RANI CHANNAMMA UNIVERSITY, BELAGAVI

WEL-COME

TO THE COURSE STRUCTRE AND SYLLABUS OF UNDERGRADUATE PROGRAMMES – B.Sc

I Semester

w.e.f.

Academic Year 2017-18 Onwards

B.Sc
I – Semester

Group – I

1. BASIC – ENGLISH

Detailed Syllabus for B.Sc. / B.Sc. Comp. Sc. / BCA / B.Sc. in CCJ
(With effect from 2016-17 onwards)
Semester I: Basic English
Teaching Hours: 5 per Week

I Text: Prose

1) Science and Religion - S. Radhakrisnan
2) Time to Ignite the Minds of the People - APJ Abdul Kalam
3) The Portrait of a Lady - Khushwant Singh
4) The Coffee House of Surat - Leo Tolstoy
5) Good Manners - J. C. Mill

Poetry

1) Delhi - R. Parthasarathy
2) The Purdah Nashin - Sarojini Naidu
3) Mirror - Sylvia Plath
4) No Second Troy - W. B. Yeats
5) To Blossoms - Robert Herrick

II Grammar and Communication Skills

A) Use of Articles
B) Use of Prepositions
C) Transformation of Sentences
   a) Remove too… to/use so… that (vice versa)
   b) Remove if/use unless (vice versa)
   c) Remove As soon as/use No sooner…than (vice versa)
   d) Change the assertive sentence into exclamatory sentence without changing the meaning (vice versa)
   e) Change the degrees

D) Communicative Skills
   a) Introducing: Self Introduction and Introducing the chief-guest /principal/president/family member/friend

b) Report writing (Tour, Project, News, functions, seminars, accident earthquake, and flood)

c) Welcome address and Vote of Thanks

d) Dialogue writing

Pattern of Question Paper

(80 Marks paper of three hours and 20 Marks for I.A)

1) Objective type questions (5 from Prose and 5 from Poetry)	10X1=10
2) Reference to Context (One from Prose out of two and one from Poetry out of two)	2X5=10
3) Essay type question on Prose (one out of two)	1X10=10
4) Essay type question on Poetry (one out of two)	1X10=10
5) Short Notes (One from Prose and One from Poetry out of four)	2X5=10
6) A) Use of Articles and Prepositions (2 for articles and 3 for prepositions)	5X1=05
B) Transformation of Sentences	5X1=05
C) Report Writing	5X1=05
7) A) Introducing	1X5=05
B) Welcome and Vote of Thanks	1X5=05
C) Dialogue Writing	1X5=05
	80

Additional English:

Detailed Syllabus for B. Sc. / B. Sc. Comp. Sc. / B. C. A. / B. Sc. In CCJ 1st Year

Semester – I
MIL : Additional English
(With effect from 2016-17 onwards)

Teaching Hourse: 5 Hours per Week

(80 Marks paper of three hours) (20 Marks for I.A)

Text: Seven One-Act Plays (Ed), K.S. Ramamurthy: OUP
Only the following plays are to be studied.

1. The Seven Slaves - A. Ball
2. One Good Turn – A.E.M. Bayliss
3. Night Watches – Allan Monkhouse
4. The Unexpected – Ella Adkins
5. Sunday Costs Five Pesos – Josephina Niggli

Grammar and Composition

Modals (Making Sentences using Modals)
Sentence Linkers (Making Sentences using Linkers)
Use of words, phrases and idioms
Describing a situation (Marriage, Birthday, Local fair, temple festivals, national festivals, Funerals etc.)

Pattern of Question Paper
(80 Marks per paper of three hours and 20 Marks for I.A)

1) Objective type questions on the play	10X1= 10
2) Reference to Context	2X5=10
3) Essay type question on the plays (one out of two)	1X10 =10
4) Essay type question on the plays (one out of two)	1X10=10
5) Short Notes on the plays (two out of four)	2X5=10
6) A) Modals Make sentences using given modals 5 out of 7	1X5 = 05
B) Sentence Linkers	
Make sentences using given sentence linkers 5 out of 7	1X5 = 05
7) A) Use of words, phrases and idioms	
(3 Marks for Use of Words, 3 Marks for Phrases and	
4 marks for Idioms and Phrases)	10X1=10
B) Describing a situation (about 200 words)	1X10=10

2. BASIC – KANNADA

ಸಾಹಿತ್ಯ ಕೌಮುದಿ
ಬಿ.ಎಸ್ಸಿ. ತರಗತಿಗಳಿಗೆ ಮೊದಲ ಸೆಮಿಸ್ಟರ್
ಕನ್ನಡ ಆವಶ್ಯಕ ಪತ್ರಿಕೆ
೨೦೧೬–೧೭ ರಿಂದ

(ಒಟ್ಟು ಪಾಠದ ಅವಧಿ ೮೦ ಗಂಟೆಗಳು. ವಾರಕ್ಕೆ ೦೫ ಗಂಟೆಗಳ ಪಾಠ, ಒಟ್ಟು ಅಂಕಗಳು ೧೦೦. ಆಂತರೀಕ ಗುಣಾಂಕಕ್ಕೆ ೨೦ ಅಂಕಗಳು (ಹಾಜರಾತಿಗೆ ೦೪, ಮೊದಲ ಕಿರು ಪರೀಕ್ಷೆಗೆ ೦೪, ಎರಡನೆಯ ಕಿರು ಪರೀಕ್ಷೆಗೆ ೧೦, ನಿಯೋಜಿತ ಕಾರ್ಯಕ್ಕೆ ೦೩ ಅಂಕಗಳು) ಹಾಗೂ ಥಿಯರಿ ಪರೀಕ್ಷೆಗೆ ೮೦ ಅಂಕಗಳು.)

ಪರಿವಿಡಿ

೧. ಸಾಮಾನ್ಯ ನೀತಿ	– ಸೋಮೇಶ್ವರ ಶತಕ
೨. ಇಳೆಯಾಂಡಗುಡಿಮಾರರ ರಗಳೆ	– ಹರಿಹರ
೩. ಆವೆಡೆಯೊಳಿರ್ಪೆಯೋ ಮಲ್ಲಯ್ಯ	– ರಾಘವಾಂಕ
೪. ಮಾನಗೇಡಿ ಮಂದಿ	– ಕಡಕೋಳ ಮಡಿವಾಳ
೫. ಕನ್ನಡ ಪದಗೋಳ್	– ಜಿ. ಪಿ. ರಾಜರತ್ನಂ
೬. ಚೌಪದಿಗಳು	– ದಿನಕರ ದೇಸಾಯಿ
೭. ಕಟ್ಟುವೆವು ನಾವು	– ಎಂ.ಗೋಪಾಲಕೃಷ್ಣ ಅಡಿಗ
೮. ನನ್ನ ಅವತಾರ	– ಶಶಿಕಲಾ ವೀರಯ್ಯ ಸ್ವಾಮಿ
೯. ಗರತಿಯ ಹಾಡುಗಳು	– ಜಾನಪದ
೧೦. ಕೊನೆಯ ಗಿರಾಕಿ	– ನಿರಂಜನ
೧೧. ಮೂಢ ನಂಬಿಕೆಗಳು	– ರಾ. ಯ. ಧಾರವಾಡಕರ
೧೨. ಅಕ್ಕರೆಯ ಮೂರ್ತಿ	– ಪಿ. ಲಂಕೇಶ
೧೩. ವಿಜ್ಞಾನವೆಂದರೇನು?	– ಜಿ. ಹಣುಮಂತರಾವ್
೧೪. ಜಾನಪದ ಚಕಿತ್ಸೆಗಳು	– ಸಿಂಪಿ ಲಿಂಗಣ್ಣ
೧೫. ನ್ಯಾನೊ ತಂತ್ರಜ್ಞಾನ	– ಜೆ. ಆರ್. ಲಕ್ಷ್ಮಣರಾವ

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3. BASIC – MARATHI

Syllabus prescribed for B.Sc is applicable to B.C.A and B.Sc C.S.

