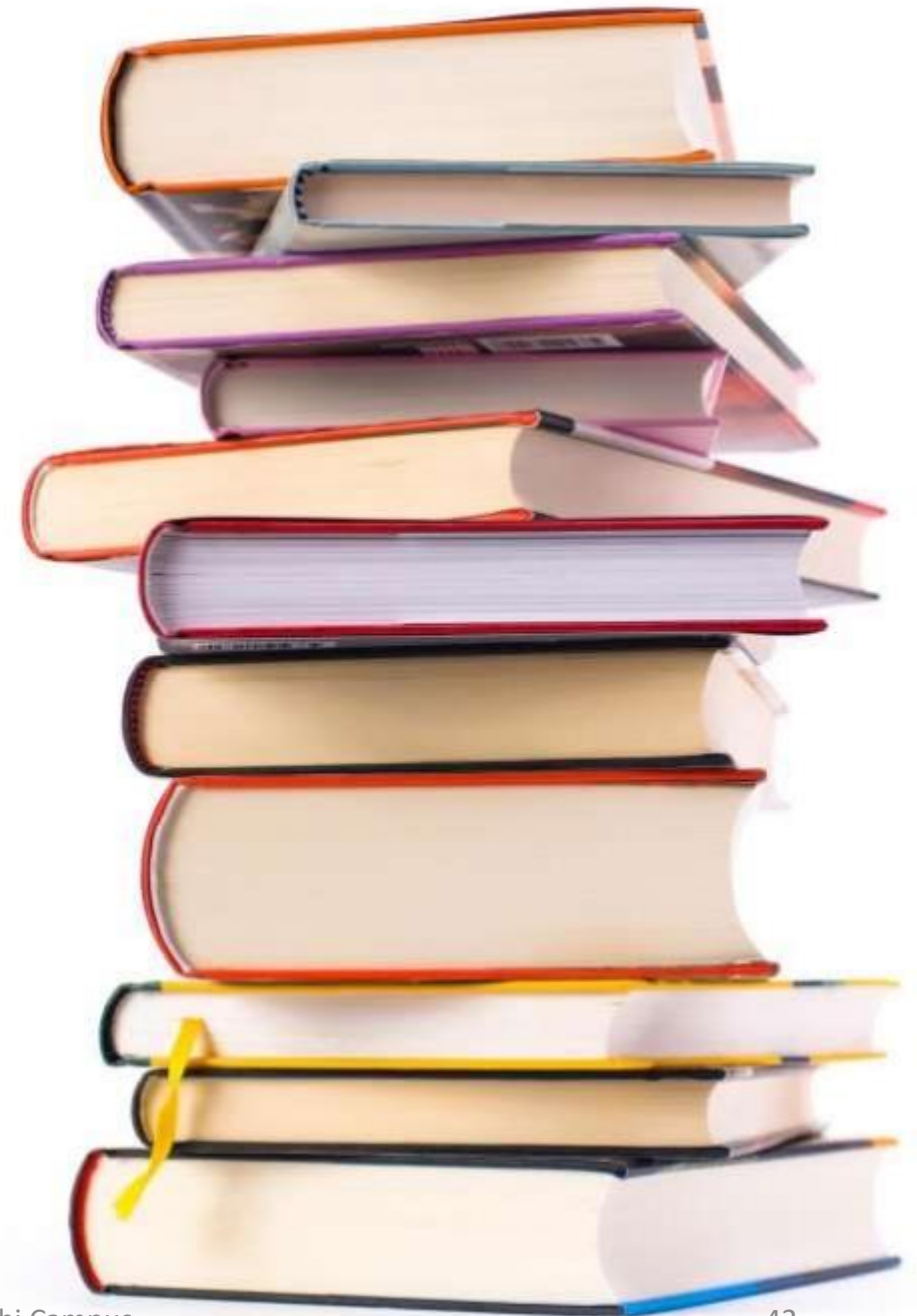
IIT-JAM SPECIAL TIP

Total Time for Preparation = T Day

Clear Basics /Fundamental = $T/4$ Days

Revision and Solve some problems = $t/4$ Days

Solve previous year questions = $T/2$ Days





IIT-JAM SPECIAL TIP

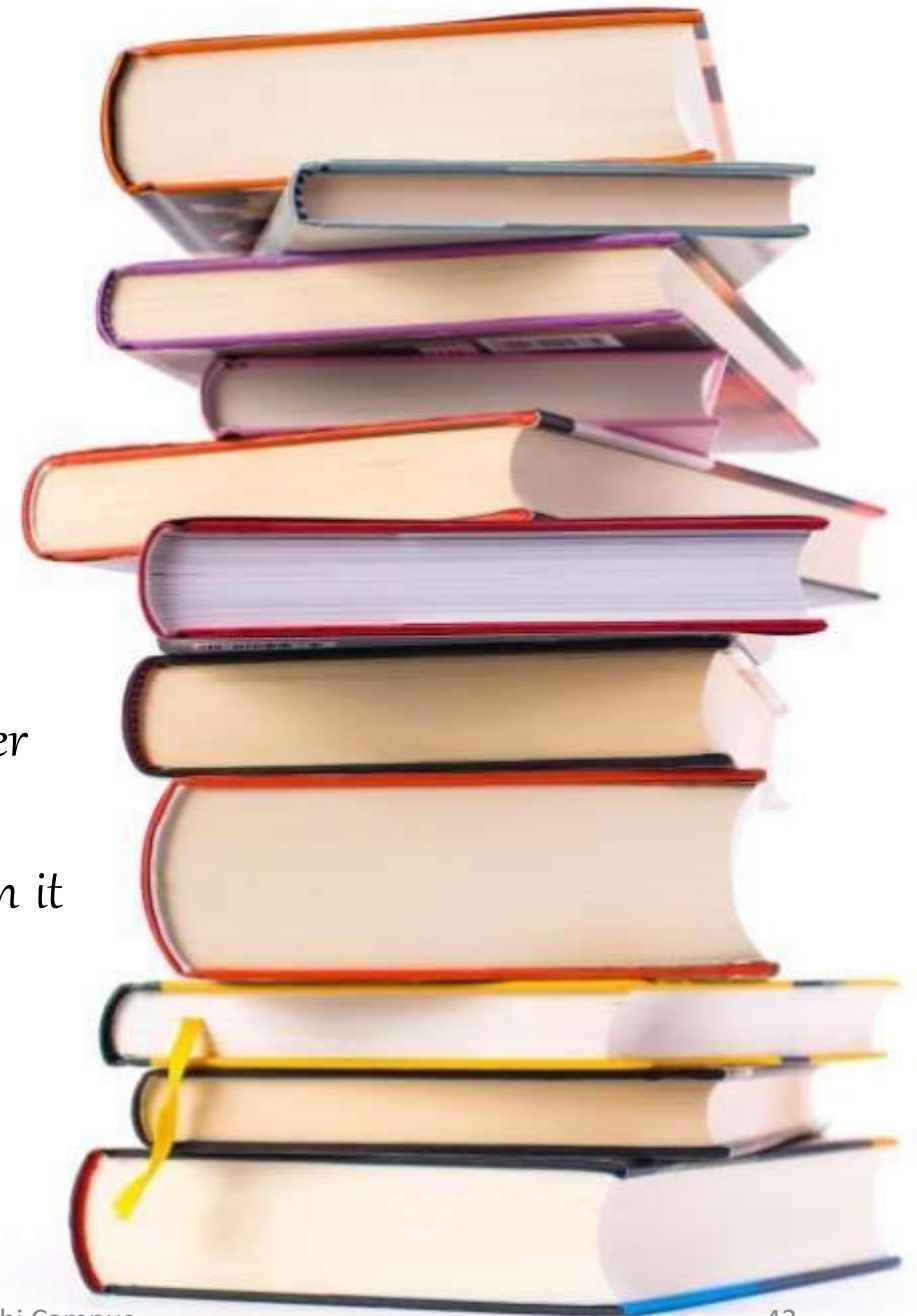
For example

If you have 4 months for preparation then

Prepare Basics/fundamentals for 1 month as per syllabus of your JAM paper

For next 1 month Revise Basics/ Fundamentals and Solve some problems on it

For next two months Solve previous Year Question Papers





The journey to conquer any war successfully begins with the well-defined execution. The same goes true with our planning and execution for the tough nuts like IIT JAM.

Exam that can be cracked more effectively if we begin with a well-defined approach. To win with best scores at JAM 2017 you should begin your preparations with a clearly defined syllabus which is authentic and is as per the norms prescribed by the governing institute.

BIOLOGICAL SCIENCES (BL)

General Biology:

Taxonomy of plants and animals; pro-and eukaryotic organisms; cell organelles and their function; multicellular organization; general physiology; energy transformations; internal transport systems of plants and animals; photosynthesis; respiration; regulation of body fluids and excretory mechanisms; reproductive biology; plant and animal hormones and their action; nervous systems; animal behaviour; plant and animal diseases; Mendelian genetics and heredity; basics of developmental biology; biology of populations and communities; evolution; basic principles of ecology; genesis and diversity of organisms.

Basics of Biochemistry, Molecular Biology, Biophysics:

Buffers; trace elements in biological systems; enzymes and proteins; vitamins; biological oxidations, photosynthesis; carbohydrates and lipids and their metabolism; digestion and absorption; detoxifying mechanisms; nucleic acids nucleic acid metabolism; nature of gene and its function; genetic code; synthesis of nucleic acids and proteins; regulation of gene expression; operons. Structure of biomolecules; intra and intermolecular forces; thermodynamics and kinetics 18 of biological systems; enzyme mechanisms and kinetics; principles of X-ray diffraction; IR- and UV- spectroscopy; analytical and biochemical techniques

Structure of biomolecules; intra and intermolecular forces; thermodynamics and kinetics 18 of biological systems; enzyme mechanisms and kinetics; principles of X-ray diffraction; IR- and UV- spectroscopy; analytical and biochemical techniques.

Microbiology, Cell Biology and Immunology:

Classification of microorganisms and their characterization; nutrient requirement for growth; laboratory techniques in microbiology; pathogenic microorganisms and disease; applied microbiology; viruses and fungi; microbial genetics; cell theory; cell architecture; cell division; types of chromosome structure; biochemical genetics- inborn errors of metabolisms; innate and adaptive immunity, antigen antibodies; principles of processes of development.

Mathematical Sciences:

Mathematical functions (algebraic, exponential, trigonometric) and their derivatives (derivatives and integrals of simple functions); permutations and combinations; basic probability and volumetric calculations.

BIOTECHNOLOGY (BT)

The Biotechnology (BT) test paper comprises of Biology (44% weightage), Chemistry (20% weightage), Mathematics (18% weightage) and Physics (18% weightage).

BIOLOGY (10+2+3 level)

General Biology : Taxonomy; Heredity; Genetic variation; Conservation; Principles of ecology; Evolution; Techniques in modern biology.

Biochemistry and Physiology : Carbohydrates; Proteins; Lipids; Nucleic acids; Enzymes; Vitamins; Hormones; Metabolism – Glycolysis, TCA cycle, Oxidative Phosphorylation; Photosynthesis. Nitrogen Fixation, Fertilization and Osmoregulation; Vertebrates-Nervous system; Endocrine system; Vascular system; Immune system; Digestive system and Reproductive System.

Basic Biotechnology : Tissue culture; Application of enzymes; Antigen-antibody interaction; Antibody production; Diagnostic aids.

Molecular Biology : DNA; RNA; Replication; Transcription; Translation; Proteins; Lipids and Membranes; Operon model; Gene transfer.

Cell Biology : Cell cycle; Cytoskeletal elements; Mitochondria; Endoplasmic reticulum; Chloroplast; Golgi apparatus; Signalling.

Microbiology : Isolation; Cultivation; Structural features of virus; Bacteria; Fungi; Protozoa; Pathogenic micro-organisms.

BIOTECHNOLOGY (BT)

CHEMISTRY (10+2+3 level)

Atomic Structure: Bohr's theory and Schrodinger wave equation; Periodicity in properties; Chemical bonding; Properties of s, p, d and f block elements; Complex formation; Coordination compounds; Chemical equilibria; Chemical thermodynamics (first and second law); Chemical kinetics (zero, first, second and third order reactions); Photochemistry; Electrochemistry; Acid-base concepts; Stereochemistry of carbon compounds; Inductive, electromeric, conjugative effects and resonance; Chemistry of Functional Groups: Hydrocarbons, alkyl halides, alcohols, aldehydes, ketones, carboxylic acids, amines and their derivatives; Aromatic hydrocarbons, halides, nitro and amino compounds, phenols, diazonium salts, carboxylic and sulphonic acids;

Mechanism of organic reactions; Soaps and detergents; Synthetic polymers; Biomolecules – amino acids, proteins, nucleic acids, lipids and carbohydrates (polysaccharides); Instrumental techniques – chromatography (TLC, HPLC), electrophoresis, UV-Vis, IR and NMR spectroscopy, mass spectrometry.

BIOTECHNOLOGY (BT)

MATHEMATICS (10+2 level)

Sets, Relations and Functions, Mathematical Induction, Logarithms, Complex numbers, Linear and Quadratic equations, Sequences and Series, Trigonometry, Cartesian System of Rectangular Coordinates, Straight lines and Family, Circles, Conic Sections, Permutations and Combinations, Binomial Theorem, Exponential and Logarithmic Series, Mathematical Logic, Statistics, Three Dimensional Geometry, Vectors, Matrices and Determinants, Boolean Algebra, Probability, Functions, limits and Continuity, Differentiation, Application of Derivatives, Definite and Indefinite Integrals, Differential Equations.

PHYSICS (10+2 level)

Physical World and Measurement, Elementary Statics and Dynamics, Kinematics, Laws of Motion, Work, Energy and Power, Electrostatics, Current electricity, Magnetic Effects of Current and Magnetism, Electromagnetic Induction and Alternating Current, Electromagnetic waves, Optics, Dual Nature of Matter and Radiations, Atomic Nucleus, Solids and Semiconductor Devices, Principles of Communication, Motion of System of Particles and Rigid Bodies.

FINAL DESTINATION

Test Paper you'll write	You're eligible for academic programs	Institute offering the academic program	No. of seats [(General + OBC + SC + ST + Category of PwD reservation (No. of reserved seats)]	Subjects you should have studied in your Bachelors*	Subjects you should have studied in your 10 + 2*
Biological Sciences (BL)	Integrated Ph.D. in Biological Sciences	IISc	10 + 5 + 3 + 2 + 0	Biology/ Physics/ Chemistry/ Mathematics	Biology (PCB OR PCMB combination)
	Integrated Ph.D. in Biological Sciences	IISc		Biology/ Physics/ Chemistry/ Mathematics	Biology (PCB OR PCMB combination)
Biotechnology (BT)	M.Sc. Biotechnology	IIT Bombay, IIT Roorkee	IITB: 14 + 8 + 4 + 2 + Gen(1) IITR: 18 + 10 + 6 + 3 + SC(1)	Any Branch/ Subject	Mathematics (PCMB combination)
	M.Sc.- Ph.D. Dual Degree in Environmental Science and Engineering	IIT Bombay	5 + 3 + 1 + 1	Biology, Biotech, Chemistry, Physics, Mathematics - One subject from the above for 2 years/ 4 semesters + One subject from the above for 1 year/ 2 semesters	Mathematics (PCMB combination)

Last minute preparation tips

- ∠ Try and solve as many past year question papers as you can get your hands into the kind of questions which are generally asked.**
- ∠ Solve mock test papers available online as it will help you to learn time management techniques.**
- ∠ Try referring to IIT JAM books by various authors.**
- ∠ Make short memory cards to help in last minute revision.**
- ∠ Devote more time towards revising topics which have more weightage than others.**
- ∠ Do not start a new topic at the last minute! Instead revise what is already completed.**
- ∠ Most importantly keep your calm and don't panic.**



GATE ENTRANCE EXAM

The **Graduate Aptitude Test in Engineering GATE** is an All-India examination conducted by the Indian Institute of Technology and Indian Institute of Science, Bangalore, on behalf of the National Coordinating Board – **GATE**, Department of Education, Ministry of Human Resources Development (**MHRD**), Government of India.

The objective of **GATE** is to identify meritorious and motivated candidates for admission to Postgraduate Programs in engineering at the National Level. To serve as benchmark for normalization of the Undergraduate Engineering Education in the country.

Why does a person with MSC give GATE?

- ✓ Basically, person those wants to pursue there "masters or phd" are taking GATE exam.
- ✓ As per my concern every where person with **M.Sc** . or **MCA** is considered "as equal as" **BE** or **BTech** person.
- ✓ **GATE** exam opens "massive opportunities" everybody to have an education (masters or phd) from all "reputed IITs" to any Govt. College.
- ✓ In your professional life while scrutinising your profile, always 3 parameters considered i.e. "degree, percentage and university / institution".
- ✓ Many people with **M.Sc.** often enhance their knowledge by doing an **M.Tech** clearing **GATE**. Also there is some scope of enrolling into **Ph.D** in certain inst using **GATE** qualified scores. Hence people with such ambitions sit for **GATE**.

GATE EXAM ---How To Crack It ????

✍ Normally 3 to 4 months of serious study will be sufficient for the preparation

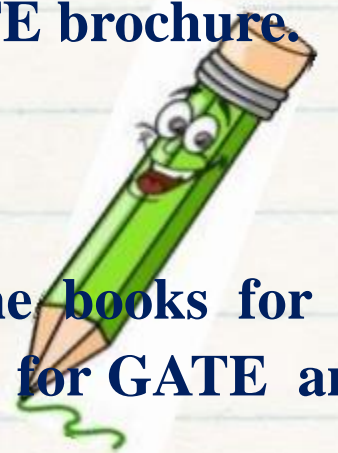
✍ Those students who are in final year have to schedule their studies as semester exam in winter and other engagements may absorb lot of time.

✍ First of all make a proper strategy before starting preparation of the examination. Give more weightage to GATE when compared to your University exams

✍ You have to choose the subject and study as per the syllabus mentioned in the GATE brochure.

✍ Collect the Syllabus for the GATE exam.

✍ Collect all the relevant books for the subject. This collection must include the books for Fundamental and basic concepts as well as for specific problems, guide book for GATE and previous year question papers.



Always try to go through the standard books which are easily available and in which you can easily understand the concepts. This will improve your learning ability.

Mean time you should be in touch with some GATE experienced persons for proper guidance. In absence of proper guidance you can end up with disaster.

Read syllabus and question papers carefully so that it will easy for you to make a proper approach.

Start preparing from the initial topics i.e. the basic ones and note down the basic concepts (definitions, unit, dimension etc.) as well as necessary theories, formulae etc.

Try to solve as many problems as possible from different book as well as try to find more and more tricks.


Try to apply your own logics and tricks in solving problems and note it down because it will save your time in the examination hall.

Conduct self tests based on various chapters. Continue the self tests and try to achieve a very good score.


Practice more and more problems and follow the same procedure for the rest of the chapters and subjects.


Finally, go for self tests based on whole syllabus and if necessary take help of others in conducting self-tests.



- 
- ↳ **To do all these things one has to spend lots of time on studies and should be very sincere throughout the preparation.**
 - ↳ **One month before the examination you should start revising the course as many times as possible so that on the day before the exam you will be prepared enough to crack the exam.**
 - ↳ **In the revision stage concentrate more on the selected topics.**
 - ↳ **Always reach the examination centre 30 min before the start of the exam. It helps you to stay cool and calm during exam.**
 - ↳ **Keep all your necessary stationeries and admit card with you before going to the examination centre.**
 - ↳ **During exam try to attempt section A which is compulsory and that to Q1 carrying one mark each and those in Q2 carrying two marks each.**
 - ↳ **It's very important to manage the time well during the exam. So manage the time well during the exam .**

- ⤵ **In the examination hall one should not get panicky upon receiving the question paper rather candidates should stay cool before the test so that they do not get confused while attempting the paper.**
- ⤵ **Time management is important but not at the cost of answering the paper accurately.**
- ⤵ **Always try to attempt only those questions in which you are pretty confident and you know the answer very well.**
- ✍ **Read the questions carefully and apply proper logic before marking the answer.**
- ✍ **Always avoid the negative marking.**
- ✍ **Do not attempt unnecessary questions in which you are not confident because that may cost you much.**
- ✍ **Do not try to get hold of the entire syllabus prescribed by GATE. A selective preparation would be a very helpful concept and should be learned accurately.**
- ✍ **Memorization of any problem without a clear idea of the concept will be a futile exercise.**

- 
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 - ✍ **Do not try to get hold of the entire syllabus prescribed by GATE. A selective preparation would be a very helpful concept and should be learned accurately.**
 - ✍ **Memorization of any problem without a clear idea of the concept will be a futile exercise.**
 - ✍ **It is better to have flexible time plan before going to exam and have a balance of mind. It helps in avoiding the silly mistakes.**
 - ✍ **Results of qualified candidates in GATE will give All India Rank and indicate percentile score. For example, a percentile score of 99 means you are in the top 1% category of the candidates who appeared for GATE.**

- 
- ✦ **Candidates who get less than 70 percentile get no score card.**
 - ✦ **After publication of GATE results, students must apply to individual Institutes to get their application forms.**
 - ✦ **Institutes advertise M.Tech admissions in leading newspapers from 1st April till end July. However some Institutes do not advertise and therefore students have to get the forms themselves.**
 - ✦ **Admission in the Institute is based on GATE percentile.**
 - ✦ **The concerned Institute may conduct written test and/or interview for the purpose of admission.**
 - ✦ **During the pursuit of M.Tech, you are paid a scholarship of Rs. 5000 per month by the Government of India. This amount is enough for living expenses including purchase of books etc. the scholarship is paid for the entire period of M.Tech.**
 - ✦ **Remember you have to start from A to reach Z , Do not get scared, Unless you try you can't win. Winners look at the rewards of Success and not the cost of failure**



ECOLOGY & EVOLUTION



Section 1: Ecology

Population ecology; metapopulation dynamics; growth rates; density independent growth; density dependent growth; niche concept;

Species interactions: Plant-animal interactions; mutualism, commensalism, competition and predation; trophic interactions; functional ecology; ecophysiology; behavioural ecology;

Community ecology: Community assembly, organization and evolution; biodiversity: species richness, evenness and diversity indices; endemism; species-area relationships;

Ecosystem structure, function and services; nutrient cycles; biomes; habitat ecology; primary and secondary productivity; invasive species; global and climate change; applied ecology.

Section 2: Evolution

Origin, evolution and diversification of life; natural selection; levels of selection.

Types of selection (stabilizing, directional etc.); sexual selection; genetic drift; gene flow; adaptation; convergence; species concepts;

Life history strategies; adaptive radiation; biogeography and evolutionary ecology;

Origin of genetic variation; Mendelian genetics; polygenic traits, linkage and recombination; epistasis, gene-environment interaction; heritability; population genetics;

Molecular evolution; molecular clocks; systems of classification: cladistics and phenetics; molecular systematics; gene expression and evolution.

Section 3: Mathematics and Quantitative Ecology

Mathematics and statistics in ecology; Simple functions (linear, quadratic, exponential, logarithmic, etc); concept of derivatives and slope of a function; permutations and combinations; basic probability (probability of random events; sequences of events, etc); frequency distributions and their descriptive statistics (mean, variance, coefficient of variation, correlation, etc).

Statistical hypothesis testing: Concept of p-value; Type I and Type II error, test statistics like t-test and Chi-square test; basics of linear regression and ANOVA.

Section 4: Behavioural Ecology

Classical ethology; neuroethology; evolutionary ethology; chemical, acoustic and visual signaling

Mating systems; sexual dimorphism; mate choice; parenting behaviour Competition; aggression; foraging behaviour; predator-prey interactions; Sociobiology: kin selection, altruism, costs and benefits of group-living.

Exam Pattern / Syllabus 2017 :

GATE EY Exam Pattern

- GATE Ecology and Evolution (EY) Examinations **will be conducted in ONLINE Computer Based Test (CBT)**.
- EY page will have 65 questions carrying 100 marks, out of which 10 questions carrying a total of 15 marks are in General Aptitude (GA).
- In GATE Ecology and Evolution exam 2017 General Aptitude section will carry 15% of the total marks and the remaining 85% of the total marks is devoted to the subject of the paper.
- **Numerical Answer Type Questions:** The Ecology and Evolution question paper for GATE 2017 will consist of questions of both **multiple-choice type** and **numerical answer type**.
- There will be negative marking for each wrong answer **1/3 mark will be deducted** for a wrong answer.

Section 2: General Biotechnology

Biochemistry: Biomolecules-structure and functions; Biological membranes, structure, action potential and transport processes; Enzymes- classification, kinetics and mechanism of action; Basic concepts and designs of metabolism (carbohydrates, lipids, amino acids and nucleic acids) photosynthesis, respiration and electron transport chain; Bioenergetics

Microbiology: Viruses- structure and classification; Microbial classification and diversity(bacterial, algal and fungal); Methods in microbiology; Microbial growth and nutrition; Aerobic and anaerobic respiration; Nitrogen fixation; Microbial diseases and host-pathogen interaction

Cell Biology: Prokaryotic and eukaryotic cell structure; Cell cycle and cell growth control;

Section 1: Engineering Mathematics

Linear Algebra: Matrices and determinants, Systems of linear equations, Eigen values and Eigen vectors. Calculus: Limit, continuity and differentiability, Partial derivatives, Maxima and minima, Sequences and series, Test for convergence, Fourier Series. Differential Equations: Linear and nonlinear first order ODEs, higher order ODEs with constant coefficients, Cauchy's and Euler's equations, Laplace transforms, PDE-Laplace, heat and wave equations. Probability and Statistics: Mean, median, mode and standard deviation, Random variables, Poisson, normal and binomial distributions, Correlation and regression analysis. Numerical Methods: Solution of linear and nonlinear algebraic equations.

GATE BIOTECHNOLOGY

databases; Sequence analysis (biomolecular sequence file formats, scoring matrices, sequence alignment, phylogeny);Data mining and analytical tools for genomic and proteomic studies; Molecular dynamics and simulations (basic concepts including force fields, protein-protein, protein-nucleic acid, protein-ligand interaction)

Section 3: Recombinant DNA Technology

Restriction and modification enzymes; Vectors; plasmid, bacteriophage and other viral vectors, cosmids, Ti plasmid, yeast artificial chromosome; mammalian and plant expression vectors; cDNA and genomic DNA library; Gene isolation, cloning and expression ; Transposons and gene targeting; DNA labeling; DNA sequencing; Polymerase chain reactions; DNA fingerprinting; Southern and northern blotting; In-situ hybridization; RAPD, RFLP; Site-directed mutagenesis; Gene transfer technologies; Gene therapy

of microbial growth, substrate utilization and product formation; enumeration of cells in media; Batch, fed-batch and continuous processes; Various types of microbial and enzyme reactors; Instrumentation control and optimization; Unit operations in solid-liquid separation and liquid-liquid extraction; Process scale-up, economics and feasibility analysis

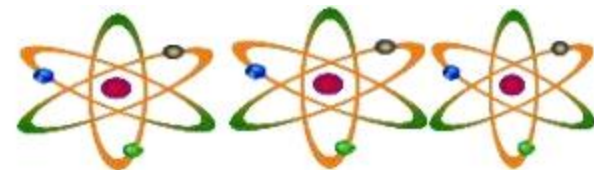
Engineering principle of bioprocessing- Upstream production and downstream; Bioprocess design and development from lab to industrial scale; Microbial, animal and plant cell culture platforms; Production of biomass and primary/secondary metabolites; Biofuels, Bioplastics, industrial enzymes, antibiotics; Large scale production and purification of recombinant proteins; Industrial application of chromatographic and membrane based bioseparation methods; Immobilization of biocatalysts (enzymes and cells) for bioconversion processes; Bioremediation-Aerobic and anaerobic processes for stabilization of solid / liquid wastes

GATE Exam Pattern 2017

- GATE Biotechnology (BT) Examinations **will be conducted** in ONLINE Computer Based Test (CBT).
- BT page will have 65 questions carrying 100 marks, out of which 10 questions carrying a total of 15 marks are in General Aptitude (GA).
- In GATE Biotechnology exam 2017 General Aptitude section will carry 15% of the total marks and the remaining 85% of the total marks is devoted to the subject of the paper.
- **Numerical Answer Type Questions:** The Biotechnology question paper for GATE 2017 will consist of questions of both **multiple-choice type** and **numerical answer type**.
- There will be negative marking for each wrong answer **1/3 mark will be deducted** for a wrong answer.



Chemistry



Section 1: Atomic Structure and Periodicity

Planck's quantum theory, wave particle duality, uncertainty principle, quantum mechanical model of hydrogen atom, electronic configuration of atoms and ions. Periodic table and periodic properties: ionization energy, electron affinity, electronegativity and atomic size.

Section 2: Structure and Bonding

Ionic and covalent bonding, MO and VB approaches for diatomic molecules, VSEPR theory and shape of molecules, hybridization, resonance, dipole moment, structure parameters such as bond length, bond angle and bond energy, hydrogen bonding and van der Waals interactions. Ionic solids, ionic radii and lattice energy (Born-Haber cycle). HSAB principle.

Section 3: s, p and d Block Elements

Oxides, halides and hydrides of alkali, alkaline earth metals, B, Al, Si, N, P, and S. General characteristics of 3d elements. Coordination complexes: valence bond and crystal field theory, color, geometry, magnetic properties and isomerism.

Section 4: Chemical Equilibria

Colligative properties of solutions, ionic equilibria in solution, solubility product, common ion effect, hydrolysis of salts, pH, buffer and their applications. Equilibrium constants (K_C , K_P and K_X) for homogeneous reactions.

Section 5: Electrochemistry

Conductance, Kohlrausch law, cell potentials, emf, Nernst equation, Galvanic cells, thermodynamic aspects and their applications.

Section 6: Reaction Kinetics

Rate constant, order of reaction, molecularity, activation energy, zero, first and second order kinetics, catalysis and elementary enzyme reactions.

Section 7: Thermodynamics

First law, reversible and irreversible processes, internal energy, enthalpy, Kirchoff equation, heat of reaction, Hess's law, heat of formation. Second law, entropy, free energy and work function. Gibbs-Helmholtz equation, Clausius-Clapeyron equation, free energy change, equilibrium constant and Trouton's rule. Third law of thermodynamics.



Section 8: Structure-Reactivity Correlations and Organic Reaction Mechanisms

Acids and bases, electronic and steric effects, optical and geometrical isomerism, tautomerism, conformers and concept of aromaticity. Elementary treatment of S_N1 , S_N2 , $E1$ and $E2$ reactions, Hoffmann and Saytzeff rules, addition reactions, Markownikoff rule and Kharash effect. Aromatic electrophilic substitutions, orientation effect as exemplified by various functional groups. Diels-Alder, Wittig and hydroboration reactions. Identification of functional groups by chemical tests.



Section 1: Plant Systematics

Major systems of classification, plant groups, phylogenetic relationships and molecular systematics.

Section 2: Plant Anatomy:

Plant cell structure and its components; cell wall and membranes; organization, organelles, cytoskeleton, anatomy of root, stem and leaves, floral parts, embryo and young seedlings, meristems, vascular system, their ontogeny, structure and functions, secondary growth in plants and stellar organization.

Section 3: Morphogenesis & Development

Cell cycle, cell division, life cycle of an angiosperm, pollination, fertilization, embryogenesis, seed formation, seed storage proteins, seed dormancy and germination.

Concept of cellular totipotency, clonal propagation; organogenesis and somatic embryogenesis, artificial seed, somaclonal variation, secondary metabolism in plant cell culture, embryo culture, *in vitro* fertilization.



Section 4: Physiology and Biochemistry

Plant water relations, transport of minerals and solutes, stress physiology, stomatal physiology, signal transduction, N_2 metabolism, photosynthesis, photorespiration; respiration, Flowering: photoperiodism and vernalization, biochemical mechanisms involved in flowering; molecular mechanism of senescence and aging, biosynthesis, mechanism of action and physiological effects of plant growth regulators, structure and function of biomolecules, (proteins, carbohydrates, lipids, nucleic acid), enzyme kinetics.

Section 5: Genetics

Principles of Mendelian inheritance, linkage, recombination, genetic mapping; extrachromosomal inheritance; prokaryotic and eukaryotic genome organization, regulation of gene expression, gene mutation and repair, chromosomal aberrations (numerical and structural), transposons.

Section 6: Plant Breeding and Genetic Modification

Principles, methods – selection, hybridization, heterosis; male sterility, genetic maps and molecular markers, sporophytic and gametophytic self incompatibility, haploidy, triploidy, somatic cell hybridization, marker-assisted selection, gene transfer methods viz. direct and vector-mediated, plastid transformation, transgenic plants and their application in agriculture, molecular pharming, plantibodies.

Section 7: Economic Botany

A general account of economically and medicinally important plants- cereals, pulses, plants yielding fibers, timber, sugar, beverages, oils, rubber, pigments, dyes, gums, drugs and narcotics. Economic importance of algae, fungi, lichen and bacteria.



Section 8: Plant Pathology

Nature and classification of plant diseases, diseases of important crops caused by fungi, bacteria, nematodes and viruses, and their control measures, mechanism(s) of pathogenesis and resistance, molecular detection of pathogens; plant-microbe beneficial interactions.

Section 9: Ecology and Environment

Ecosystems – types, dynamics, degradation, ecological succession; food chains and energy flow; vegetation types of the world, pollution and global warming, speciation and extinction, conservation strategies, cryopreservation, phytoremediation.

Section 1: Animal world

Animal diversity, distribution, systematics and classification of animals, phylogenetic relationships.

Section 2: Evolution

Origin and history of life on earth, theories of evolution, natural selection, adaptation, speciation.

Section 3: Genetics

Basic Principles of inheritance, molecular basis of heredity, sex determination and sex-linked characteristics, cytoplasmic inheritance, linkage, recombination and mapping of genes in eukaryotes, population genetics.

Section 4: Biochemistry and Molecular Biology

Nucleic acids, proteins, lipids and carbohydrates; replication, transcription and translation; regulation of gene expression, organization of genome, Krebs's cycle, glycolysis, enzyme catalysis, hormones and their actions, vitamins.



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Velammal Bodhi Campus

Section 5: Cell Biology

Structure of cell, cellular organelles and their structure and function, cell cycle, cell division, chromosomes and chromatin structure.

Section 6: Gene expression in Eukaryotes

Eukaryotic gene organization and expression (Basic principles of signal transduction).

Section 7: Animal Anatomy and Physiology

Comparative physiology, the respiratory system, circulatory system, digestive system, the nervous system, the excretory system, the endocrine system, the reproductive system, the skeletal system, osmoregulation.

Section 8: Parasitology and Immunology

Nature of parasite, host-parasite relation, protozoan and helminthic parasites, the immune response, cellular and humoral immune response, evolution of the immune system.

Section 9: Development Biology

Embryonic development, cellular differentiation, organogenesis, metamorphosis, genetic basis of development, stem cells.



Section 10: Ecology

The ecosystem, habitats, the food chain, population dynamics, species diversity, zoogeography, biogeochemical cycles, conservation biology.

Section 11: Animal Behaviour

Types of behaviours, courtship, mating and territoriality, instinct, learning and memory, social behaviour across the animal taxa, communication, pheromones, evolution of animal behaviour.

- In GATE Life Sciences exam 2017 General Aptitude section will carry 15% of the total marks and the remaining 85% of the total marks is devoted to the subject of the paper.
- **GATE XL Exam 2017** will have 65 questions carrying 100 marks, out of which 10 questions carrying a total of 15 marks are in General Aptitude (GA).
- In XL paper, **Chemistry section** (Section H) is compulsory. This section contains 15 questions carrying a total of 25 marks: 5 questions carrying 1 mark each (sub-total 5 marks) and 10 questions carrying 2-marks each (sub-total 20 marks). Some questions may be of numerical answer type.
- **Each of the other sections of the XL paper** (Sections I through M) contains 20 questions carrying a total of 30 marks: 10 questions carrying 1 mark each (sub-total 10 marks) and 10 questions carrying 2 marks each (sub-total 20 marks). Some questions may be of numerical answer type.
- **Numerical Answer Type Questions:** The Life Sciences question paper for GATE 2017 will consist of questions of both **multiple-choice type** and **numerical answer type**.
- There will be negative marking for each wrong answer **1/3 mark will be deducted** for a wrong answer.