B.Sc Semester I

Basic Marathi
(With effect from 2016-17 onwards)

Course: Literary Form: Short Story

Text: Nagamandal: Aruna Dhere
(Excluded Stories: 1. Khel: M M Karnik. 2. Bhujang: M M Karnik.
3. Sarp: G A Kulakarni)

Suresh Agency, Pune

4. BASIC – ARABIC

SYLLABUS OF ARABIC SUBJECT

BSc. First Semester

Arabic Basic

(With effect from 2016-17 onwards)

Paper : Prose, Poetry and History of Arabic Literature
Scheme of teaching : 5 hours per week
Prescribed Text Books

1. **Al-Qiratul Wadhiha Part-I Prose**
   Following Lessons.
   1.Al quranul kareem. 2.Allahu Rabbi. 3. Tiflatun wa Usfoorun
   4.Qasrun Jameelun. 5. Al qitaaru. 6. Dukaanul khuzari
   By:Waheeduz.zama Al-Kiranvi.Pub.By:Maktaba Husainia
   Deoband (U.P)

2. **Al-Qiratur Raashidah (Poetry)**
   Following Poems
   1. AnNamlatu. 2. AtTaairu. 3. Tarneematul waladi fisSabah
   4.Tarneematul Lail 5.shar run wa khairun
   By: Abul Hasan Ali Nadvi. Pub.By:Nadvatul ulama Lucknow (U.P)

3. **Tareekh Adab-e-Arabi**
   Chapter No.I pahli fasl, dosri fasl
   By: Dr.syed tufail Ahmad madaniPub.By:Deccan Traders Book Seller & Publisher 23-2-378, Moghalpura, Hyderabad. (A.P)

4. **The Holy Quraan.** Pub.By:Taj Company Mumbai
   Sura-Wadduha.

The question paper should be broadly based on the following pattern.

1)	Multiple choice from first and second text	10x1	=	10
2)	Summary from first and second text with choice	2x7½	=	15
3)	R.C. from first and second text with choice	3x5	=	15
4)	Appreciation of verses from second text 3 out of 5	3x5	=	15
5)	Question from third text with choice	2x7½	=	15
6)	Question on Sura	1x10	=	10

				80

5. BASIC – URDU

B.Sc First Semester Urdu-Basic(MIL)

(With effect from 2016-17 onwards)

Paper-I. Prose, Poetry and Essays

Scheme of teaching:- Duration- 16 Weeks- 5hours per Week

Prescribed text books.

Detailed Text

	by
I. Zouqey Adab(Vol 1) (Part 1)	Prof. M.N Saeed. Pub. By Hamim Pulishers 3, 1st floor, Lal Masjid Building Shivaji Nagar, Bangalore-51.

Non-Detailed Text:

	by
II. **Jaded Ilme Science**	Wazarat Hussain
(First 2 lessons only) (Page 5 to 75)	Pub. By Educational BookHouse Aligarh-202002.

Scheme of Examination (I & II Semester)

Total Marks – 100(Theory-80 Marks + Internal Assessment 20- Marks

a) Each Paper of 100 Marks shall carry 20 Marks Internal Assessment out of 20 Marks , 4+10 shall be for semester test and remaining 3+3 shall be for H. Assignment & Attendence.
b) In each paper 2 test shall be conducted for the award of Internal Assessment Marks, first test of 1 hour duration for maximum of 20 marks reduced to 4, shall be conducted in 8^{th} week . Second test in 12^{th} week of respective semester of maximum 80 marks & of 3 hours duration then reduced to 10 marks.

The question paper should be broadly based on the following pattern. (I & II Semester)

1. Multiple Choice questions from Detailed and N.D text. 10 * 1 = 10
   (10 out of 10)

Detailed text (Prose & Poetry)

2. Essay type question on Prose (1 out of 2) 1 * 10 =10
3. Question on reference to the context 4* $2^{1/2}$ =10
   (4out of 6)
4. Summary of the Poem (1 out of 3) 1 * 10 =10
5. Appreciation of verses from Gazals (4 out of 6) 4 * $2^{1/2}$ =10

   Non-Detailed text
6. Essay type question 2 * 10 = 20
   (1 out of 2)
7. Short Notes (2 out of 4) 1 * 10 = 10

6. BASIC – SAMSKRIT

(With effect from 2016-17 onwards)

Bsc Part –I **Basic – Samskrit** **First Semester**			
Teaching Hours		:	5 Hours per week
Exam Marks		:	80+20=100 of 3 hours Duration
Text : हितोपदेश : [मित्रलाभः] (Eight Short Stories) Samaja Pustakalaya Dharwad			
1.	मित्रलाभः (Eight Short Stories)	:	70 Marks
2.	Grammer (पुल्लिङ्ग शब्दाः)	:	10 Marks
3.	Internal Assessment	:	20 Marks
	1. Internal Test – 14 2. Assignment, Class Records Skill – Development – 06	:	
	Total	**:**	**100 Marks**

Bsc Part –I

Basic – Samskrit

Question Paper Pattern

First Semester

1.	New Type Questions [Fill in the blanks]/ Select correct answer (any ten out twelve)	10 Marks
2.	a) Translate & Explain (any three out of five) Stanza b) Translate prose (any one out of two)	15 Marks 05 Marks
3.	Explain with reference to context (any three out of five)	12 Marks
4.	Short notes (any two out of four)	08 Marks
5.	Answer the following question (any two out of three)	20 Marks
6.	Grammar (Masculine genders)	10 Marks
	Total	**80 Marks**

7. BASIC – PERSIAN

Teaching Hourse: 5 Hours per Week

Prescribed textbook
Following portion only
Manzumate-Aqlaque
Bahaar Mashadi, Ustad Betaab & Arif Quizwani.
Textbook
Shukhan-E-Naw(Part-II) by Manzoor Ahmed Khan
Pub:-Educational book house Aligarh.