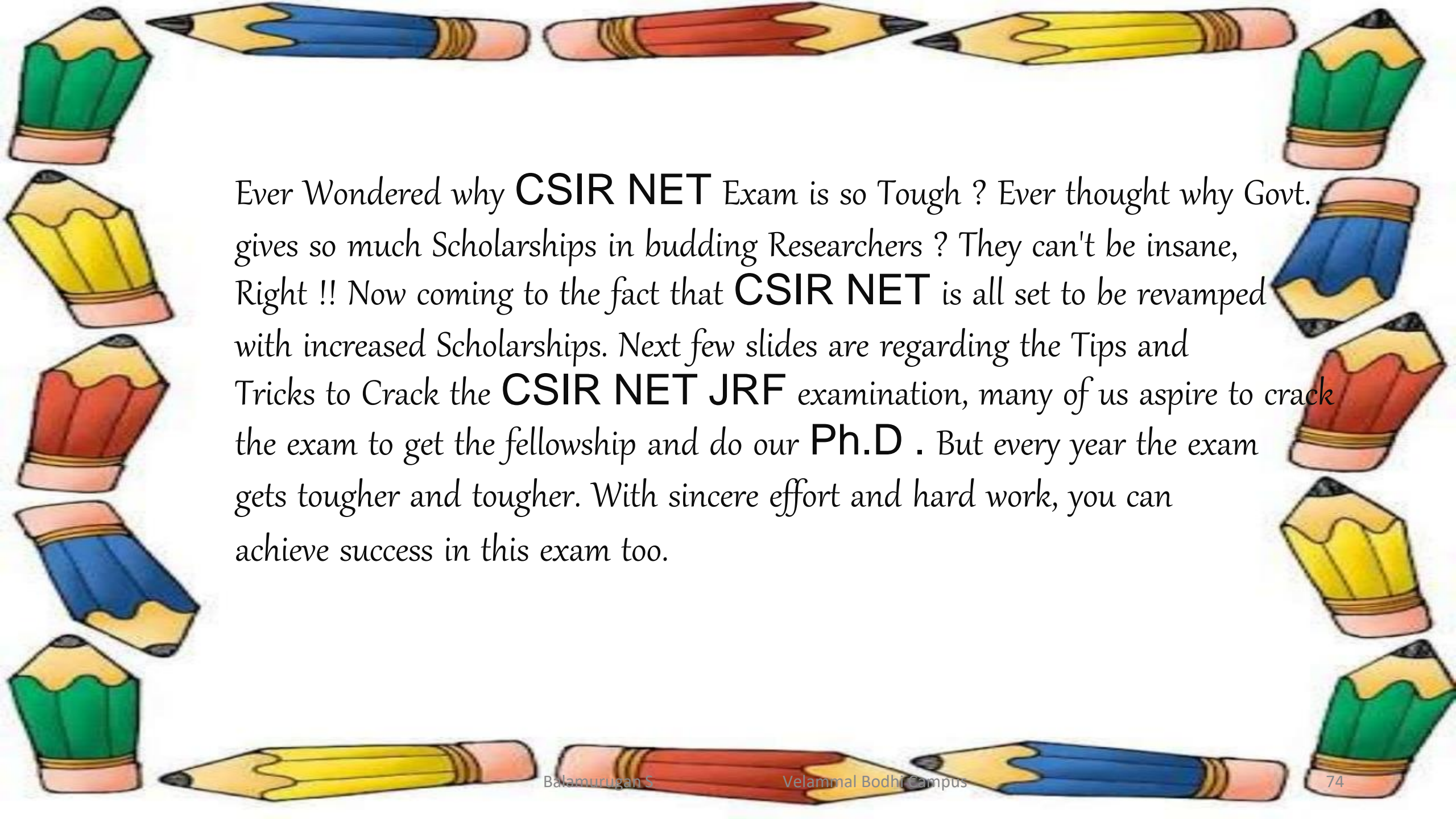
Organizing Institute for GATE 2017 is IIT Roorkee. For more details about GATE 2017 please visit <http://www.gate.iitr.ernet.in>

Organizing Institute for JAM 2017 is IIT Delhi. For more details about JAM 2017 please visit <http://jam.iitd.ac.in>

For GATE Question papers and JAM question papers (Previous years) Please check this link out

<http://gate.iitkgp.ac.in/>

It's better write
notes....

A decorative border of colorful pencils surrounds the text. The pencils are in various colors: green, yellow, red, blue, and orange. Some are sharpened and pointing towards the center, while others are unsharpened or partially sharpened. The border is arranged in a roughly rectangular shape with some pencils pointing outwards.

Ever Wondered why **CSIR NET** Exam is so Tough ? Ever thought why Govt. gives so much Scholarships in budding Researchers ? They can't be insane, Right !! Now coming to the fact that **CSIR NET** is all set to be revamped with increased Scholarships. Next few slides are regarding the Tips and Tricks to Crack the **CSIR NET JRF** examination, many of us aspire to crack the exam to get the fellowship and do our **Ph.D** . But every year the exam gets tougher and tougher. With sincere effort and hard work, you can achieve success in this exam too.

I will provide you a formidable plan on How you can crack **CSIR NET JRF**

December / June .

So i am assuming that you are very eager by now to get the plan and start Preparing.

You can divide the preparation strategy in to 5 Important Parts:

- ✓ ~~Syllabus~~
- ✓ ~~Schedule~~
- ✓ ~~Practice (according to New pattern)~~
- ✓ ~~Revision~~
- ✓ ~~Checking Competitiveness~~

SYLLABUS

The Syllabus for CSIR NET JRF Life Sciences remains pretty clear and unchanged. That means the entire Syllabus is divided into 13 Chapters and you will need to read all of them to clear. But here is how this time it's a little bit different.

Earlier whenever someone asked us do I need to read all chapters, Our answer was NO, Only Read those Chapters in which which are good and leave those which are weaker areas for you.

But now, Pattern Has changed and exam becoming more tougher. And that brings in itself a huge change in how you should strategize your preparation.

The Part A and part B will have same type of Questions like earlier however Part C will be a real GAME CHANGER.

CSIR says: Part C will test the candidate's knowledge of scientific concepts and/or application of the scientific concepts

This Means now you not only need practical knowledge of every topic (Not just from your strong Areas but also from your Weak Areas). When this new pattern came, many felt that Its good to not to have Paper 2. But now you see it has really changed the game for every one.

S C H E D U L E



Sticking to a well planned schedule is very important for Preparation. And all we can suggest you is:



*Spend at least 2-5 hours studying (if you have given **NET JRF** earlier) and 6-8 Hours (if this is your 1st time)*



There are 13 Units and 22 weeks (if you start from 10th Jan) out of which you can keep 1st 10 weeks for studying these 13 Units and rest 10 weeks for Revision & Practicing and last 2 weeks for final brush up.



*So basically we are suggesting that finish off your 1st time studying by March end and Finish off 1st revision by May end and June you should get 2 weeks for revision before **CSIR** commences.*

PRACTICE

- ✓ Just Blindly studying and saying i covered the entire syllabus is just like playing a blind game. So better keep checking your preparation Level at frequent intervals.
- ✓ By frequent intervals I mean every day and every week.
- ✓ Let me simplify it for you:

Suppose you read the 1st Chapter of **NET JRF** syllabus: Structure of atoms, molecules and chemical bonds. So now how will you check after how much you remember? Its very simple:



Revision is the key to success, Our Brain can not store so much information in its active memory. so if you studied something in January and trying to recall it in June, Then sorry that will not happen. 10 weeks you should keep for revision.

REVISION

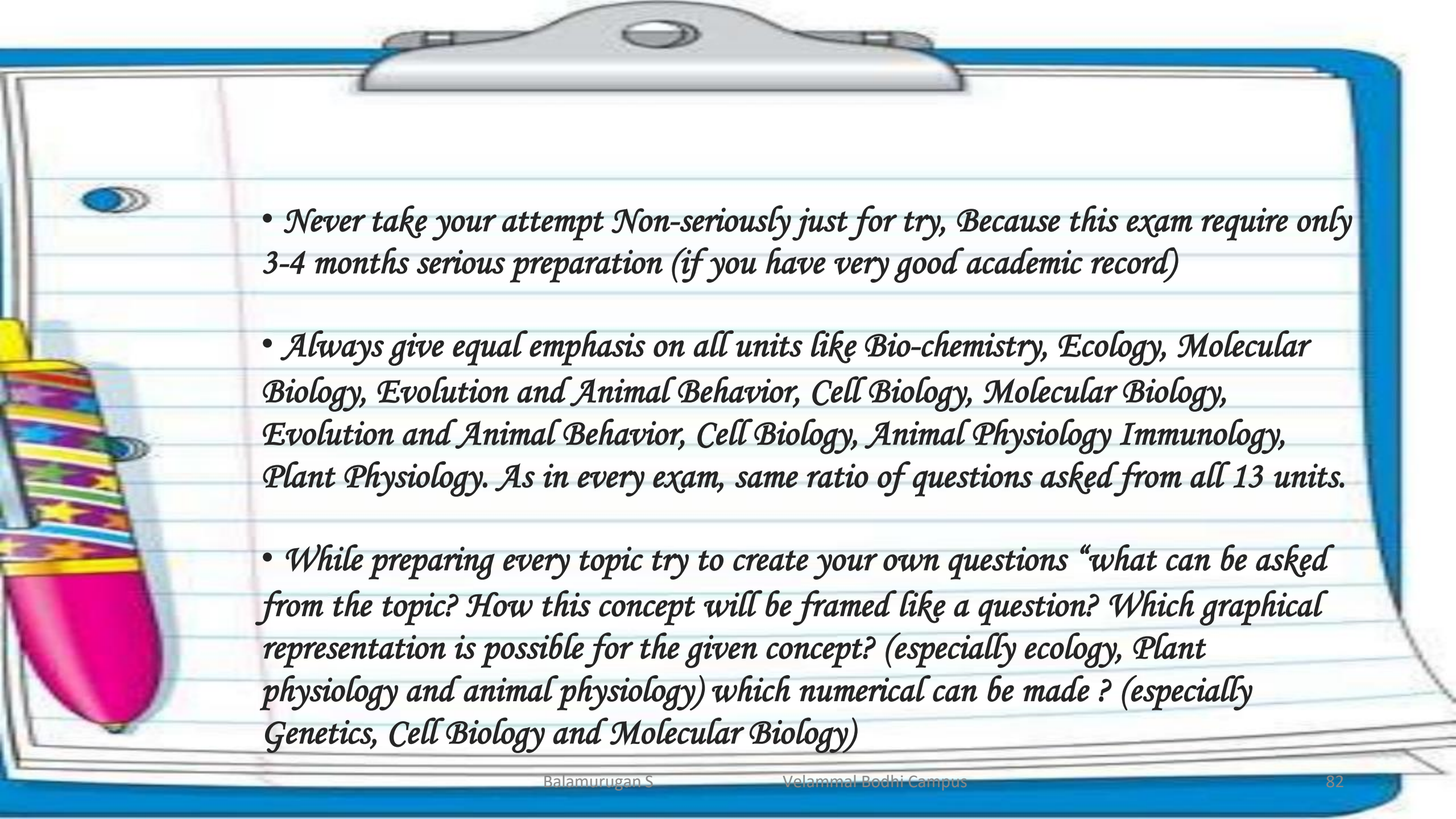


Checking Competitiveness

By now you must have understood that **CSIR NET** is a Competition and you must always know how better you are compared to other aspirants.

TIPS & TRICKS



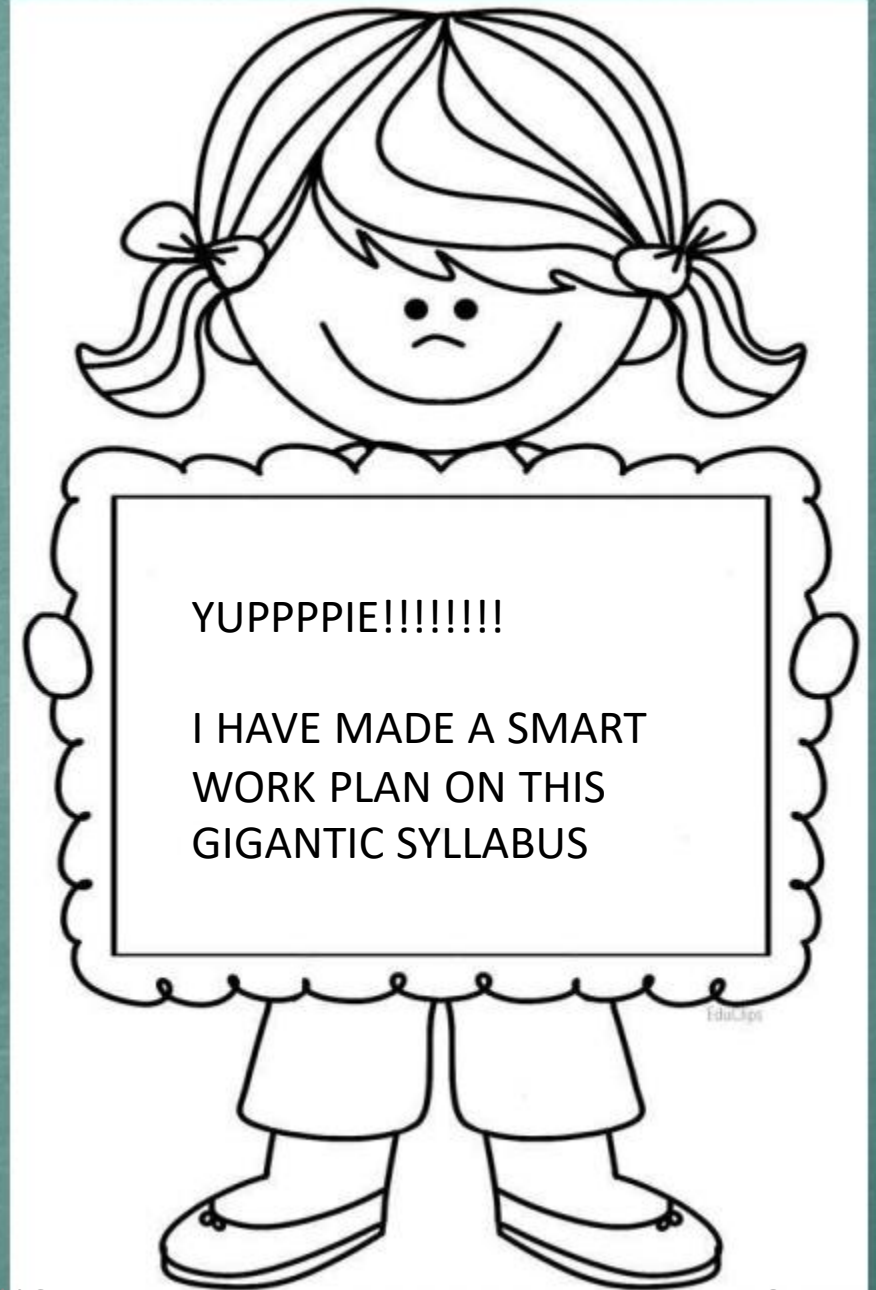
- 
- *Never take your attempt Non-seriously just for try, Because this exam require only 3-4 months serious preparation (if you have very good academic record)*
 - *Always give equal emphasis on all units like Bio-chemistry, Ecology, Molecular Biology, Evolution and Animal Behavior, Cell Biology, Molecular Biology, Evolution and Animal Behavior, Cell Biology, Animal Physiology Immunology, Plant Physiology. As in every exam, same ratio of questions asked from all 13 units.*
 - *While preparing every topic try to create your own questions “what can be asked from the topic? How this concept will be framed like a question? Which graphical representation is possible for the given concept? (especially ecology, Plant physiology and animal physiology) which numerical can be made ? (especially Genetics, Cell Biology and Molecular Biology)*

What To Do With The Syllabus ???



pppst.com

"Go for a smart learning, not for a hard learning"

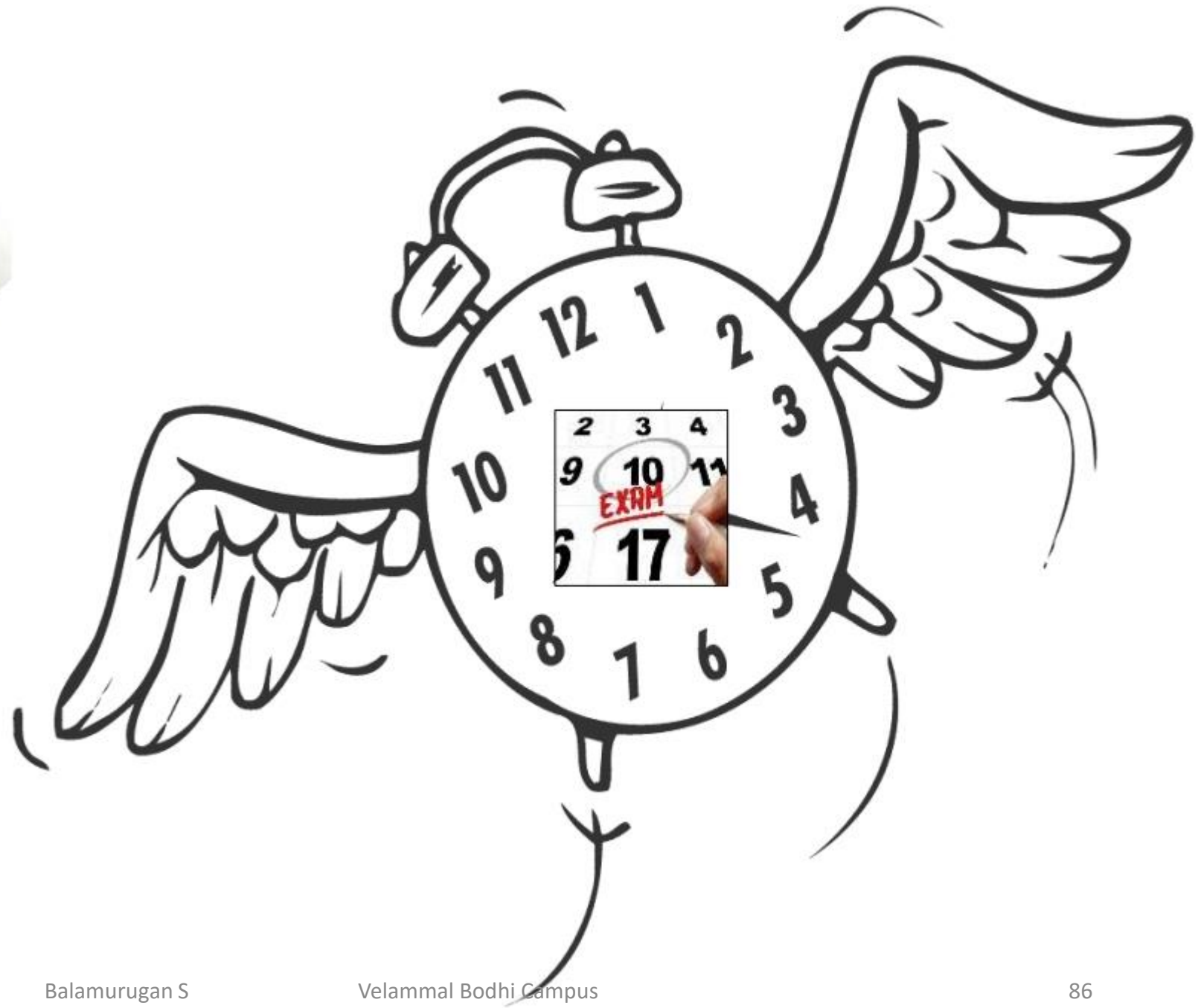


SAVE THE DATE



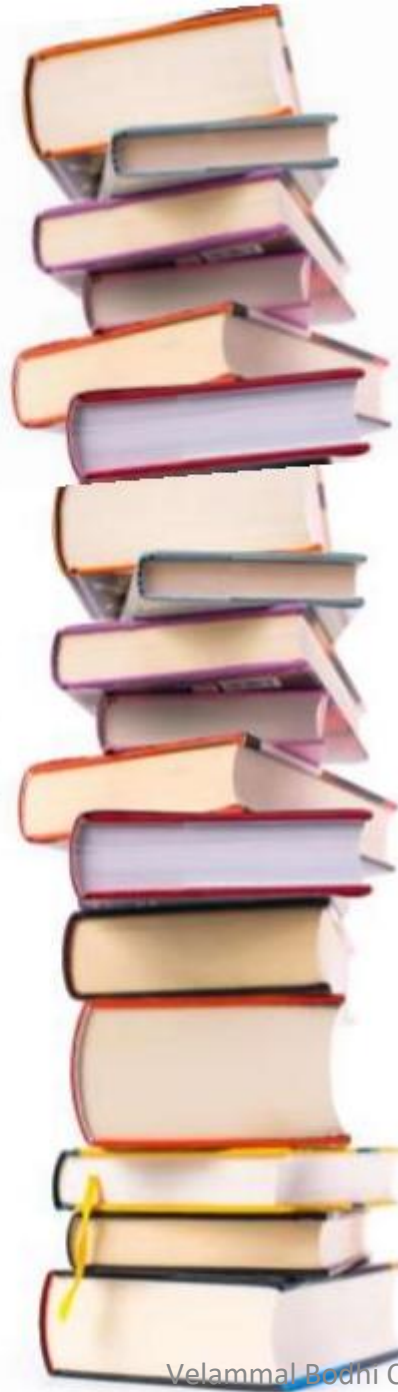
29	30	31	1	2	3
4	5	6	7	8	9
10	11	12	13	14	15
16	17	18	19	20	21
22	23	24	25	26	27
28	1	2	3	4	5





**YOU ARE GOING
TO WANT TO
GIVE UP.
DON'T.**

confidence



**IT COMES DOWN
TO ONE SIMPLE
THING:**

**HOW BAD DO YOU
WANT IT?**



DO'S AND DON'T'S

Don't forget to go through the glossary of terms of standard books for each topic say Biotechnology, Biochemistry, Ecology, Immunology etc. This is the easiest way to familiarise with the terminologies of different subjects.

DNA footprinting, this was once a question. Simply, it is a technique to find protein binding sites on DNA molecule. Any one can answer, if he or she has gone through the glossary of Gene Cloning by T. A. Brown or any book associated with biotechnology. You don't need to know much about that. Keep in mind each right answer takes you towards your dream.

- You may get a single question from the topic geological time scale. But you have to learn the entire topic. If you answer such questions you can be sure that your answer is right.

- But majority of questions are application level where the options are confusing. Don't rush to pick out answers. Negative marks are often the major reason for not qualifying the exam.

- Take one question at a time, read and reread the question. Link options to your previous knowledge.

- 
- Stabilizing interactions
 - pH, buffer, molarity, normality
 - Membrane structure and function
 - Operon
 - Cell organelles
 - Cell division, checkpoints, cyclins involved and cell cycle
 - Cellular communications: Tight junction, Gap Junctions ..
 - DNA replication enzymes involved
 - Transcription- translation Enzymes involved
 - Inhibitors, mode of action of antibiotics
 - Post- translational modification of proteins
 - Cell signalling: Hormones and their receptors, cell surface receptor, signalling through G- protein coupled receptors.
 - Oncology: Mode of action of tumor suppressor genes like p53, rB etc
 - Anticancer drugs source & mode of action example: tamoxifen is an estrogen receptor blocker, Methotrexate
 - Specific immune cells affected by diseases eg: HIV virus attacks T helper cells, Mycobacterium tuberculosis attacks macrophages
 - Different types of immunoglobulins and its importance
 - MHCs
 - Autoimmune disorders



- Cell signalling: Hormones and their receptors, cell surface receptor, signalling through G- protein coupled receptors.
- Photosynthesis - C3 , C4 and CAM pathways.
- Respiration
- Nitrogen metabolism
- **Plant hormones** :Precursors and functions
- **Phytochromes**, Secondary metabolites synthesis, pathways
- Flowering genes in plants
- Mendelian ratio + statistics.
- Extra chromosomal inheritance: Inheritance of Mitochondrial and chloroplast genes, maternal inheritance.
- Microbial genetics: **transformation, conjugation, transduction** especially Hfr prophage.
- **Cot curve analysis**
- Human genetics : **Pedigree analysis, genetic disorders.** (Genetics Problems)
- **ABO blood group**
- Structural and numerical alterations of chromosomes : Deletion, duplication, inversion, translocation, ploidy and their genetic implications.
- **Mitotic and meiotic Non-disjunction**
- Darwinisms; The evolutionary synthesis.
- Origin of cells and unicellular evolution: **endosymbiotic theory** Concept of Oparin and Haldane; Experiment of Miller (1953);



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- Darwinisms; The evolutionary synthesis.
- Origin of cells and unicellular evolution: endosymbiotic theory. Concept of Oparin and Haldane; Experiment of Miller (1953);
- Rule's In ecology (Allens' rule, Bergman's rule, Gloger's rule, Yoda's Law)
- Geological time scale (make some codes in order to remember).
- Gene pool, Gene frequency; Hardy-Weinberg Law; concepts and rate of change in gene frequency through natural selection. (Genetics Problems)
- Speciation, allpatry and sympatry, convergent, divergent and parallel evolution.
- Major Biomes of the World
- Biosphere Reserve and Sanctuaries
- Endangered: plants, animals and birds (In India)
- Techniques in molecular biology and its applications
- Microscopic Techniques



Tips for Section – B

1. Put a special heed over the most unique things about the topic.
2. Most often they don't ask very Basic in this section (opposite to general perception)
3. Try to read "something about everything", Because out of 50 questions asked in this section, the questions from every unit of syllabus are made and they are unique.
4. If you are looking for text material to prepare for this section, I advise you to prepare NCERT well and also go through standard books .

~~For Section – C~~

- Here you will be given Choices 25 out of 75 for which you must be will prepared for at least 40 question which means any 7 – 8 units of your syllabus with in depth preparation is sufficient.*
- Always choose those question which have direct four choices 1,2,3,4 NOT A,B are correct OR B,C are correct OR A,C and D are correct type*
- Always try to attempt graphical and Numerical questions because here you can be more sure for your answers.*



During the exam

- Set your time limit out of 180 minutes (3 hours) **first 40 min should be given to section B then 30 min to section A and at last 100 min to section C**
- Before attempting the section C just scan the whole question paper well and Mark the questions, you are going to read thoroughly by Superficial glance. Then only start attempting the question this will make you confident during the exam.
- If you are not able to attempt continuously 3 – 4 question please have Patience and prepare yourself for attempting next questions
- After completion of every 5 questions fill up to **OMR** carefully this will save your time and risk of wrong **OMR** filling
- Try to finish up section C in 80 min and use 20 min to recheck you answer and **OMR**

During the exam

What are the keywords in the given question?

Which thinking skill is applicable to the given question?



EVERYTHING
YOU NEED
IS ALREADY
INSIDE YOU

GO HARD

LOOK IN THE

Minimum cut-off percentage for the award of fellowship/lectureship in different disciplines in the Joint CSIR-UGC test for Junior Research Fellowship & Eligibility for Lectureship held on 19th June 2016

Junior Research Fellowship (NET)

Lectureship (NET)

Subject	UNRESERVED	OBC	SC	ST	PH/VH	UNRESERVED	OBC	SC	ST	PH/VH
Chemical Science	50.25 %	43.25 %	34.50 %	25.00 %	27.75 %	45.23 %	38.93 %	31.05 %	25.00 %	25.00 %
Earth Science	46.79 %	40.99 %	33.22 %	29.77 %	26.74 %	42.11 %	36.89 %	29.90 %	26.79 %	25.00 %
Life Science	59.00 %	49.25 %	42.25 %	37.50 %	28.75 %	53.10 %	44.33 %	38.03 %	33.75 %	25.88 %
Mathematical Science	54.88 %	47.38 %	37.63 %	25.00 %	25.75 %	49.39 %	42.64 %	33.87 %	25.00 %	25.00 %
Physical Sciences	40.94 %	33.56 %	27.75 %	25.69 %	25.06 %	36.85 %	33.00 %	25.00 %	25.00 %	25.00 %

Michael Jordan

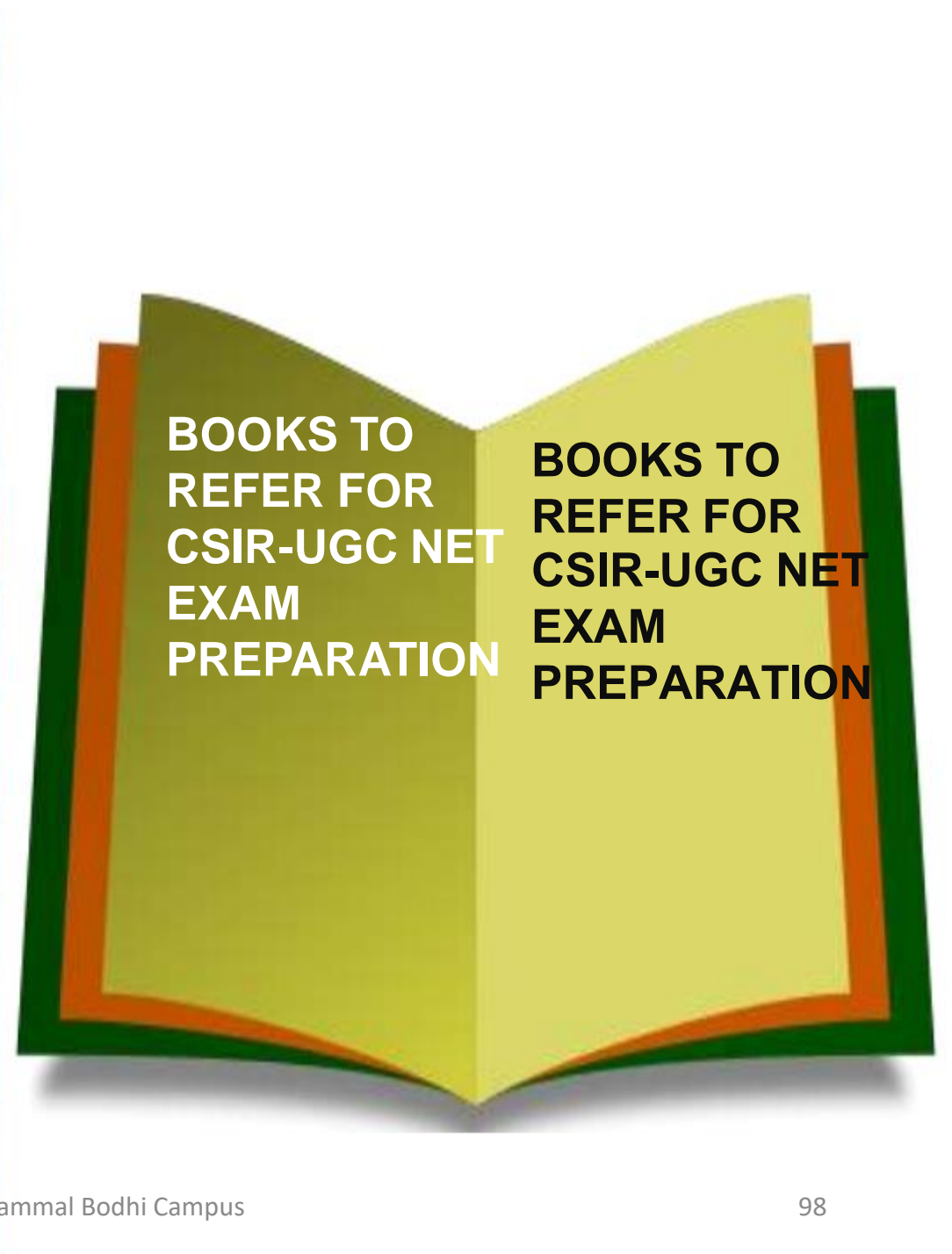
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15

HIT MAP FOR CSIR-NET EXAM
(WEIGHTAGE OF QUESTIONS FROM EACH AND EVERY MODULE)

MODULE	SUBJECT (PART-BANDPART-C)	AVERAGENO. OFQUESTIONS (BOTHINJUNE ANDDECEMBER NET)	BIASNESS
MODULE-1	BIOCHEMISTRY	8	
MODULE-2	CELLULARORGANIZATIONS(CELL BIOLOGY)	8	JUNE
MODULE-3	FUNDAMENTALPROCESSES	13	DEC
MODULE-4	CELLCOMMUNICATIONANDCELL SIGNALLING	12	
MODULE-5	DEVELOPMENTALBIOLOGY	10	
MODULE-6	SYSTEMPHYSIOLOGY	12	
MODULE-7	ANIMALPHYSIOLOGY	7	DEC
MODULE-8	INHERITANCEBIOLOGY	10	
MODULE-9AND10	ECOLOGYANDDIVERSITYOFLIFEFORMS	18	
MODULE-11	EVOLUTIONARYBIOLOGY	8-9	JUNE
MODULE-12	APPLIEDBIOLOGY	10	JUNE
MODULE-13	NeelamDevpuraMSU,VADODARA METHODSINBIOLOGY	~11	97

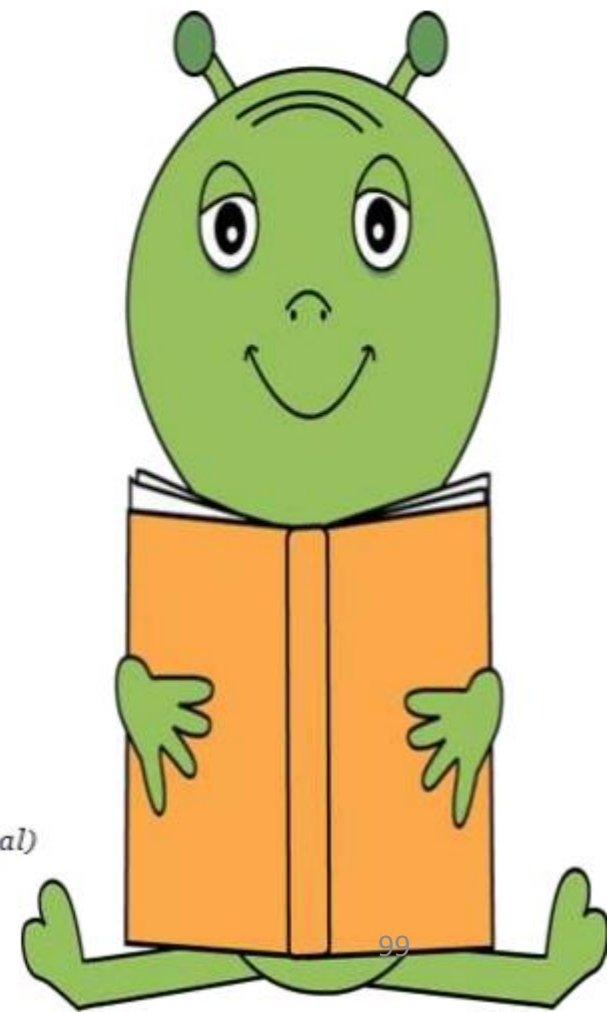


Books for Numerical Ability

- @. **Quickest Mathematics:** Quantitative Aptitude and Numerical Ability for all Competitive Examinations by Kiran Prakashan
- @. **A Modern Approach to Logical Reasoning** by Agarwal
- @. **Analytical Reasoning** by M. K. Pandey
- @. **A New Approach to Numerical Ability** by Navratan Singh
- @. **IQ and Aptitude Tests:** Assess Your Verbal, Numerical and Spatial Reasoning Skills by Philip Carter
- @. **Numerical Ability and mathematical Aptitude** by Aditham Rao
- @. **GATE General Aptitude:** Numerical and Verbal Ability by ACE Engineering Academy

Physics, Chemistry and Mathematics for Biologists

- @. **Chemistry for Biologists (Instant notes) by Fisher & Arnold**
(Julie Fisher and John Arnold; *Instant Notes: Chemistry for Biologists, Ed. 2; 2003; BIOS Scientific Publishers, Taylor & Francis*)
- @. **Mathematics & Statistics for Life Sciences (Instant Notes) by MacKenzie**
(Aulay Mackenzie; *Instant Notes: Mathematics and Statistics for Life Sciences; 2005; BIOS Scientific Publishers, Taylor & Francis*)
- @. **General, Organic and Biological Chemistry (Schaum's Series) by Odian & Blei**
(George Odian and Ira Blei; *Schaum's Outline: General, Organic and Biological Chemistry; 2009; McGraw Hill Professional*)
- @. **Physics for Biology and Health Students (Schaum's Series) by Hademenos**
(George Hademenos; *Schaum's Outline: Physics for Pre-Med, Biology and Allied Health Students; 1998; McGraw Hill*)
- @. **Biochemical Calculations by Segel**
(Irwin H. Segel; *Biochemical Calculations: How to Solve Mathematical Problems in General Biochemistry; 1976; Wiley International*)



General Biology

@. Raven's Biology by Raven

(Peter Raven, George Johnson, Kenneth Mason; *Biology*, Ed. 10; 2013; McGraw Hill)

@. Biology by Campbell and Reece

(Neil A. Campbell, Jane B. Reece; *Biology*, Ed. 9; 2005; Pearson)

@. Biology by Robert Brooker

(Robert J. Brooker, Eric P. Widmaier, Linda E. Graham; *Biology*, Ed. 3, 2014; McGraw Hill)