Scheme of Examination

1. Total marks-100 Theory -80 marks Internal test Assessment 17 and attendance 3 marks=20.

2. In each paper two tests shall be conducted for the award of Internal Assessment marks, and each of one hour duration for a maximum of 20 marks reduced to 17 later. First test shall be conducted in 8th week and 2nd test in 12th week of respective semester. The Average marks obtained in the two tests for 17 marks shall be taken as final Internal Assessment Marks test component.

Scheme of Examination

Q1.Multiple choice questions	1*10=10
Q2.Essay type questions from the text	3*05=15
Q3.Questions on R.C from the text	3*05=15
Q4.Translation & Explanation from the text	3*05=15
Q5.Summary of the Passage/Poem from the text with choice	1*15=15
Q6.Short notes with choice (On the history of Persian Literature)	2*05=10

8. BASIC - HINDI

Syllabus of B. Sc/BCA I Semester
Hindi Basic 2016-17 onwards

Teaching hours per week:	05 hours	Total Marks:	100 Marks
Examination:	03 hours	Theory:	80 Marks
		Internal Assessment:	20 Marks

Text Books:

1. अभिनव कथा भारती–सं. चक्रधर, सुमित्र प्रकाशन, इलाहाबाद
2. व्याकरण– (विकारी शब्द– संज्ञा, सर्वनाम, विशेषण, क्रिया)
3. अपठित रचना

Distribution of Marks

अभिनव कथा भारती – 55 अंक
व्याकरण – 15 अंक
अपठित रचना – 10 अंक

A	Objective Type Questions (10 out of 14)	10 Marks
B	Annotations from Text Book (3out of 5)	15 Marks
C	Essay Type of Questions from Text Book (2 out of 4)	20 Marks
D	Short Notes from Text Book (2out of 4)	10 Marks
E	Grammar	15 Marks
F	अपठित रचना (Comprehension)	10 Marks
	Theory total	80 Marks
	Internal Assessment	20 Marks
	Total	100 Marks

Reference Books:

१. प्रेमचंद और जनवादी साहित्य की परम्परा – कुंवरपाल सिंह
२. हिंदी कहानी का इतिहास– गोपाल राय –
३. हिंदी कहानी एक अन्तर्यात्रा– रामदरश मिश्र
४. हिंदी कहानी का विकास– मधुरेश
५. साठोत्तरी हिंदी कहानी में पात्र और चरित्र चित्रण – डॉ. रामप्रसाद
६. हिंदी कहानी पाठ और प्रक्रिया– सुरेंद्र चौधरी
७. आज की कहानी– विजय मोहन सिंह
८. व्याकरण प्रदीप– राजदेव
९. आधुनिक हिंदी व्याकरण रचना– डॉ. वासुदेवनंदन प्रसाद
१०.आधुनिक हिंदी व्याकरण का स्वरूप– डॉ. भारती खुबलकर
११. चक्रधर की साहित्यधारा– मार्कडेंय

Group – II

OPTIONAL / COMPULSORY SUBJECT FOR THE DEGREE IN SCIENCE SUBJECTS

Science Subjects: (any three subject of equal importance to be chosen as per the grouping given by Rani Channamma University, Belagavi)

DETAILED SYLLABUS OF FOLLOWING PAPERS WITH PRACTICALS

1. MICROBIOLOGY (Optional)

SYLLABUS FOR THE ACADEMIC YEAR 2017-18 ONWARDS

SEMESTER- I

PAPER - GENERAL MICROBIOLOGY

Total Hours Allotted: 50

Unit-1 Introduction

Microbes and origin of life, History, Scope, Branches.Contribution of Scientist to the field of microbiology .Antony Van Leeuwenhoek, Edward Jenner, LazanSpallanzani, Louis Pasteur, Joseph listyer, Robert Koch, Alexander Fleming and Iwanowsky.

10 -Hours

Unit-2Taxonomy

Heakels three kingdom of classification, Whittaker's Five kingdom of classification-Monera, Protista, Fungi, Mycota, Planate&Animalia. Different trends in classification ofMicroorganisms. Principles and methods of classification.

8-Hours

Unit-3 Characteristics of Prokaryotic and Eukaryotic cells.

Size**,** Shape, arrangement, cell wall, cell membrane, ultra structure of cell organelles.

7- Hours

Unit-4 Microbial structure and Organization.

General characters**,**Classification, Morphology, Cultivation, Reproduction and significance of: i) Rickettsia ii) Chlamydia iii) Mycoplasma iv) Actinomycetes

10 hours

Unit-5Composition of 3- domain of organisms

Structure of Archae ,Bacteria ,Eukarya

7-Hours

Unit6 Viruses. Early developments of virology , Principles of viral taxonomy , General structure and properties of viruses -Bacteriophage (T4)Plant viruses (TMV) Animal viruses (Herpes Virus) .Prions and Viriods – Nature and significance

4-Hours

Unit 7

Distribution of microorganisms in air, water, soil and their significances.

4- Hours

PRACTICALS-1.2General Microbiology

1. Laboratory Safety: General rules and regulations.
2. Study of compound microscope- Construction, working, principle, care to be taken while using the microscope. Use of oil immersion objective
3. Study of aseptic techniques-preparation of cotton plugs for test tubes and pipettes, wrapping of petri-plates and pipettes, transfer of media and inoculums.
4. Study of Bacterial motility by hanging drop method.
5. Counting of Yeast cells And Fungal Spores by Haemocytometer.
6. Isolation of microorganisms from Air, water and Soils and studying their characteristics.
7. Micrometery

REFERENCES:

1. Atlas.R.M. “Microbiology- Fundamental and Applications” Mac Millian Publishing company New York.
2. Cappucino J.C. And Shermani. N-1999 Microbiology- A laboratory manual, AdelosonWessey.
3. Colowod, D 1999, “Microbial Diversity” Academic Press.
4. Edward Aleam T.1997 “ Fundamentals of Microbiology”-5thEdn, AdilsonWeselyLongaman Inc. New York.
5. Madigan M.T. and Martinoko J.M. and Parker, J-1997 “ Biology of Microbiology “ 8thedn, McGraw Hill Inc New York.
6. Powar and Daginwala-1994 “Microbiology” –Vol.I and II Himalaya Publication, New York.
7. Salle. A.J. “Fundamentials Principles of Bacteriology” Tata McGraw Hill Publication Company Ltd.New Delhi.
8. Sullia S.B and Shantaram S.1998” General Microbiology” Oxford and IBH Publishing Co Pvt. Ltd. New Delhi.

2. PHYSICS (Optional)

(With effect from 2017-18 onwards)

Physics 1.1: **MECHANICS AND PROPERTIES OF MATTER. (Total Hours: 50)**

SUBJECT CODE: 17BSCPHYT11

UNIT I

SHM

Differential equation of linear SHM. Energy of a particle, potential energy and kinetic energy (derivation), composition of two rectangular SHM's having same periods, Lissajous figures.
Problems.

(3 + 1 = 4 hours)

Linear momentum

Concept of frames of reference. Laws of conservation of Linear Momentum for a System of particles. Elastic Collision between two particles in Laboratory and Center of Mass frames of references. Inelastic collision between two particles in Laboratory and Center of Mass frames of references(without derivation).
Conservation of Linear Momentum in case of variable mass. Derivation of equation of motion for Single Stage Rocket
Problems.