@. This is Biology by Mayr

(Ernst Mayr; *This is Biology: The Science of Living world*; 1998; Harvard University Press)

@. Life by Lewis

(Ricki Lewis; *Life*; Ed. 6, 2007; McGraw Hill)

@. Life: The Science of Biology by Sadava

(David E. Sadava, David M. Hillis, H. Craig Heller, W. H. Freeman; *Life: The Science of Biology*; Ed. 10, 2014; Sinauer Associates)

@. Biology: Concepts and Investigations by Hoefnagels

(Marielle Hoefnagels; *Biology: Concepts and Investigations*; 2012; McGraw Hills)

@. Discover Biology by Cain

(Anu Singh Cundy, Michael Lee Chain and Jennie Dusheck; *Discover Biology*; 2012; W. W. Norton and Company)

@. 3000 Solved Problems in Biology (Schaum's Series) by Bernstein

(Ruth Bernstein, Stephen Bernstein; *Schaum's Outline: 3000 Solved Problems in Biology*; 2004; McGraw Hill)

@. Biology (Schaum's Outline) by Fried

(George Fried, George Hademenos; *Schaum's Outline: Biology*; 2009; McGraw Hill)



Plant and Animal Sciences (Diversity of Life Forms)

@. Plant Biology by Stern

(Kingsley Rowland Stern, James E. Bidlack, Shelley Jansky; Introductory Plant Biology; 2008; McGraw Hill)

@. Plant Biology (Instant Notes) by Lack & Evans

(Andrew Lack, David Evans; Instant Notes: Plant Biology; 2001; BIOS Scientific Publishers; Taylor & Francis)

@. Animal Biology (Instant Notes) by Jurd

(Richard David Jurd; Instant Notes: Animal Biology; 2004; BIOS Scientific Publishers; Taylor & Francis)

@. Biology of Plants by Raven

(Peter H. Raven, Ray Franklin Evert, Susan E. Eichhorn; Biology of Plants; 2013; W.H. Freeman Publishers)

@. Plant Breeding by B.D. Singh

(B.D. Singh; Plant Breeding: Principles and Methods; 2007; Kalyani Publishers)

@. Plant Pathology by Agrios

(George Agrios; Plant pathology; 2012, Elsevier)

Cell and Molecular Biology

@. Cell and Molecular Biology by Karp:

(Gerald Karp; Cell and Molecular Biology: Concepts and Experiments; 2009; John Wiley & Sons)

@. Molecular Biology of Cells by Bruce Alberts

(Bruce Alberts; Molecular Biology of Cells; 1989; Curier Corporation)

@. Cell and Molecular Biology by De Robertis

(Eduardo D. P. De Robertis, Eduardo M. F. De Robertis; Cell and Molecular Biology; 2001; Lippincott Williams & Wilkins)

@. Molecular Cell Biology by Lodish

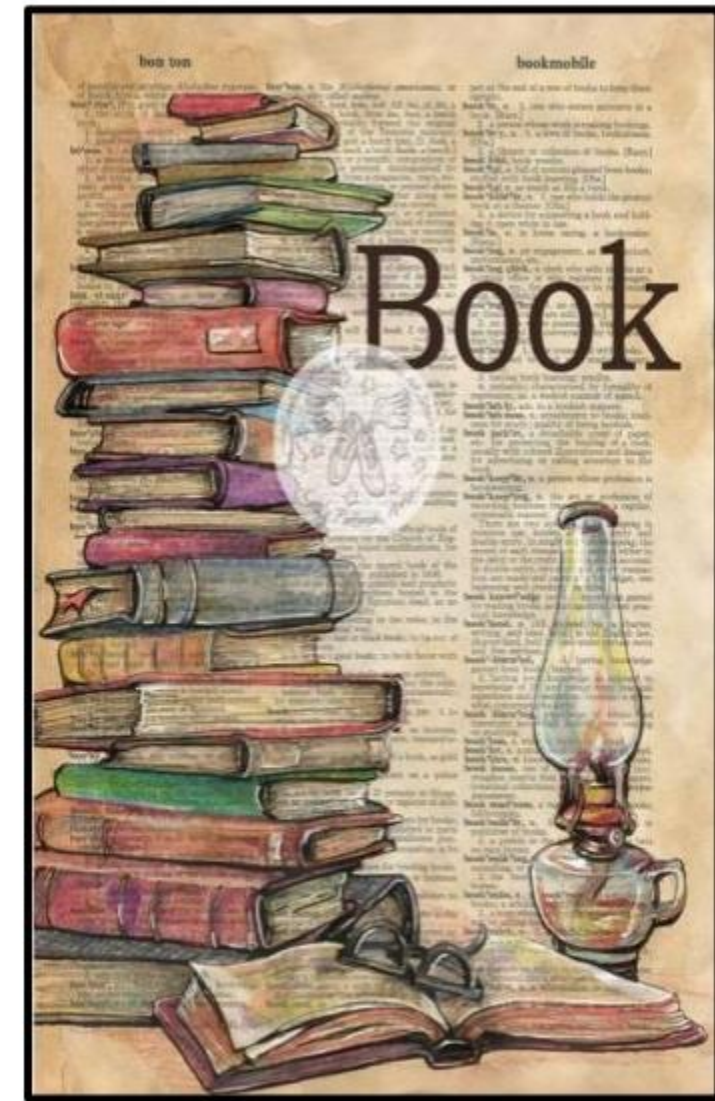
(Harvey Lodish, Arnold Berk, Chris A. Kaiser; Molecular Cell Biology; 2012; W. H. Freeman)

@. Molecular Biology of the Gene by Watson

(James D. Watson, Tania A. Baker, Stephen P. Bell, Alexaner Gann, Michael Levine and Richard Losick; Molecular Biology of the Gene; 2004; Pearson Education India)

@. Essential Cell Biology by Bruce Alberts

(Bruce Alberts, Dennis Bray, Karen Hopkin, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts and Peter Walter; Essential Cell Biology; 2003; Taylor & Francis Group)



@. The Cell by Cooper

(Geoffrey M. Cooper, Robert E. Hausman; *The Cell: Molecular Approach*; 2013; ASM Press)

@. The World of the Cell by Wayne & Lewis

(Wayne M. Becker, Lewis J. Kleinsmith, Jeff Hardin; *The World of the Cell*; 2003; Benjamin Cumming Publishing Company)

@. Molecular Biology by David Clark

(David P. Clark, Nanette J. Pazdernik; *Molecular Biology: Understanding the Genetic Revolution*; 2012; Elsevier)

@. Molecular Biology by Weaver

(Robert Weaver; *Molecular Biology*; 2011; McGraw Hill Education)

@. Molecular Biology (Instant Notes) by McLennan

(Alexander McLennan, Andy Bates, Phil Turner; *Instant Notes: Molecular Biology*; 2012; BIOS Scientific Publishers, Taylor & Francis)

@. Theory and Problems of Molecular and Cell Biology by Stansfield

(William Stansfield, Jaime S. Colome, Raul J. Cano; *Schaum's Outline: Theory and Problems of Molecular and Cell Biology*; 1996; McGraw Hill Professional)



Genetics

@. Genetics: A Conceptual Approach by Pierce

(Benjamin A. Pierce; *Genetics: A Conceptual Approach*; 2012, W.H. Freeman)

@. Concept of Genetics by Klug

(William S. Klug, Michael R. Cummings, Charlotte A. Spence; *Concept of Genetics*; 2014; Pearson)

@. Genes IX by Lewin

(Benjamin Lewin; *Genes IX*; 2008; Jones & Bartlett Learning)

@. Principles of Genetics by Tamarin

(Robert H. Tamarin, Ken Zwickler; *Principles of Genetics*; 1992; Wm. C. Brown Publishers)

@. Principles of Genetics by Snustard

(D. Peter Snustad, Michael J. Simmons; *Principles of Genetics*; 2012; John Wiley & Sons)

@. Genetics: Analysis and Principles by Brooker

(Robert J. Brooker; *Genetics: Analysis and Principles*; 2005, McGraw Hill Education)



@. Principles of Genetics by Gardner

(Eldon John Gardner, D. Peter Snustad; *principles of Genetics*; 1991; Wiley)

@. Lewin's Genes XI by Krebs

(Benjamin Lewin, Jocelyn E. Krebs, Elliott S. Goldstein, Stephen T. Kilpatrick; *Lewin's Genes XI*; 2014; Jones & Bartlett Publishers)

@. Genetics: Principles and Analysis by Hartl & Jones

(Daniel L. Hartl, Elizabeth W. Jones; *Genetics: Principles and Analysis*; 1998; Jones and Bartlett Publishers)

@. An Introduction to Genetic Analysis by Griffiths

(Anthony J. F. Griffiths, Susan R. Wessler, Sean B. Carroll, John Doebley; *An Introduction to Genetic Analysis*; 2011; MacMillan Higher Education)

@. Genetics (Instant Notes) by Fletcher & Hickey

(Hugh Fletcher, Ivor Hickey; *Instant Notes: Genetics*; 2012; Garland Science, Taylor & Francis)

@. Theory and Problems of Genetics by Stansfield

(William D. Stansfield; *Schaum's Outline: Theory and problems of Genetics*; 1983; McGraw Hill)

@. Genetics: Analysis of Genes and Genomes by Hartl & Ruvolo

(Daniel Hartl, Maryellen Ruvolo; *Genetics: Analysis of Genes and Genomes*; 2011; Jones & Bartlett Publishers)

Biochemistry

@. Lehninger's Principles of Biochemistry by Nelson & Cox

(David Lee Nelson, Michael M. Cox; *Lehninger's Principles of Biochemistry*, 2013, W.H. Freeman)

@. Fundamentals of Biochemistry by Voet & Voet

(Donald Voet, Judith G. Voet, Charlotte W. Pratt; *Fundamentals of Biochemistry*; 2012; John Wiley & Sons)

@. Biochemistry by Stryer

(Jeremy M. Berg, John L. Tymoczko, Lubert Stryer; *Biochemistry*; 2010; W.H. Freeman)

@. Biochemistry (Instant Notes) by Hames & Hooper

(David Hames, Nigel Hooper; *Instant Notes: Biochemistry*; 2011; Taylor & Francis)

@. Plant Biochemistry by Walter

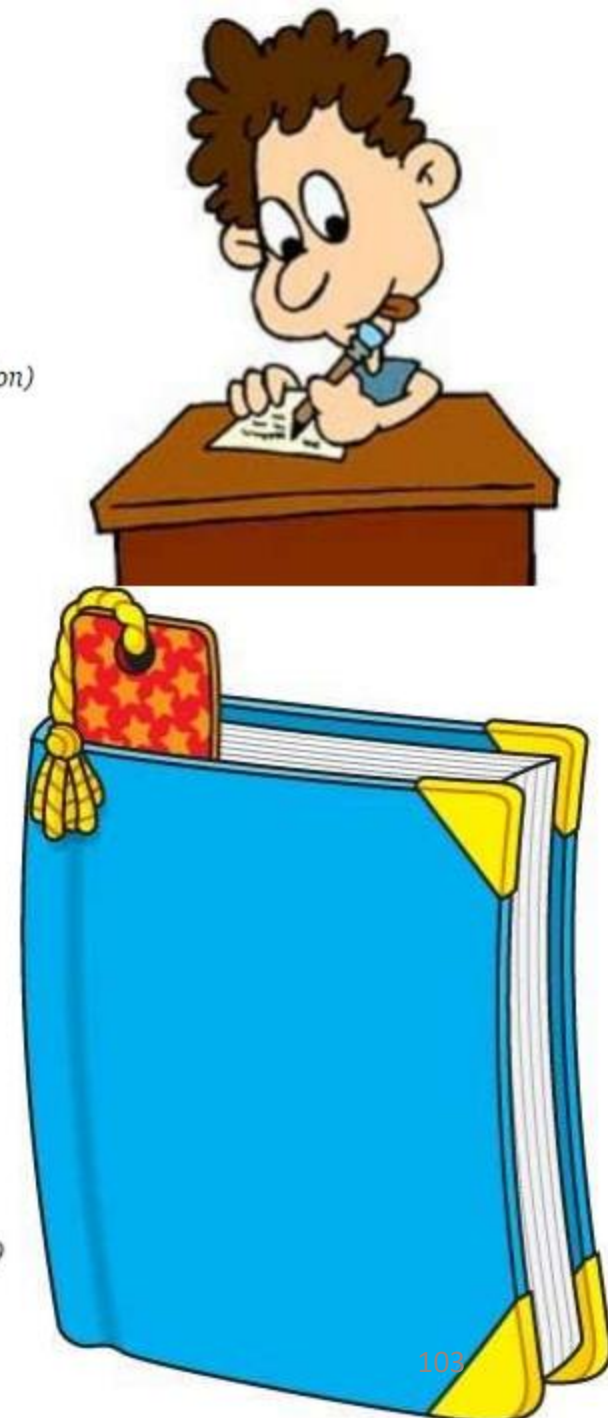
(Hans-Walter Heldt, Birgit Piechulla; *Plant Biochemistry*, Ed. 4; 2011; Academic)

@. Biochemistry and Molecular Biology of Plants by Bob Buchanan

(Bob Buchanan, Wilhelm Gruissem, Russell Jones; *Biochemistry and Molecular Biology of Plants*, Ed. 2; 2015; Wiley)

@. Enzymes by Palmer

(T Palmer, P L Bonne; *Enzyme: Biochemistry, Biotechnology, Clinical Chemistry*; 2007; Elsevier)



@. Biochemistry by Garret & Grisham

(Reginald Garrett, Charles Grisham; Biochemistry; 2012; Cengage Learning)

@. Biochemistry by Campbell & Farrell

(Mary Campbell, Shawn Farrell; Biochemistry; 2014; Cengage Learning)

@. Biochemistry and Genetics: 500 Questions by Wilson

(Golder Wilson; Biochemistry and Genetics: 500 Question; 2013; McGraw Hill Professional)

@. Harper's Illustrated Biochemistry by Murray

(Robert K. Murray, Harold Anthony Harper; Harper's Illustrated Biochemistry; 2006; Lange Medical Books/McGraw Hill)

@. Medical Biochemistry by Baynes

(John Baynes, Marek H. Dominiczak; Medical Biochemistry; 2014; Elsevier Health Sciences)

@. Principles of Biochemistry by Moran

(Laurence A Moran, Robert A Horton, Gray Scrimgeour, Marc Perry, David Rawn; Principles of Biochemistry; 2013; Pearson Education Limited)

@. Theory and Problems of Biochemistry by Kuchel

(Philip W. Kuchel; Schaum's Outline: Theory and problems of Biochemistry; 1998; McGraw Hill Professional)

Plant Physiology

@. Plant Physiology by Taiz

(Lincoln Taiz, Eduardo Zeiger; Plant Physiology; 2010; Sinauer Associates)

@. Plant Physiology by Salisbury & Ross

(Frank Salisbury, Cleon Ross; Plant Physiology, Ed. 4; 1991, Wiley)

@. Plant Physiology and Development by Taiz

(Lincoln Taiz, Eduardo Zeiger, Ian M. Moller, Angus Murphy; Plant Physiology and Development, Ed. 6; 2015)

@. Advanced Plant Physiology by Wilkins

(Malcolm B. Wilkins; Advanced Plant Physiology; 1984; Pub- Pitman)



Animal Physiology, Medical Physiology and Endocrinology

@. Text book of Medical Physiology by Guyton

(Arthur Clifton Guyton, John Edward Hall; Text Book of Medical Physiology; 2010; Elsevier Saunders)

@. Endocrinology by Hadley

(Mac E. Hadley; Endocrinology; 2012; Prentice Hall)

@. Comparative Vertebrate Endocrinology by Bentley

(P. J. Bentley; comparative Vertebrate Endocrinology; 1998; Cambridge University Press)

@. Physiological Systems in Insects by Klowden

(Marc J Klowden; Physiological Systems in Insects; 2013; Academic Press)

@. Principles of Anatomy and Physiology by Tortora

(Gerard J. Tortora, Bryan H. Derrickson; Principles of Anatomy and Physiology; 2008; John Wiley & Sons)

@. Principles of Animal Physiology by Moyes & Schulte

(Christopher D. Moyes, Patricia M. Schulte; Principles of Animal Physiology; 2013; Pearson)

@. Vertebrate Endocrinology by Norris

(David O. Norris, James A. Carr; Vertebrate Endocrinology; 2013; Academic Press)

@. Neuroscience (Instant Notes) by Alan Longstaff

(Alan Longstaff; Instant Notes: Neuroscience; 2011; Taylor & Francis)

@. Human Physiology (Instant Notes) by McLaughlin

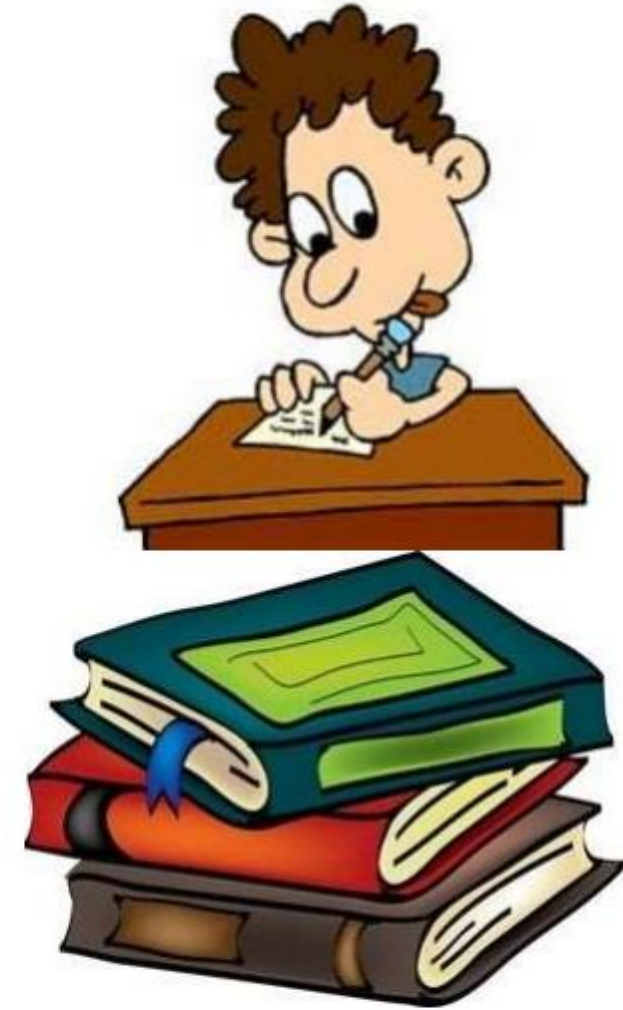
(Daniel P. McLaughlin, J. A. Stamford, David A. White; Instant Notes: Human Physiology; 2007; Taylor & Francis)