(5 + 1 = 6 Hours)

UNIT II

Angular momentum for system of particles*:*
Angular Momentum and torque, Conservation of angular momentum, central force, Kepler's Second Law(derivation*)*. Spin, Orbital and Total Angular Momentum.
Problems.

(3 + 1 = 4 Hours)

Conservation of energy and elements of satellite motion:

Conservation of energy as a basic principle including mass – energy (qualitative). Simple harmonic oscillations of a Light Spiral Spring (illustration with derivation).
Derivation of velocity (orbital velocity and escape velocity) in Closed and Open orbit in a central field, Escape velocity of a satellite: stationary satellites, weightlessness.
Problems

(5 + 1 = 6 hours)

UNIT III

Rigid body dynamics

Moment of inertia and its physical significance. Derivation for theorems of moment of inertia. Derivation of expression for moment of inertia of rectangular lamina, thin Uniform rod, Circular disc.

Qualitative discussion on Moment of Inertia of Annular ring ,hollow and solid cylinders. Theory of bar pendulum and compound pendulum. Experimental determination of Moment of inertia of Fly wheel with relevant theory.

Problems

(8 + 2 = 10 hours)

UNIT IV

Elasticity

Moduli of elasticity of isotropic materials and relation between three moduli of elasticity (derivation). Poisson's Ratio, bending of beams, expression for bending Ratio. Expression for bending moment (derivation). Theory of Light cantilever and loaded at the free end and at the center. Expression for couple per unit twist, torsional pendulum.

Problems

(9 + 1 = 10 hours)

UNIT V

Surface tension

Introduction to surface tension, derivations for Pressure difference across a curved liquid surface and expression for rise of liquid in a capillary tube.

Determination of surface tension by Quinke's method with relevant theory.

Effect of temperature and impurity on surface tension.

Problems

*(*4 + 1 = 5 hours)

Viscosity

Introduction to viscosity, streamline and turbulent flow. Derivation of Poiseuelli's formula for the flow of viscous fluid through a narrow tube . Motion of body in a viscous medium-Stoke's law with derivation and expression for terminal velocity example: velocity of rain drop.

Problems

(4 + 1 = 5 hours)

PHYSICS 1.2 : LAB – I

SUBJECT CODE: 17BSCPHYP12

LIST OF EXPERIMENTS

1. Bar pendulum.
2. Flat spiral spring.
3. M.I. of Fly wheel.
4. Rigidity modulus – Torsional Pendulum.
5. Verification of parallel and perpendicular axes theorems of M.I.
6. Young's modulus (Y) by uniform Bending – load Vs depression graph.
7. Young's modulus (Y) by cantilever - load Vs depression graph.
8. Surface tension by Quincke's method.
9. Coefficient of viscosity by Stoke's method.
10. Radius of capillary tube by mercury pellet method.

NOTE:

1. Experiments are of four hours duration.
2. Minimum of eight experiments to be performed.

REFERENCE BOOKS:

1. Mechanics - D.S.Mathur
2. Mechanics - J.C.Upadhya.
3. Properties of Matter- D.S.Mathur
4. Properties of Matter- Brij lal and Subramanyam.
5. Physics (Vol - I) – Resnick and Halliday.
6. Berkeley Physics (Vol - I).

3. GEOLOGY (Optional)

SYLLABI FOR B.SC.I & II SEMESTER GEOLOGY (OPTIONAL)

2017-18

S. No.	Paper Code	Title of the Paper	Marks			Exam Time	Inst. Hrs/ week
			Theory/ Practical	Internal	Total		
	B.Sc Semester I						
1.		DYNAMIC GEOLOGY, CRYSTALLOGRAPHY & FIELD GEOLOGY	80	20*	100	3 hrs	4
2.		PRACTICAL : STUDY OF TOPOSHEETS, GEOMORPHOLOGICAL MODELS & CRYSTAL MODELS	40	10**	50	4 hrs	4
	B.Sc Semester II						
3.		MINERALOGY & OPTICAL MINERALOGY	80	20*	100	3 hrs	4
4.		PRACTICAL: MINERALOGY & OPTICAL MINERALOGY	40	10**	50	4 hrs	4
*Theory Internal 20 marks covers: Two theory tests in each semester; AND **One Practical internal test of 10 marks in each semester.							

a) **Student batch**: As this is a semi technical and at present available only at GSS College, each batch should consist of not more than 10 students for the regular practical classes.

b) **Study Tour**: There will be a Geological Study Tour to the places of geological interest mainly to study the field occurrence of geological features during each SEMESTER. It carries weightage in the final practical marks. Each student shall submit a consolidated study tour report along with the journal.

c) **Practical Record:** Submission of a well-maintained Journal of the Practical Work done during the semester is necessary before the Practical Examination.

d) A**ssignments**: The students will be given assignments, which are to be submitted before the 2nd Internal Test examination.

e) **Attendance:** All the students need to attend and maintain 75% minimum.

All this carries 10 marks including viva-voce.

OBJECTIVES: Introduce the ward to the geological processes, earth resources, our natural environment and the human interactions from a geological perspective. Topics to be covered will include; Earth Materials and Structure, Human interactions with nature, Environmental Hazards, Pollution of the Environment, Natural Resources, Energy Sources and their exploitation. Through these objectives the students will achieve the following know how:

- Develop the understanding of earth and its material.
- Develop greater self-awareness of personal role regarding environmental issues.
- Increase awareness of environmental issues and how they affect society.
- Develop skills and insight into critical thinking and situational awareness of surrounding environment.
- Gain an understanding of the physical processes that operate in and on earth.
- Understand the interactions between humans and the geological processes.
- Understand past, present, and future environmental issues and how they affect the earth and our society.

NATURE OF THEORY AND PRACTICAL EXAMINATION

a) Theory Examination: (Total 100 Marks)

i) There will be one theory paper of 80 marks in each semester.

Each paper will contain THREE Sections, which are to be written in the same answer book.

PART A: TWELVE Questions (Definitions/two sentence answers) numbered l-12, each of 2 marks. Students need to answer ANY TEN questions. (2x10 = 20 Marks)

PART B: SIX Questions (Short answers) numbered as 13,14,15,16,17 & 18. Each of FIVE marks students need to answer ANY FOUR questions (4x5 = 20 Marks)

PART C: FIVE Questions (Descriptive answers) numbered 19,20,21,22 & 23. Each of TEN marks, students need to answer ANY FOUR questions (4x10 = 40 Marks)

ii) The remaining 20 marks are allotted for Internal Assessment Marks – of 1 hour 15 minutes **for two internal tests** in theory.

a. Two internal tests of 20 marks each reduced to 10 marks.
b. Internal Assignment/Seminars/Student project work/Viva-voce (10 marks): Students are given assignments/seminars on the subject taught or a student project work.

b) Practical Examination: Total 50 Marks.

a. Practical examination will have 3 or 4 Questions of **30 marks**.
b. Practical Record (Journal), Field study tour report and Viva Voce carry (**10 marks**).
c. Practical Internal test: One internal test of 20 marks reduced to 10. (**10 marks**).

B.Sc (GEOLOGY OPTIONAL) SEMESTER I

DYNAMIC GEOLOGY, CRYSTALLOGRAPHY & FIELD GEOLOGY

Max. Marks: 80 **Total teaching hours: 50 (4 hrs/week)**

UNIT	TOPIC	Hrs
	A. DYNAMIC GEOLOGY	
I	**Introduction:** Definition of Geology, branches of geology, role of geology in the development of mankind.	10
	Origin of Earth: Nebular– Planetesimal hypotheses; Big bang theory, cooling and consolidation of earth.	
	Interior of Earth: Interpretation of interior of earth using seismic waves, Mohorovicic and Gutenberg discontinuities. General description of Crust, Mantle and Core.	
	Geological Agents: Epigene and Hypogene agents. **Epigene agents:** atmospheric- heat, gases, moisture, surface-subsurface water, sea water, wind and ice. **Hypogene agents**: Internal heat, hydrothermal solutions, magma.	
	Isostacy: Pratt's and Ary's hypotheses. **Seafloor Spreading, Continental Drift Theory and Plate Tectonics:** Wegener's Theory of Continental Drift. Mid Oceanic Ridges, Convection currents, Constructive and Destructive plate boundaries (Divergent, Convergent and Transform)	
II	**Weathering**: Definition, agents of weathering- Physical, Chemical and Biological. **Physical weathering**: frost action (wedging and heaving); thermal weathering- spheroidal weathering (exfoliation); action of gravity- scree, talus, **Chemical weathering:** Water as a chemical agent. Oxidation, hydration and carbonation. **Biological weathering**: Action of plants, animals and man. Products of weathering-formation and types of soil.	10
	Wind : Geological action of wind- erosion, transportation and deposition **Erosion and Erosional features**- deflation- winnowing action, oasis, playas. Abrasion- ventifact, pedestal rocks, yardang, pinnacles/ inselberg. Attrition- millet seed sand. **Transportation**- Suspension, saltation, traction/rolling. **Deposition a nd depositional features**: sand dunes- longitudinal, transverse dunes, barchans and loess deposit.	
	Coastal Processes: Definition of Coast. Types of Coasts. Shoreline of Emergence & Subsidence. Waves and Tides. Geological work of Sea waves – Erosion, Transportation and Deposition. Coastal landforms - Island, Beach, Estuary, Bay, Cliffs, Longshore Bar, Spit, Barrier and Fore dunes.	

III	**River**: Origin of River. **Stages of River**: Initial stage, Youth stage - water fall, cascade, and river capture/piracy; Valley -V-shape valley**,** vertical cutting; canyon/gorge; pot hole; Mature stage- lateral cutting, meandering, oxbow lake, natural levee, flood plain, alluvial fan; and Old stage- base level of erosion, and delta. **Geological action of River-** erosion: hydraulic action- abrasion, attrition, corrosion; Transportation: solution, suspension, saltation and rolling. Formation of river terraces and their types.	**10**
	Glacier: Definition, snow field, snow line, neve/fern. Movement of glaciers, types of glaciers – valley glacier, piedmont glacier, ice sheet. **Surface features:** Crevasses, types of crevasses – bergshrund, longitudinal, transverse and marginal. **Geological action of Glacier:** erosion – abrasion, excavation/valley plucking, frost wedging and scraping; Erosional features- cirque/corrie, arête, horns, U-shape valley, hanging valley, rochesmoutonnee. **Deposition** – depositional features: moraines- lateral, medial, terminal/end, ground moraines, tillite, erratic/perched block. **Glacio-fluvial deposits**- Outwash plain, kettle hole, kames, drumlins, eskers.	
IV	**Volcano:** Definition – typical volcano. Classification of volcanoes: active, dormant and extinct. **Types of eruptions**: fissure and central eruptions. **Products of volcano**: liquid (lava), solid (cinder, lapilli, volcanic bombs, áá, ash) and Gases. Effects of volcano.	**10**
	Earthquake: Definition – focus and epicenter. Seismic waves: body (P & S) and surface waves (Love & Rayleigh); Causes- non tectonic (volcanic, landslides, explosions) and tectonic: elastic rebound theory; classification based on depth of epicenter; intensity: Mercali and Richter scale; seismograph and seismogram; seismic belt of India; effects of earth quake & tsunami; and prediction of earthquakes.	
V	**B. CRYSTALLOGRAPHY**	**10**
	Definition of crystal, morphological characters of crystal – face, form, edge, solid angles, Euler's law. Interfacial angle, Contact Goniometer and its use. Symmetry characters– Plane, axes and centre. Crystallographic axes, axial ratio and notation. Parameters- Weiss parameter, Miller indices. Study of crystal forms of normal classes of all six crystal systems- 1) Isometric, 2) Tetragonal, 3) Trigonal, 4) Hexagonal, 5) Orthorhombic, 6) Monoclinic and 7) Triclinic.	
	C. FIELD GEOLOGY	
	Geological Equipments: Brief introduction to - Toposheet, Hammer, Hand lens, Clinometer and Brunton Compass. Global Positioning System. **Geological Field Report:** Aims and Objectives, Introduction, Study Area, Accessibility, Climate, Geology of the area, Methodology, Results, Discussions, Conclusion, Bibliography and Appendix.	

PRACTICAL

GEOMORPHOLOGY, CRYSTALLOGRAPHY AND FIELD GEOLOGY

Max. Marks: 40 **Time: 4 hrs/week** **Total 50 hrs**

1. Interpretation of topographical maps; latitude-longitude, conventions, relief, drainage, settlement, transportation and communication.
2. Describe the following geomorphological models with neat sketch and labeling: Stages of river- Initial, Youth, Mature and Old stage; typical volcano; karst topography; glacial landforms; coastal landforms.
3. **Crystallography:** Forms of a crystal: face, edge, solid angle, Euler's law, Interfacial angle with the help of Contact Goniometer. Study of elements of symmetry of crystal models of normal classes of six crystal systems: Isometric/Cubic, Tetragonal, Orthorhombic, Hexagonal, Monoclinic, Triclinic systems.
4. **Demonstration:** Taking bearings with the help of Brunton compass, Clinometer to find out dip and strike of the beds (attitude of beds). Taking bearing with Global Positioning System (GPS).