@. Human Anatomy and Physiology by Graaff

(Kent Van de Graaff, R. Rhee, Sidney Palmer; Schaum's Outline: Human Anatomy and Physiology; 2013; McGraw Hill Professional)

@. Review of Medical Physiology by William Ganong

(William Ganong; Review of Medical Physiology; 2005; McGraw Hill Professional)



Immunology

@. Immunology by Kuby

(Thomas J. Kindt, Richard A. Goldsby, Barbara A. Osborne, Janis Kuby; Immunology, 2007; W.H. Freeman)

@. Essential Immunology by Ivan Roitt

(Peter J. Delves, Seamus J. Martin, Dennis R. Burton, Ivan M. Roitt; Essential Immunology; 2011; John Wiley & Sons)

@. Immunology (Instant Notes) by Lydyard

(Peter Lydyard, Alex Whelan, Michael Fanger; Instant Notes: Immunology; 2011; Taylor & Francis)

@. Immunology (Schaum's series) by Pinchuk

(George Pinchuk; Schaum's Outline: Immunology; 2001; McGraw Hill Professional)

Microbiology (Bacteriology and Virology)

@. Prescott's Microbiology by Prescott

(Joanne M. Willey, Linda Sherwood, Christopher J. Woolverton; Prescott's Microbiology, 2011; McGraw Hill)

@. Microbiology by Pelczar

(Michael Joseph Pelczar, Eddie Chin Sun Chan, Noel R. Krieg; Microbiology, 1993; McGraw Hill)

@. Microbiology by Tortora

(Gerard J. Tortora, Berdell R. Funke, Christine L. Case; Microbiology; 2015; Pearson Education)

@. Brock Biology of Microorganisms by Madigan

(Michael T. Madigan, David P. Clark, David Stahl, John M. Martinko; Brock Biology of Microorganisms; 2010; Benjamin Cummings)

@. Microbiology (Instant Notes) by Baker

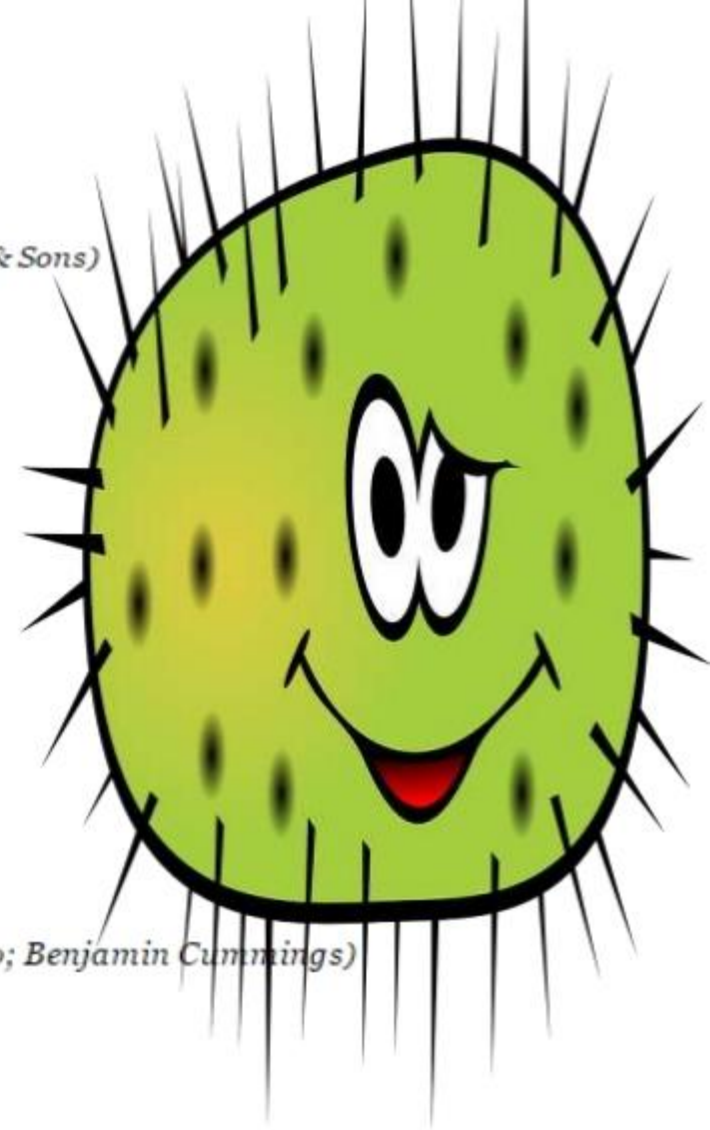
(Simon Baker, Jane Nicklin, Caroline Griffiths; Instant Notes: Microbiology; 2011; Taylor & Francis)

@. Medical Microbiology (Instant Notes) by Irving

(William L. Irving, Dlawer A. A. Ala'Aldeen, Tim Boswell; Instant Notes: Medical Microbiology; 2005; Garland Science, Taylor & Francis)

@. Microbiology by Alcamo

(I. Edward Alcamo, Jennifer Warner; Schaum's Outline: Microbiology; 2009; McGraw Hill Professional)



Biotechnology and Gene Manipulation

@. Principles of Gene Manipulation and Genomics by Primrose

(Sandy B. Primrose, Richard Twyman; Principles of Gene Manipulation; 2013; John Wiley and Sons)

@. Genomes by T. A. Brown

(Terence A. Brown; Genomes; 2007; Garland Science)

@. Molecular Cloning by Sambrook Vol-1, 2, 3

(Joseph Sambrook, David William Russell; Molecular Cloning: A Laboratory Manual, Vol- 1, 2, 3; 2001; CSHL Press)

@. Gene Cloning and DNA Analysis by T. A. Brown

(T. A. Brown; Gene Cloning and DNA Analysis; 2013; John Wiley & Sons)

@. DNA Technology by Alcamo

(I. Edward Alcamo; DNA Technology; 2001; Gulf Professional Publishing)

@. Molecular Biotechnology by Glick & Pasternack

(Bernard R. Glick, Jack J. Pasternak, Cheryl L. Patten; Molecular Biotechnology: Principles and Applications of Recombinant DNA; 2010; ASM Press)

@. Plant Tissue Culture by Razdan

(Razdan; Introduction to Plant Tissue Culture; 2003; Oxford and IBH Publishing)

@. Biotechnology by Satyanarayana

(U. Satyanarayana; Biotechnology; 2013; Books and Allied (P.) Limited)

@. Plant Biotechnology by Slater & Scott

(Adrian Slater, Nigel W. Scott, Mark R. Fowler; Plant Biotechnology: The Genetic Manipulation of Plants; 2008; Oxford University Press)

@. Discovering Genomics, Proteomics and Bioinformatics by Campbell

(Alastair Campbell; Discovering Genomics, Proteomics and Bioinformatics; 2004; Pearson Education Limited)

@. Introduction to Biotechnology by Campbell & Brown

(C. M. Brown, Iain Campbell, F. G. Priest; Introduction to Biotechnology; 1987; Blackwell Scientific Publications)



Applied Biology

@. Principles of Fermentation Technology by Stanbury

(Peter F. Stanbury, Allan Whitaker, Stephen J. Hall; Principles of Fermentation Technology; 2013; Elsevier)

@. Industrial Microbiology by Casida

(L.E. Casida; Industrial Microbiology; 2005; New Age International (P.) Limited Publishers)

@. Environmental Biotechnology by Evans & Furlong

(Gareth G. Evans, Judy Furlong; Environmental Biotechnology: Theory and Applications; 2011; John Wiley & Sons)



Biophysical Instrumentation

@. Principles and Techniques of Biochemistry and Molecular Biology by Wilson & Walker

(Keith Wilson, John Walker; Principles and Techniques of Biochemistry and Molecular Biology; 2010; Cambridge University Press)

@. Molecular and Cellular Biophysics by Jackson

(Meyer B. Jackson; Molecular and Cellular Biophysics; 2006; Cambridge University Press)

@. Introductory Biophysics by Tran

(J. R. Claycomb, Jonathan Quoc P. Tran; Introductory Biophysics: Perspective on the Living State; 2010; Jones & Bartlett Publisher)

@. Introductory Biophysics by Cerdonio & Noble

(Massimo Cerdonio, Robert W. Noble; Introductory Biophysics; 1986; World Scientific)

Bioinformatics

@. Introduction to Bioinformatics by Lesk

(Arthur M. Lesk; *Introduction to Bioinformatics*; 2014; Oxford University Press)

@. Bioinformatics by Baxevanis & Ouellette

(Andreas D. Baxevanis, B. F. Francis Ouellette; *Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins*; 2004; John Wiley & Sons)

@. Bioinformatics (Instant Notes) by Hodgman

(T. Charlie Hodgman, Andrew French, David R. Westhead; *Instant Notes: Bioinformatics*; 2010; Taylor & Francis)

Biostatistics and Research Methodology

@. Introductory Biostatistics by Chap Le

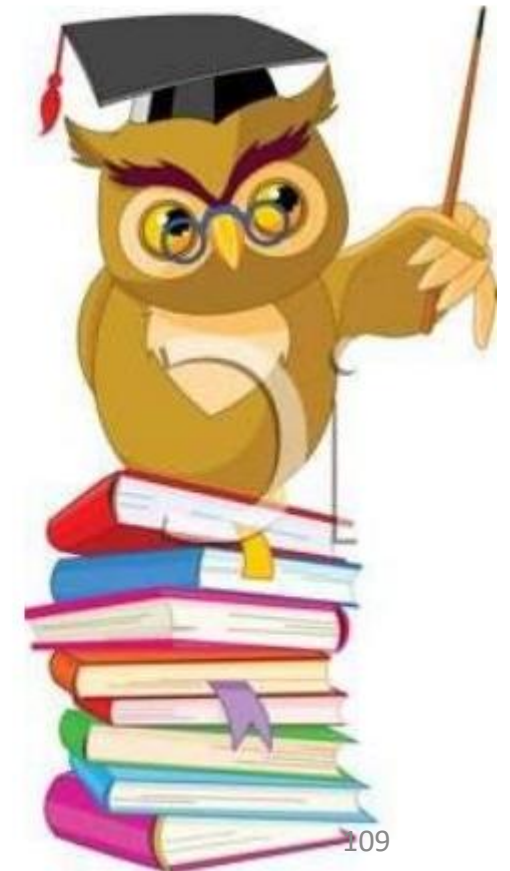
(Chap T. Le; *Introductory Biostatistics*; 2003; John Wiley & Sons)

@. Statistical Methods in Medical Research by Armitage

(Peter Armitage, Geoffrey Berry, J. N. S. Matthews; *Statistical Methods in Medical Research*; 2008; John Wiley & Sons)

@. Research Methodology by Kothari

(C. R. Kothari; *Research Methodology: Methods and Techniques*; 2004; New Age International)



Embryology and Developmental Biology

@. Developmental Biology by Gilbert

(Scott F. Gilbert; Developmental Biology; 2014; Sinauer)

@. An Introduction to Embryology by Balinsky

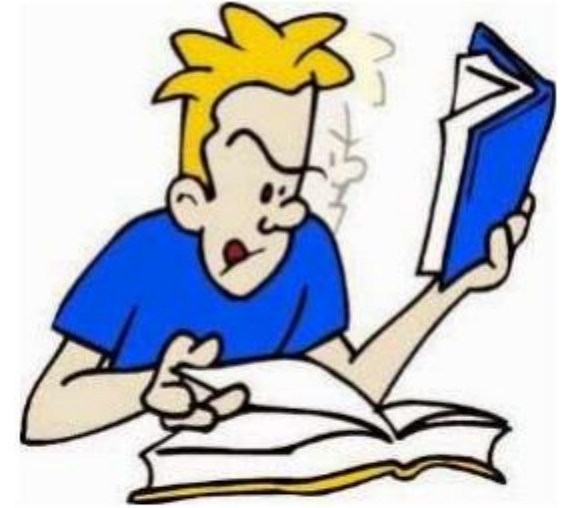
(Boris Ivan Balinsky, B. C. Fabian; An Introduction to Embryology; 1981; Saunders College Pub.)

@. Developmental Biology (Instant Notes) by Twyman

(Richard M. Twyman; Instant Notes: Developmental Biology; 2001; Taylor & Francis)

@. Principles of Development by Lewis

(Lewis Wolpert, Cheryll Tickle; Principles of Development; 2011; Oxford University Press)



Evolution and Behavioral Biology

@. Evolution by Strickberger

(Brian Keith Hall, Benedikt Hallgrímsson, Monroe W. Strickberger; Evolution; 2013; Jones & Bartlett Publishers)

@. The Theory of Evolution by Dawkins & Maynard

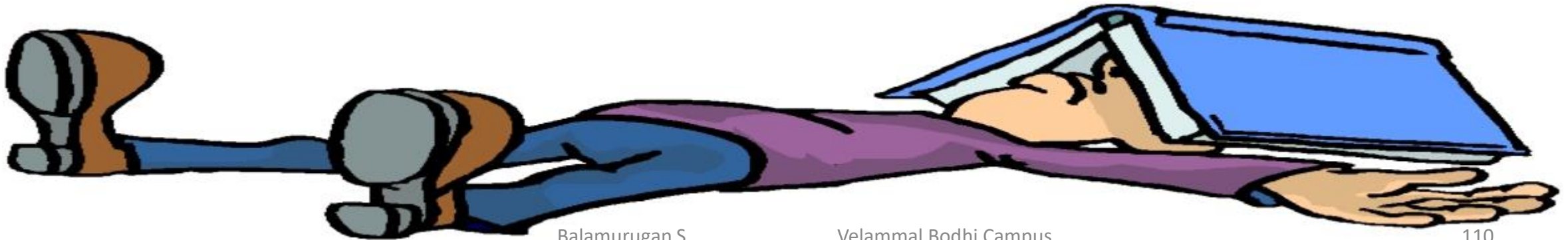
(John Maynard Smith; The Theory of Evolution; 1993; Cambridge University Press)

@. Principles of Insect Morphology by Snodgrass

(Snodgrass R.E.; Principles of Insect Morphology; 2004; CBS Publishers & Distributors)

@. The Insects: Structure, Function and Biodiversity by Ambrose

(Dunston P. Ambrose; The Insects: Structure, Function and Biodiversity; 2004; Kalyani Publishers, 2004)



Ecology and Environmental Sciences

@. Basic Ecology by Odum

(Eugene Pleasants Odum; Basic Ecology; 1983; Saunders College Pub.)

@. Fundamentals of Ecology by Odum

(Eugene P. Odum; Fundamental of Ecology; 2005; Cengage Learning India Private Limited)

@. Elements of Ecology by Smith & Smith

(Thomas Michael Smith, Robert Leo Smith; Elements of Ecology; 2012; Pearson Benjamin Cummings)

@. Plant Ecology by Erwin Beck

(Ernst-Detlef Schulze, Erwin Beck, Klaus Müller-Hohenstein; Plant Ecology; 2005; Springer Science & Business Media)

@. Ecology (Instant Notes) by Mackenzie

(Aulay Mackenzie, Sonia R. Virdee, A. S. Ball; Instant Notes: Ecology; 1998; BIOS Scientific Publishers)

@. Ecology: Theories and Applications by Peter Stiling

(Peter D. Stiling; Ecology: Theories and Applications; 2002; Prentice Hall)

@. Ecology: Concepts and Applications by Molles

(Manuel Carl Molles; Ecology: Concepts and Applications; 2012; McGraw-Hill)



Please remember, we can only provide the material stuffs and resources, the ultimate success depends on your dedicated preparation for the **NET** exam.