BOOKS RECOMMENDED

1. Principles of Physical Geology — A. Holmes
2. Geomorphology — V.K. Sharma
3. Aspects of tectonics — K.S. Valdiya
4. Environmental Geology — K.S. Valdiya
5. General Geology — Radhakrishanan. V
6. A text book of Geology — Mahapatra, G.B
7. Text book of Geology — P.K.Mukherjee
8. Text book of Geology — A.K.Datta
9. Engineering Geology — Parbin Singh
10. Principles of Engineering Geology — K.M.Bangar
11. Dana's Text book of Mineralogy — W.E. Ford
12. Introduction to Geomorphology — V.S. Kale & Avijit Gupta
13. An introduction to crystallography — Phillips, P.C
14. Optical Crystallography — Wahlstrom E E
15. Principles of Engineering Geology — Bangar
16. Field Geology — F.H.Lahee

4. **CHEMISTRY (Optional)**

COURSE PATTERN

Semester	Particulars	Instruction Hours per week	Duration of Exams	Internal Assessment Marks	Examination Marks
I	Theory Paper-I	4hrs	3hrs	20	80
	Practical-I	4 hrs	4 hrs	10	40
II	Theory Paper-II	4hrs	3hrs	20	80
	Practical-II	4 hrs	4 hrs	10	40
III	Theory Paper-III	4hrs	3hrs	20	80
	Practical-III	4 hrs	4 hrs	10	40
IV	Theory Paper-IV	4hrs	3hrs	20	80
	Practical-IV	4 hrs	4 hrs	10	40
V	Theory Paper-Va	4hrs	3hrs	20	80
	Theory Paper-Vb	4hrs	3hrs	20	80
	Practical-Va	4 hrs	4 hrs	10	40
	Practical-Vb	4 hrs	4 hrs	10	40
VI	Theory Paper-VIa	4hrs	3hrs	20	80
	Theory Paper-VIb	4hrs	3hrs	20	80
	Practical-VIa	4 hrs	4 hrs	10	40
	Practical-VIb	4 hrs	4 hrs	10	40

CHEMISTRY

TEACHING HOURS : 50 HOURS

(With effect from 2017-18 onwards)

IN ORGANIC CHEMISTRY

Atomic structure and Periodic trends **06 hours**

Review of Bohr's atomic model, calculation of radius and energy of nth orbital, extension of bohr's theory-Sommerfield model, deBroglie hypothesis, deBroglie equation,(Derivation), experimental verification-Davisson-Germer experiment,
Quantum numbers and their significance, electronic configuration of the elements up to atomic number 60, Aufbau principle, Hund's rule, (n+l) rule, Pauli's exclusion principle.

Chemical bonding- I **04 hours**

Ionic bonding: factors affecting the formation of ionic bonding, Lattice energy and its determination by Born-Haber cycle.
Covalent bond: Types, factors favouring covalent bond, properties of covalent compounds.
Valence bond theory with respect to H_2, F_2, HCl molecules and its limitations.

Methods of analysis **04 hours**

Errors in quantitative analysis, classification and minimization, accuracy, precision, standard deviation, t-test, significant figure and rules for computations.

Principles of volumetric analysis **04 hours**

Concentration terms, normality, molarity, mole fraction, percentage, primary standard solution, titration-acid-base, precipitation, iodometric, redox and complexometric(with reference to EDTA) titrations, choice of indicators in the above titrations.

ORGANIC CHEMISTRY

Purification of organic compounds **04 hours**

Methods of purification of solids: Crystallization, fractional crystallization and sublimation.
Method of purification of liquids: Distillation, fractional distillation, distillation under reduced pressure, steam distillation.
Chromatography: General principles, types, brief outline of thin layer chromatography, paper chromatography and column chromatography, solvent extraction.
Criteria of purity: Melting point and boiling point.

Stereochemistry of organic molecules **06 hours**

Cycloalkanes: Baeyer's strain theory, calculation of angle strain, Sachse Mohr theory of strainless rings. Chair and boat forms of cyclohexane. Axial and equatorial bonds.

Conformational isomerism: Basic concept of conformational analysis with reference to ethane and butane.

Geometrical isomerism: definition, E and Z notation for 2-butene and butenedioic acid, rules for assigning notations. Determination of configuration of butenedioic acid by anhydride formation, dipole moment measurement, melting point and stability.

Optical isomerism: Chirality, van't Hoff-Lebel hypothesis, optical activity, D and L-configurations, R and S notations, sequence and priority rules, enantiomers, distereoisomers, epimers, anomers, racemic and meso (with suitable examples like lactic and tartaric acids.), racemisation, resolution of racemic mixture by chemical method, asymmetric synthesis, Walden inversion.

Spectroscopy **06 hours**

Introduction to conventional methods of elucidation of structure of organic compounds (chemical degradation) and comparison with spectroscopic methods, electromagnetic spectrum.

UV spectroscopy: Principle, types of transitions, chromophores, concept of auxochromes and their effect on λ_{max}, bathochromic shift, hypsochromic shift, hypochromic and hyperchromic shift. Woodward and Fieser rules and illustration of calculation of λ_{max} taking myrcene and B-phelladrene as examples.

PHYSICAL CHEMISTRY

Gaseous State **06 hours**

Real gas isotherms, Andrew's experiment of CO_2, PV-relationship, critical phenomenon of gases.

Critical constants(Pc, Vc, Tc) – Definition, of critical temperature, critical pressure & critical volume. Relationship between critical constants and Vanderwaals constants, experimental determination of critical constants, reduced equation of state and statement of law of corresponding states.

Liquification of gases(Linde's method only), Maxwell's law of distribution of molecular velocities(No derivation), effect temperature on distribution of molecular velocities.

Solutions **04hours**

Solution of gas in liquid – Henry's law and limitations.

Completely miscible liquid pairs. azeotropes, theory of azeotropic mixtures, partially miscible liquid systems, critical solution temperature with respect to phenol water, triethyl amine-water and nicotine- water system.

Salt-hydrolysis **4 hours**

Types of salts, definition of degree of hydrolysis and hydrolysis constant derive the relation between Kh, Ka & Kw and expression for pH in case of hydrolysis of the following - salts of weak base and strong acid, weak acid and strong base. Numerical problems.

Nernst distribution law **2 hours**

Statement and limitations, applications of Nernst distribution law in solvent extraction.

REFERENCE BOOKS

Inorganic chemistry

01. Advanced Inorganic Chemistry	Cotton and Wilkinson
02. Concise Inorganic Chemistry	J.D. Lee
03. Inorganic Chemistry	Huhee and Keiter
04. Inorganic Chemistry	Shriver and Atkin
05. Principles of Inorganic Chemistry	Puri and shrama
06. Inorganic Chemistry	A. G. Sharpe
07. Essential Chemistry	R. Chand
08. University Chemistry	Mahan and Myers
09. Modern Inorganic Chemistry	Madan
10. Modern Inorganic Chemistry	Satya prakash
11. Inorganic Chemistry for Under graduates	R. Gopalan
12. College Practical Chemistry	Ahluwalia, Dhingra and Gulati
13. Instrumental method of chemical analysis	Willard, Martin and Dean

Organic chemistry

01. Text Book of Organic Chemistry	Bahl and Bahl
02. Organic Spectroscopy	P.S. Kalsi
03. Organic Chemistry	I. L. Finar Vol I and II
04. Advanced Organic Chemistry	Jerry March
05. Organic Chemistry	Morrison & Boyd
06. Modern Organic Chemistry	Norman & Wadding

Physical chemistry

01. Physical Chemistry	P.W. Atkins
02. Introduction to Physical Chemistry	Mark Latd
03. Text Book of Physical Chemistry	S. Glastone
04. Principles of Physical Chemistry	Puri Sharma & Pathania
05. Text Book of Physical Chemistry	P.L.Soni

06. Text Book of Physical Chemistry M.V. Sangaranarayanan

B.Sc. I SEMESTER
CHEMISTRY PRACTICALS

Total number of hours per week: 04
Internal Assessment=10 Marks
Total No. of hours per Semester: 52
Practicals: 40 Marks

A. Demonstration of calibration of glasswares(burette, pipette) and weights(grams and milligrams).

B. Preparation of standard solution, calculation of mass of the solute to be dissolved in 250ml solution to get required normality.

C. Volumetric estimations

01. Preparation of standard sodium carbonate solution(Idea of primary standard solution), standardisation of HCl and estimation of NaOH using standard HCl solution.

02. Preparation of standard oxalic acid solution, Standardisation of KMnO4 solution and estimation of FAS solution.

03. Preparation of standard potassium dichromate, standardisation of ferrous sulphate solution and estimation of $KMnO_4$ using standard ferrous sulphate solution.

04. Estimation of zinc using standard EDTA solution.

05. Estimation of total hardness using standard EDTA solution.

06. Estimation of available chlorine in bleaching powder by iodometric method.

07. Estimation of carbonate and bicarbonate in a mixture using phenolphthalein and methyl orange indicators.

08. Estimation of iodine using standard thiosulphate solution-Demonstartion.

D. Simple gravimetric experiments

E. Determination of the percentage loss in weight of I) Zinc carbonate II) barium chloride III) mixture of barium sulphate and ammonium chloride IV) Mixture of Zinc oxide and Zinc carbonate on heating.

5. ELECTRONICS (Optional)

2017-18 onwards

Electronics (Optional)

Sl. No	Year	Semester	Title of the Paper	Code No	Teaching Hour	*Marks Method	Book Reference
1	2017-18	I	**BASICS OF CIRCUIT ANALYSIS & INSTRUMENTS**	A 280	4	80	Given in the Syllabus Copy
		II	**CIRCUITS AND DEVICES**	B 280	4	80	
2	2018-19	III	**OSCILLATORS , OP AMP & NETWORKS**	C 280	4	80	
		IV	**DIGITAL ELECTRONICS**	D 280	4	80	
3	2019-20	V	Paper-I **COMMUNICATION , SIGNALS AND SYSTEMS & TRANSDUCERS**	E 290	4	80	
			Paper-II **MICROPROCESSOR AND MICROCONTROLLER**	E 300	4	80	
	2019-20	VI	Paper-I **DIGITAL COMMUNICATION , SATELLITE COMMUNICATION & TELEVISION**	F 290	4	80	
			Paper-II **COMPUTER CONCEPTS AND C-PROGRAMMING**	F 300	4	80	

***Marks Method:**

Part-I

2 marks questions (Answer any 10 out of 12 questions)=20 Marks

Part-II

5 marks questions (Answer any 4 out of 6 questions)=20 Marks

Part-III

10 marks questions (Answer any 4 out of 5 questions)=40 Marks

Total Marks=80

I Semesters

2017-18 onwards

B. Sc. SEMESTER –I

Total Teaching hours: 50, Teaching hours per week : 4 hours

ELE-1 BASICS OF CIRCUIT ANALYSIS & INSTRUMENTS

UNIT – I: PASSIVE CIRCUIT ELEMENTS & NETWORK ANALYSIS

Basic principle of Transformer. Wave form types (Sine, Square , Triangular, Trigger pulses & Saw tooth). Voltage & Current sources. Kirchoff's laws-Statement & Problems related to voltage & current division in series & parallel network. Node & mesh analysis for DC networks.

Network theorems: Thevnin's and Norton's theorem, Superposition theorem, Reciprocity theorem, Millman's theorem,Maximum power transfer theorem(statement, proof, simple numerical examples applicable to DC only).

8Hrs.+2Hrs.Problems =10hrs

UNIT – II: **TRANSIENT CIRCUITS AND AC CIRCUITS**

Growth and Decay of current in series RL circuit , Study of charging and discharging of capacitor through RC circuit. Time constant.

Operator j, Argand diagram, LCR Series and parallel circuits, Expression for current, impedance, admittance and phase using j operator. Condition for Resonance, Resonant Frequency, Band width and Q-factor.

8Hrs.+2Hrs.Problems =10hrs

UNIT – III: **NETWORK PARAMETERS**

Two port network (Definition) Z ,Y and h-parameters. Relation between parameter sets, Equivalent model representation of two port network. T and π network(Network transformation T to π and vice versa) short circuit impedance, Open circuit impedance and characteristic impedance.

8Hrs.+2Hrs.Problems =10hrs

UNIT – IV: **FILTERS**

Concept of filters, Constant K-type filters ; Low pass filter, high pass filters, band pass filters & band elimination. Derivation(Design impedance, Characteristic impedance, Cut off Frequencies, Attenuation constant and Phase constant) and design of filters.

8Hrs.+2Hrs.Problems =10hrs

UNIT – V: MEASURING INSTRUMENTS

DC indicating Instruments: PMMC Galvanometer (D'Arsonal Movement) Principle, Construction and Working - Current Sensitivity, - Advantages and Disadvantages - Conversion of Galvanometer into Ammeter, Multirange ammeter, Voltmeter, Loading Effect, Multirange voltmeter and Ohmmeter (Series and Shunt Types qualitative only).Multimeter. Functional block diagram of CRO, Use of CRO in measurements (frequency, voltage & phase). Frequency and Phase measurement using Lissajous pattern.

8Hrs.+2Hrs.Problems =10hrs

Reference Books:

1. Integrated Electronics Millman and Halkias
2. Principal of Electronics – Malvino
3. Principal of Electronics – Malvino
4. Devices and Circuit – G.K.Mithal
5. Principles of Electronics – Boylsted
6. Devices and Circuit – Allen Mottershed
7. Networks, Lines and Fields – John D Ryder
8. Network Analysis – Van Valkamburg
9. Electricity and Magnetism Brijlal and subramanyam
10. Basic Electronics and Linear Circuits Bargav, etal (TTTI Publications)
11. Principles of electronics Volume –I & III - B.V.Narayan Rao
12. Network Analysis by GK Mittal
13. Electrical and Electronic Instrumentation By Shawney.
14. Modern Electronic Instrumentation and Measurement Techniques. By, A.D. Helfrick and W.D. Cooper
15. Electronic Instrumentation By, Kalsi.

LIST OF EXPERIMENTS

Lab-1:

Each experiment is of four hours duration. Minimum EIGHT experiments are to be performed in the semester course

1. Verification of Thevinin's and Norton's theorem (Ladder network).

2. Maximum power transfer theorem(For DC and AC)
3. Millman's theorem.
4. Superposition theorem.
5. Multirange ammeter
6. Multirange voltmeter.
8. Ohmmeter.
9. Use of CRO(Frequency, voltage measurement of sine and square waves)
10 Lissajous pattern study using CRO.
11. Low-Pass filter (constant K type T and
12. High-Pass filter (constant K type T and
13. Band-Pass filter/Band Elimination filter (constant K type networks)
14. h-parameters for a two port resistive network.