**“THERE IS NO ELEVATOR
TO SUCCESS, YOU HAVE
TO TAKE THE STAIRS.”**

ZIG ZIGLAR

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Tips to crack JNU-CEEBS

- *Biology must be prepared well upto B.Sc. Biotech (Hons) level that include Molecular Biology, Genetic Engineering, Bioprocess, Environmental Biotech, Plant Biotech, Animal Biotech, Immunology, Biochemistry etc.*
- *For other sections like Physics you should be well prepared above medical entrance and below B.Sc. level and chemistry upto any basic chemistry level entrance that must include the topics as mentioned above in IIT-JAM section*
- *You must complete your syllabus by end of November especially if you are B.Sc. appearing student because from January onward you will have to take the pain of your practical exams and B.Sc. main exam also if you are in yearly system.*

Tips to crack SAU-Entrance (South Asian University, New Delhi)

- *Beside above tips as you read in JNU-CEEBS, you must give special attention to Biostatistics and Previous year Question papers*

Tips for Botany Zoology Entrance of BHU

- *Just Prepare the subject upto B.Sc (Hons) but remember around half of questions in BHU Entrance come from standard medical Entrance Books.*
- *Always solve the previous year Question papers*

Tips to Crack Delhi University Botany & Zoology Entrance

- *Beside Preparing the respective subject you must prepare a very good level of Biochemistry, Molecular Biology Micro-Biology, Genetic Engineering also. This is one the best entrance you will encounter fighting for it.*
- *Be sure while attempting the questions during the exams.*



**KEEP
CALM
AND
STUDY
HARD**

Make These Web Resources Your Ultimate Guide



<http://www.winentrance.com/>

<https://www.wiziq.com>

<http://www.csirnetlifesciences.com/>

<http://www.biologyexams4u.com/>

<http://www.easybiologyclass.com/>

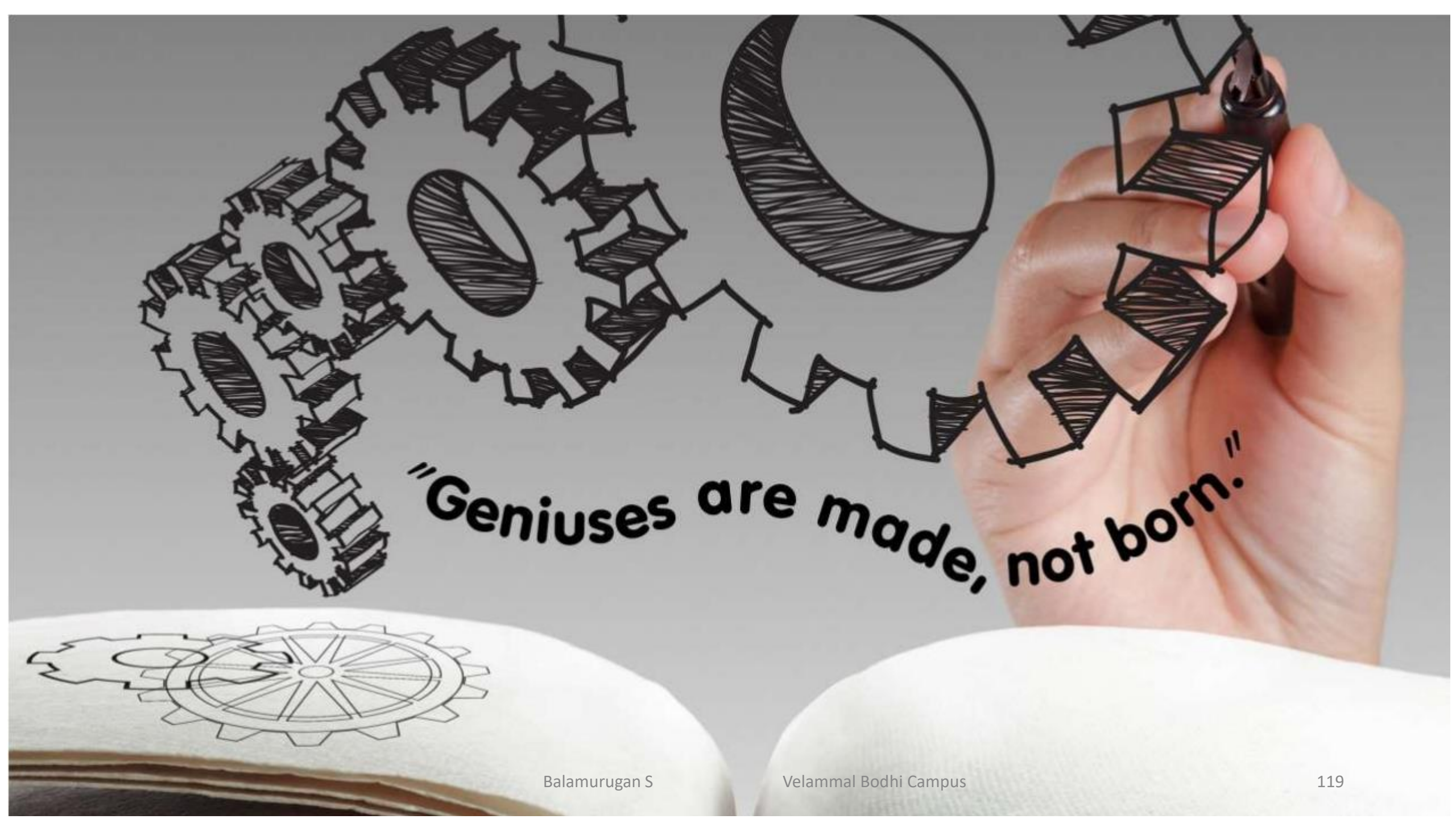
<http://www.mcqbiology.com/>

<http://www.shomusbiology.com/>

<https://quizlet.com/>

<https://www.examrace.com/>

<https://www.eduncle.com/>



"Geniuses are made, not born."



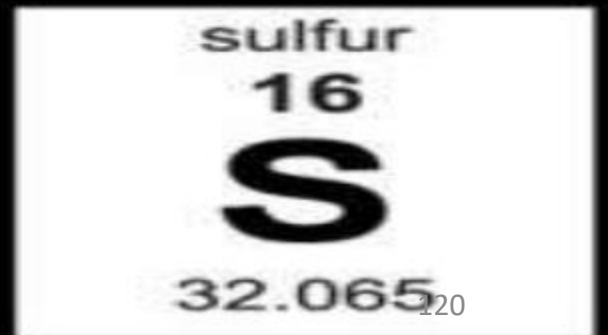
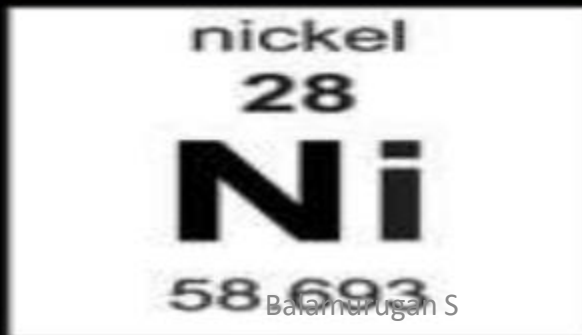


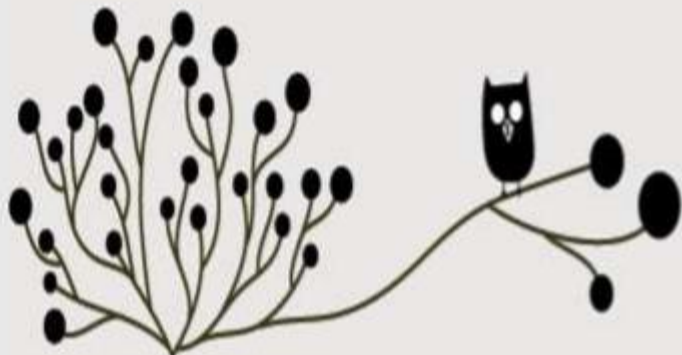
explore your own passions



JARGON:
"Genius Hour"

DEFINITION:
Genius Hour offers students a regular time each week to tackle projects that reflect their personal interests and passions. Adapted from Google's 20% time.





Everyone is a genius.

But if you judge a fish
on its ability to climb a tree,
it will live its whole life believing it is stupid.

~ Albert Einstein



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"You don't have to be a *genius* or a *visionary* or even a *college graduate* to be successful. You just need a **framework** and a **dream.**"

~Michael Dell

**EVERYTHING
YOU NEED
IS ALREADY
INSIDE YOU**





“If you learn from your mistake
then you are intelligent.
But if you learn from somebody's
mistake then you are a genius.”

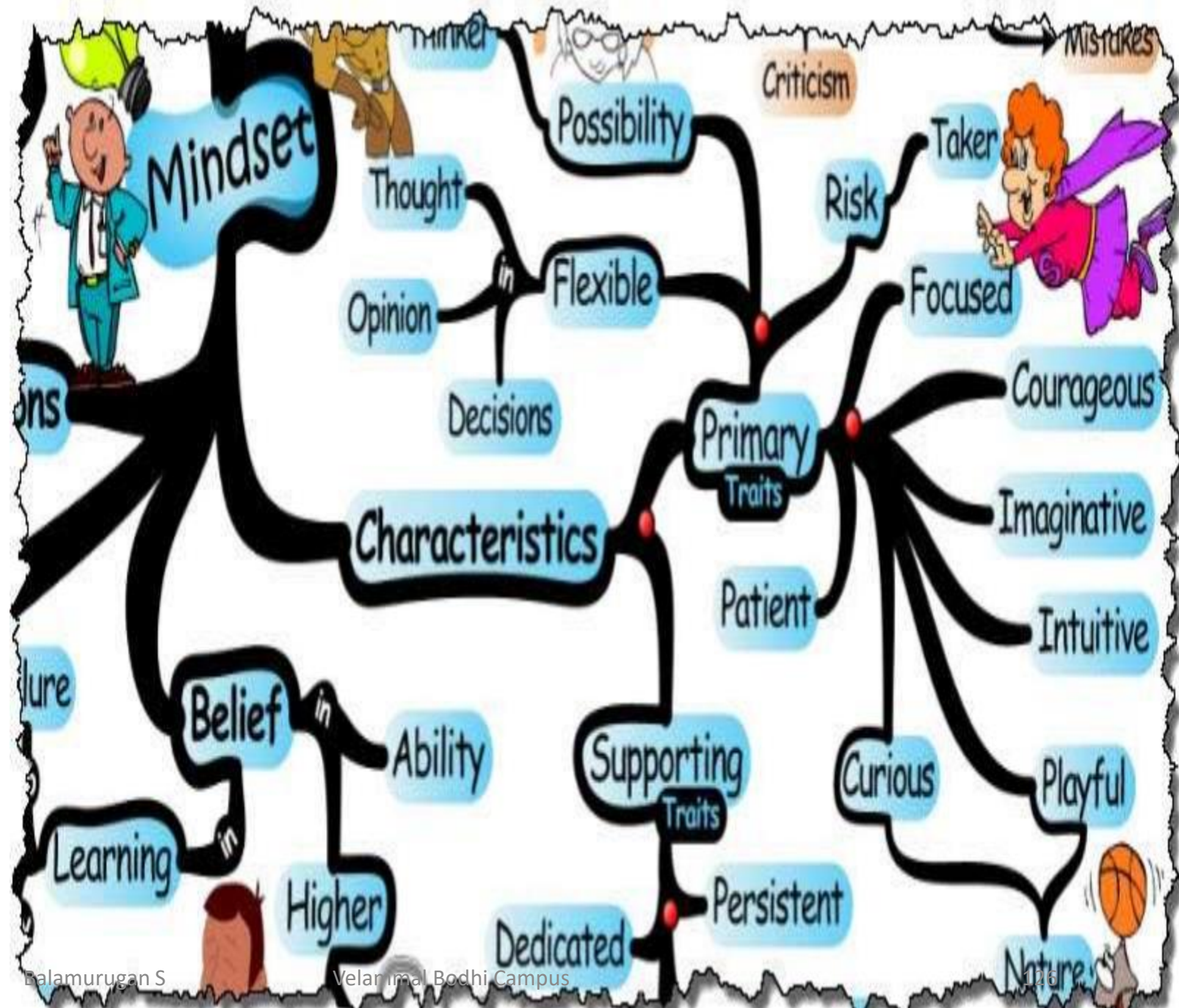
-Albert Einstein

www.Thinkpositive.com

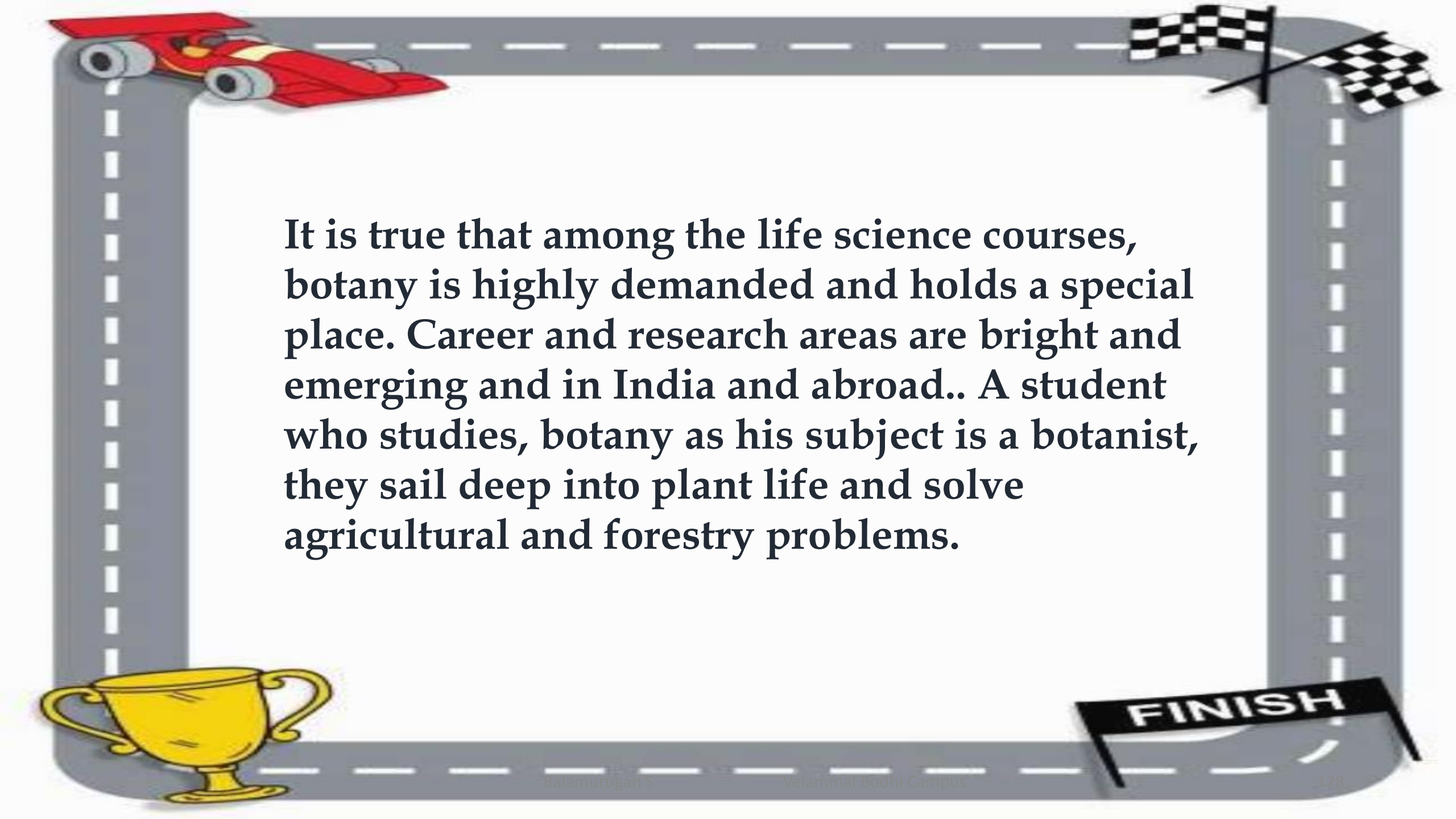
**STOP COMPETING
WITH OTHERS.
START COMPETING
WITH YOURSELF.**

**AND THE
WINNER
IS...**



YOU



CAREER OPTIONS IN BOTANY



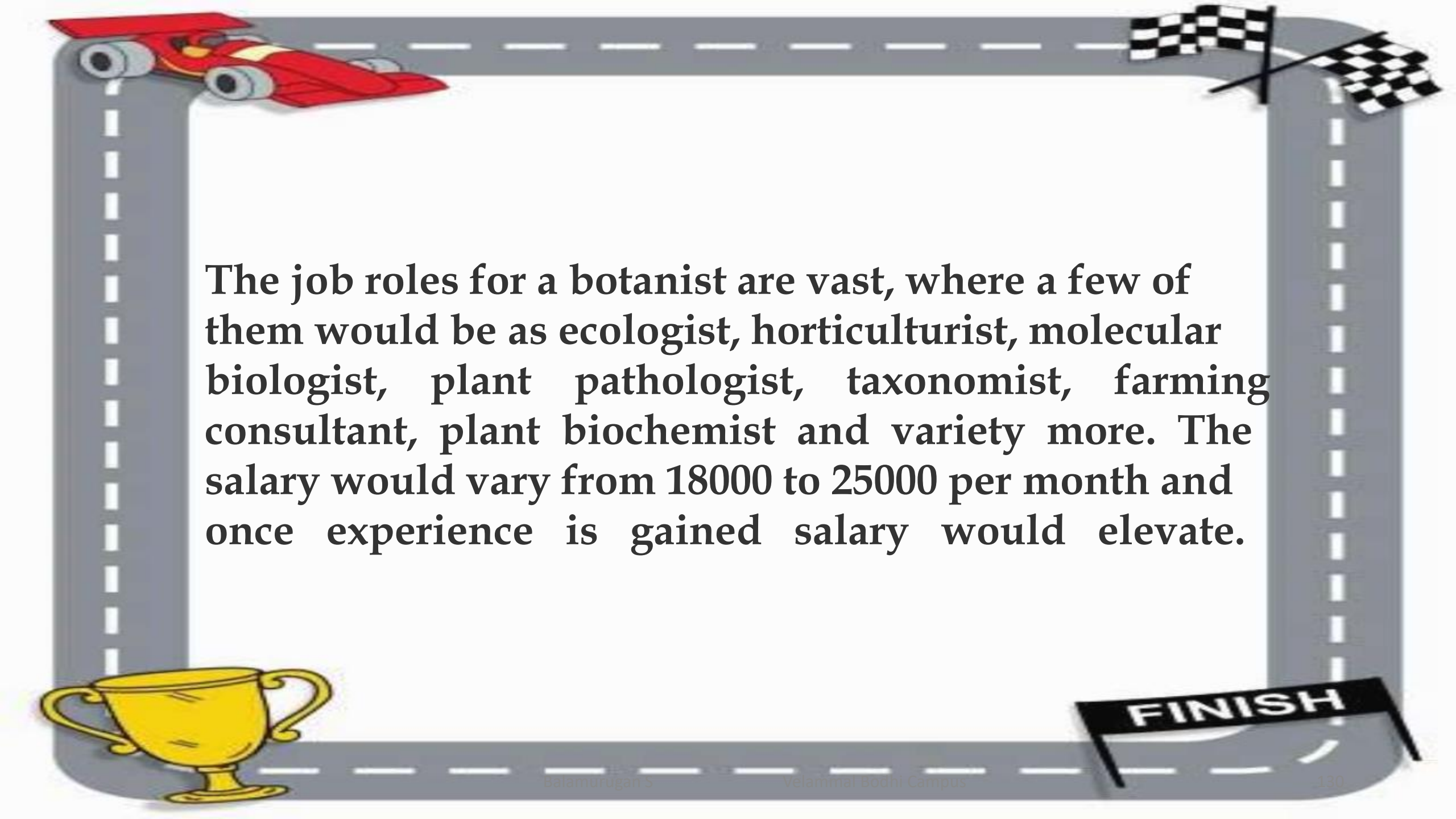
It is true that among the life science courses, botany is highly demanded and holds a special place. Career and research areas are bright and emerging and in India and abroad.. A student who studies, botany as his subject is a botanist, they sail deep into plant life and solve agricultural and forestry problems.



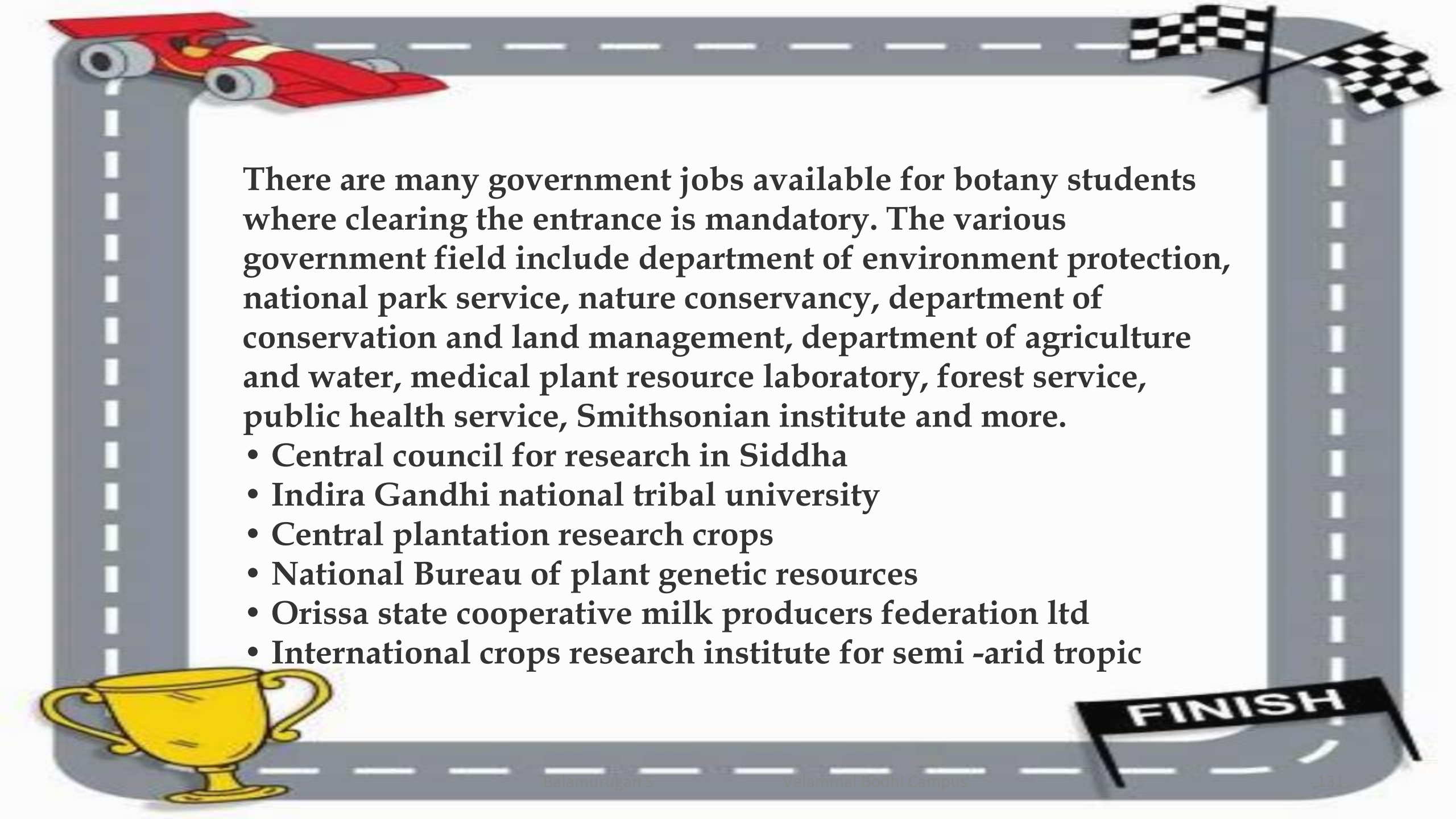
There are many courses which are offered under Botany section where a few of them are Master of Science in Botany, Master of Science in Botany and forestry, Master of Science in herbal science, Postgraduate diploma in Medico botany, and post graduate diploma in plant bio-diversity. The areas of career are promising as botanists these days are dealing with space travel, agriculture, hydroponics, artificial environments and various other research areas. There are also legion of specializations under botany section.

When higher education is considered botany courses can be enrolled in India in all major top colleges and also abroad. There are nearly 186 botany programs available in all leading countries. Some top countries which you can hunt for are Newzealand, London, Scotland, Europe, US, and plenty more countries. Their websites can be glimpsed through to get a clear idea about enrollment, courses and visa process for the botany higher studies.



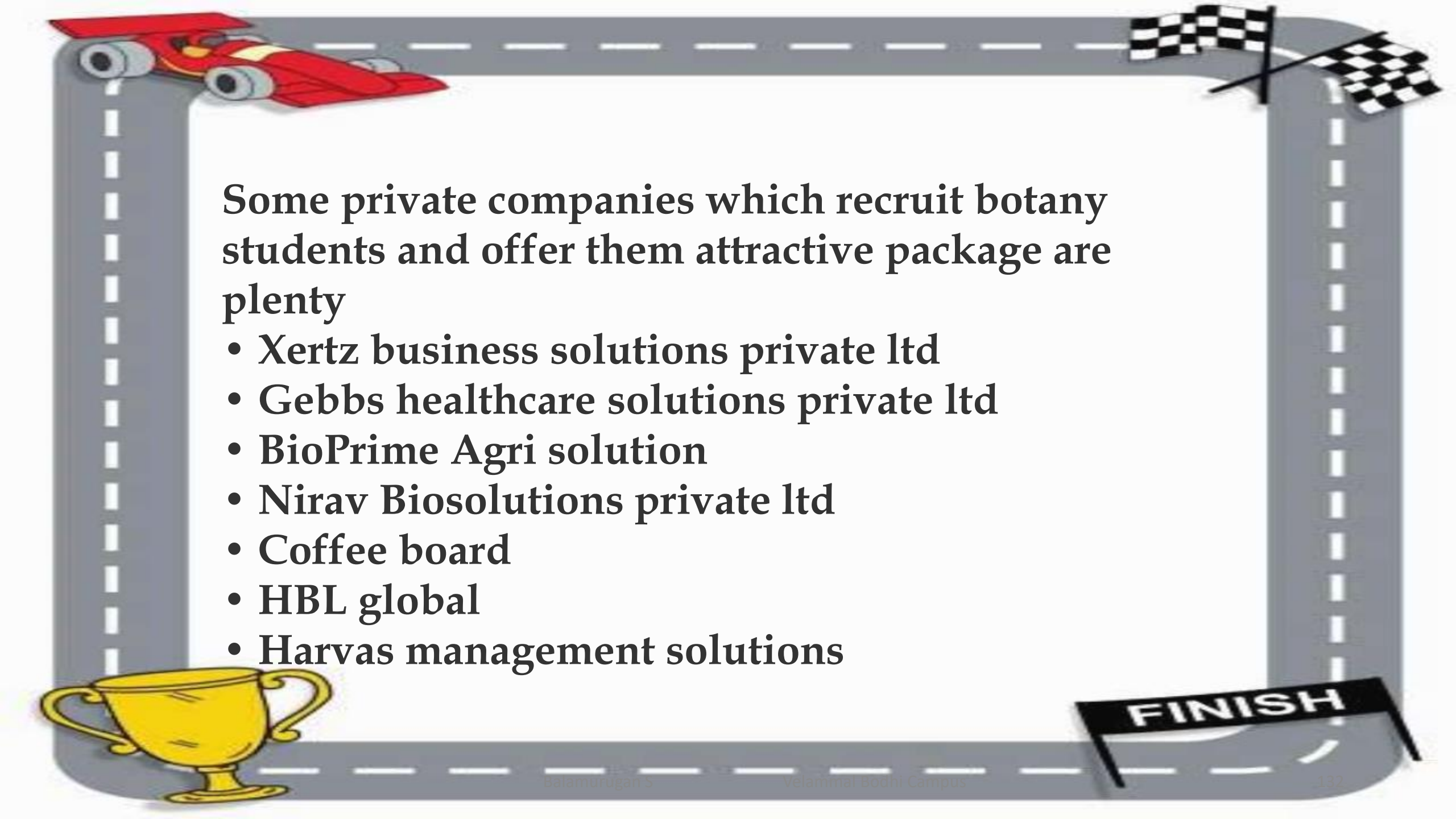


The job roles for a botanist are vast, where a few of them would be as ecologist, horticulturist, molecular biologist, plant pathologist, taxonomist, farming consultant, plant biochemist and variety more. The salary would vary from 18000 to 25000 per month and once experience is gained salary would elevate.



There are many government jobs available for botany students where clearing the entrance is mandatory. The various government fields include department of environment protection, national park service, nature conservancy, department of conservation and land management, department of agriculture and water, medical plant resource laboratory, forest service, public health service, Smithsonian institute and more.

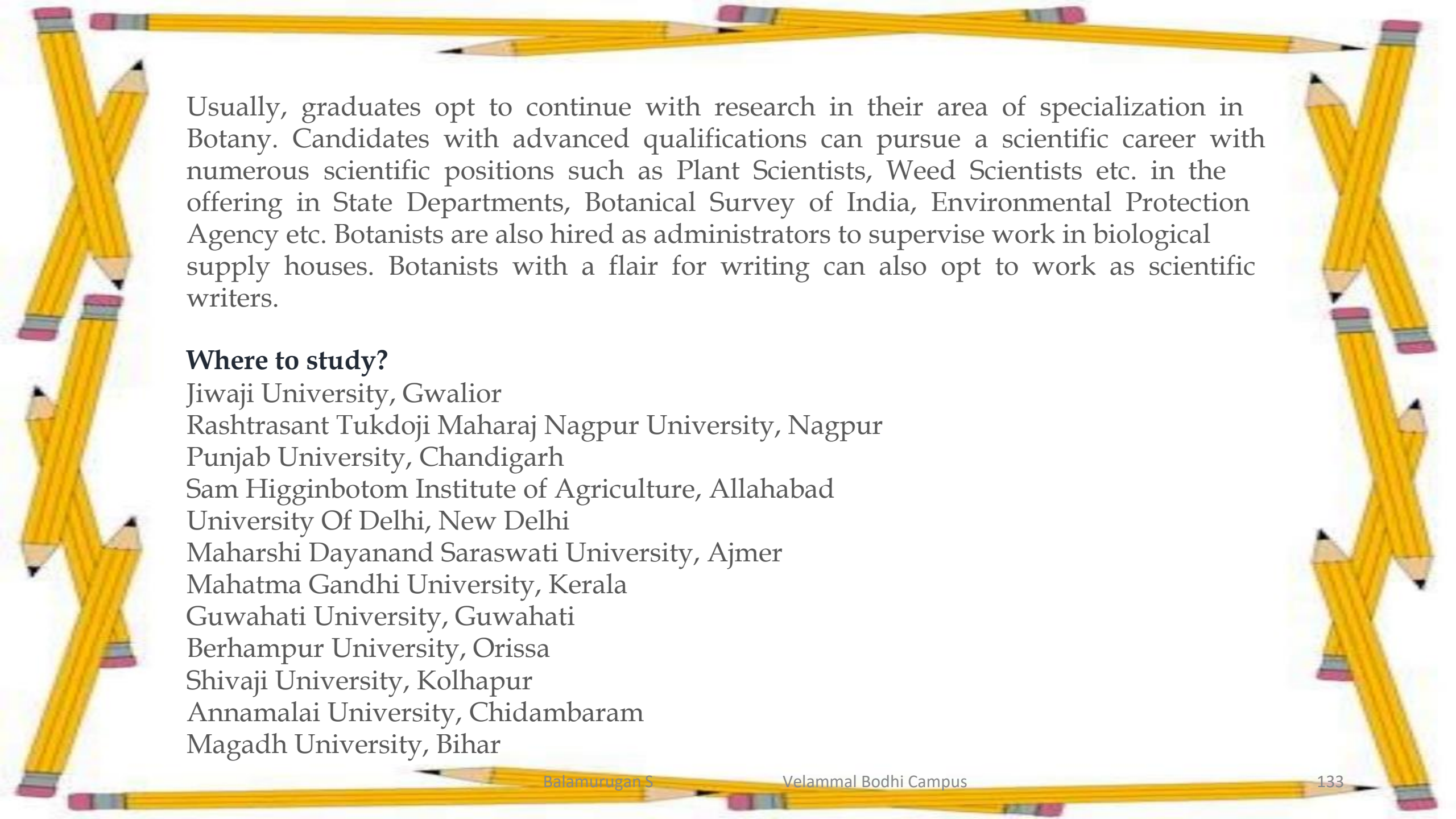
- Central council for research in Siddha
- Indira Gandhi national tribal university
- Central plantation research crops
- National Bureau of plant genetic resources
- Orissa state cooperative milk producers federation ltd
- International crops research institute for semi -arid tropic



Some private companies which recruit botany students and offer them attractive package are plenty

- **Xertz business solutions private ltd**
- **Gebbs healthcare solutions private ltd**
- **BioPrime Agri solution**
- **Nirav Biosolutions private ltd**
- **Coffee board**
- **HBL global**
- **Harvas management solutions**

FINISH

A decorative border of yellow pencils with pink erasers and sharpened tips, arranged in a rectangular frame around the text.

Usually, graduates opt to continue with research in their area of specialization in Botany. Candidates with advanced qualifications can pursue a scientific career with numerous scientific positions such as Plant Scientists, Weed Scientists etc. in the offering in State Departments, Botanical Survey of India, Environmental Protection Agency etc. Botanists are also hired as administrators to supervise work in biological supply houses. Botanists with a flair for writing can also opt to work as scientific writers.

Where to study?

Jiwaji University, Gwalior

Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur

Punjab University, Chandigarh

Sam Higginbottom Institute of Agriculture, Allahabad

University Of Delhi, New Delhi

Maharshi Dayanand Saraswati University, Ajmer

Mahatma Gandhi University, Kerala

Guwahati University, Guwahati

Berhampur University, Orissa

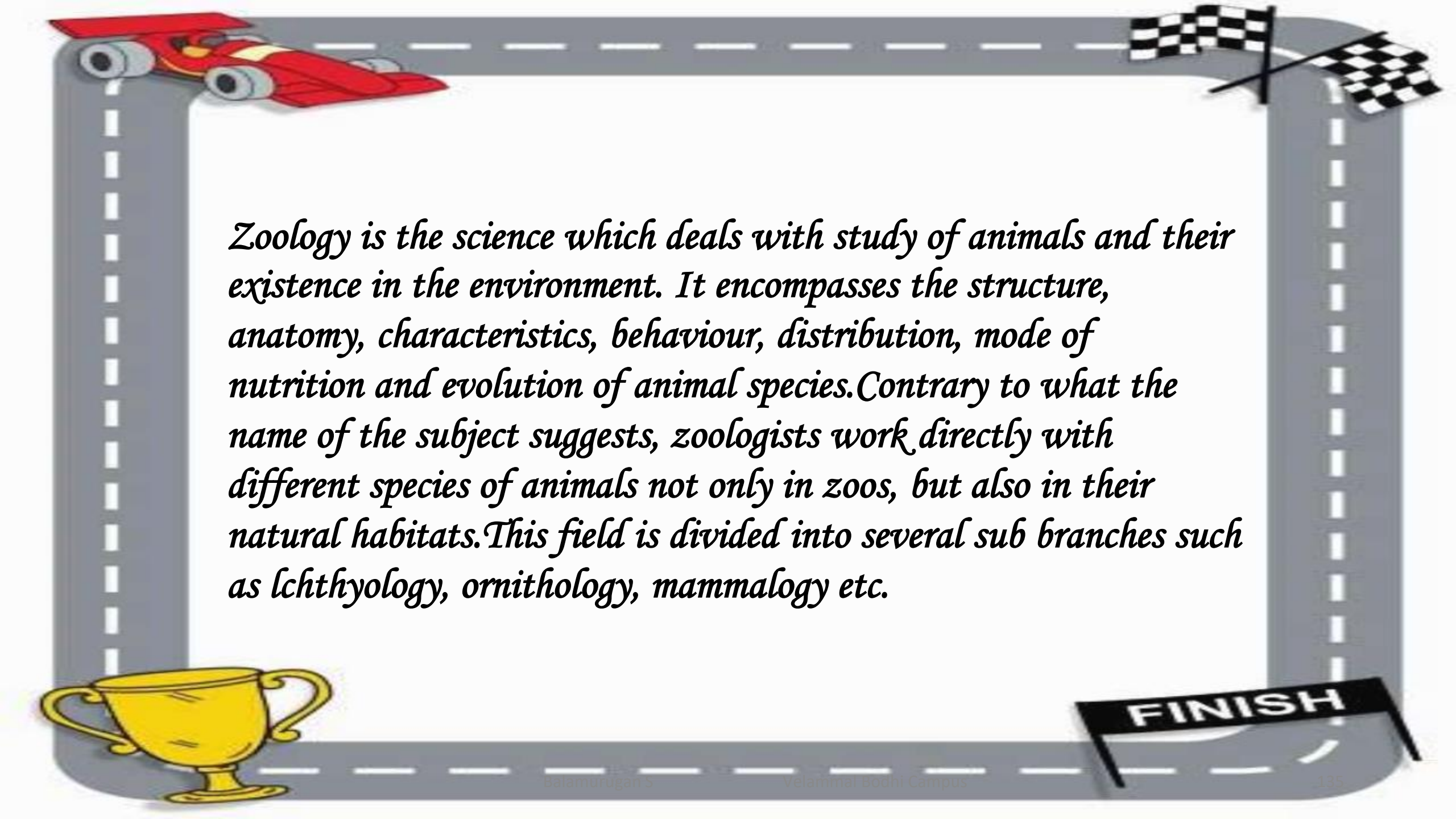
Shivaji University, Kolhapur

Annamalai University, Chidambaram



Magadh University, Bihar

CAREER OPTIONS IN ZOOLOGY



<https://www.wii.gov.in/>



Zoology is the science which deals with study of animals and their existence in the environment. It encompasses the structure, anatomy, characteristics, behaviour, distribution, mode of nutrition and evolution of animal species. Contrary to what the name of the subject suggests, zoologists work directly with different species of animals not only in zoos, but also in their natural habitats. This field is divided into several sub branches such as Ichthyology, ornithology, mammalogy etc.



After a degree in Zoology, it is best to choose a career as per your specialization. For instance, taxonomists are mostly concerned with naming and classification of animal species, physiologists study the metabolic processes of animals and embryologists focus on the early stages of animals. In addition, a zoologist can conduct research about a specific topic related to a particular animal species. They are also recruited as ecological consultants and biological technicians in firms, which also happens to be one of the most demanding jobs in this sector at present. Television channels such as National Geographic, Animal Planet and Discovery Channel also offer opportunities for documentary film making to these specialists.





Where to study?

Acharya Narendra Dev College, New Delhi

Maitreyi College, New Delhi

Deshbandhu College, New Delhi

Sri Venkateswara College, New Delhi

Mumtaz College, Hyderabad

St Alberts College, Kochi

Osmania University, Hyderabad

Kirori Mal College, New Delhi

Moulana Azad College, Kolkata

Isabella Thoburn College, Lucknow

I can.
I will.
End of story.



THANKS TO
A VERY
SPECIAL
PERSON