6. GEOGRAPHY (Optional)

RANI CHANNAMMA UNIVERSITY, BELAGAVI

B. A. / B. Sc SEMESTER GEOGRAPHY (OPTIONAL)

COURSE STRUCTURE (SCHEME) UNDER CBSE SYSTEM

WITH EFFECT FROM 2015-2016 ON WARDS

Sem.	Title of the Paper	Teaching Hours per Week	Marks	Internal Assessment Marks (IA)	Total Marks	Duration of Examination
I	Theory Paper - I **Part – A: Physical Geography** Practical Paper - I ***Representation of Relief***	**05** **04**	**80** **40**	**20** **10**	**100** **50**	**3 hours** **4 hours**
II	Theory Paper - II **Part – B: Physical Geography** Practical Paper - II ***Basics of Cartography (Maps & Scales)***	**05** **04**	**80** **40**	**20** **10**	**100** **50**	**3 hours** **4 hours**
III	Theory Paper – III **Regional Geography of Karnataka** Practical Paper - III ***Interpretation of SOI Topographical Maps***	**05** **04**	**80** **40**	**20** **10**	**100** **50**	**3 hours** **4 hours**
IV	Theory Paper – IV **Population Geography** Practical Paper - IV ***Cartographic Representation of Geographical Data***	**05** **04**	**80** **40**	**20** **10**	**100** **50**	**3 hors** **4 hours**
V	Theory Paper- V -Compulsory **Regional Geography of India** Practical Paper - V ***Interpretation of IMD Weather Maps*** Theory Paper -VI - Optional **(select any one)** **1. Development of Modern Geography** **2. Settlement Geography** Practical Paper – VI ***Basic Statistics***	**05** **04** **05** **05** **04**	**80** **40** **80** **80** **40**	**20** **10** **20** **20** **10**	**100** **50** **100** **100** **50**	**3 hours** **4 hours** **3 Hours** **3 hours** **4 hours**

VI	Theory Paper -VII- Compulsory **Human Geography**	**05**	**80**	**20**	**100**	**3 hours**
	Practical Paper - VII ***Map Projections***	**04**	**40**	**10**	**50**	**4 hours**
	Theory Paper -VIII - Optional **(select any one)** **1. Environmental Geography**	**05**	**80**	**20**	**100**	**3 hours**
	2. Regional Planning	**05**	**80**	**20**	**100**	**3 hours**
	Practical Paper – VIII ***Field Work and Dissertation***	**04**	**40**	**10**	**50**	**4 hours**

REGULATION AND SCHEME OF INSTRUCTIONS

Regulations governing three years Semesterized, Bachelor Degree Programmes of Rani Channamma University, Belagavi (framed under Section 44(1) (c) of the K.S.U. Act 2000) and on par with CBSE with the effect from 2015-16 onwards.

I. Goals & Objectives:

The following aims have been kept in view while designing the syllabus of Bachelor's Degree Programme (B.A/B. Sc) in Geography as one of the optional subject.

1. To bring the geographical awareness among the students.
2. To provide a fundamentals of spatial information of the earth surface.
3. To train promising learners to teach geography effectively at various levels in the educational institutions.
4. To train and provide information related to spatial and regional level of planning.
5. To provide adequate geographical knowledge and skills as needed for the competitive examinations.
6. Organizing the professional tours for every year to cultivate research culture among the students.

II. Admission Criteria:

A candidate should have passed PUC/10+2 with Geography as one of the subject is eligible to choose Geography as one of the optional subjects at the under Graduate Course. The candidate should have obtained at least 40 per cent of

marks in Geography as well as aggregate marks. Relaxation in respect of SC/ST etc will be followed as per the prevailing rules of the university. Other rules for admission are as per the university notification from time to time.

III. Medium of Instruction:

The medium instruction shall be English, however, the student's are allowed to write the examination in Kannada Medium.

IV. Attendance:

A minimum of 75% of attendance in each semester (both theory and practical) is compulsory.

V. Scheme of Instruction:

1. The M.A/M.Sc Master's Degree holders in Geography can only teach the subject at UG Level.
2. Geography as an optional subject at Under Graduate (UG) Level, which consists of *six* semesters, it includes eight *theory* papers and *eight practical* papers. There will be **one theory** paper and **one practical** paper in the each semester **i.e.** ***Ist, IInd, IIIrd, and IVth*** *semesters*. Whereas in the ***Vth and VIth*** semesters, there will be ***two theory*** *papers* and ***two practicals*** each of ***100 and 50*** *marks* respectively. The duration of teaching hours for the theory paper will be ***five*** *(05) hours per week* and the duration of teaching hours for practical *paper will be* ***four*** *(04) hours per week* in each semester. Each theory paper will have 5 modules/units (divided into chapters/units). The duration of each semester is being 16 weeks excluding examination period.
3. The Practical's are to be conducted in separate batches. Each batch consists of 15 students with one teacher, for 16-27 students with two teachers. In case, if student number is below 15 is also considered as one batch with one teacher. Each batch (depends on the number of students) must be supervised by one/two teachers for giving instructions, supervision of practical's and correction of journal/records.

VI. Scheme of Theory Examinations:

1. Theory course shall carry 100 marks of which 80 marks allotted for semester end examination and 20 marks for internal assessment (IA) that will be carried out as per the university norms.

2. Each theory course will have a question paper of 3 hours duration and the maximum of 80 marks. Minimum marks to pass in each paper of theory are 40 percent.
3. There shall be three sections in every theory question papers viz. A. B. & C. **Section A** shall have 12 questions of each 2 marks and candidate have to attempt 10 questions only (10X2=20 marks). **Section B** shall have 8 questions of each 5 marks and the candidate have to attempt 6 questions only (6X5=30 marks). **Section C** shall have 6 questions of each 10 marks and the candidate has to attempt 3 questions (3X10=30 marks).

VII. Scheme of Practical Examination:

1. Each practical course shall carry 50 marks of which **10 marks** are allotted for IA marks (out of which **07 marks** are kept for practical records (assignments)/journals and **03 marks** allotted for attendance). The **40 marks** examination will be conducted at the end of each semester, out of which **5 marks** will be kept for viva and **35 marks** for written examination as per the instruction given by the university.
2. Each practical course will have a question paper of 4 hours duration and the maximum of 40 marks.
3. The practical examination is to be conducted in batches and each batch consists of minimum of 15 candidates.
4. There will be one internal examiner and one external examiner to conduct the practical examination for each batch in each semester.
5. Minimum marks to pass in each paper of practical are 40 percent.
6. Each candidate shall complete the laboratory work of the journal/practical records, it shall be certified and signed by both the concerned course teacher and the Head of the Department of Geography of the concerned college, to the effect that the candidate has completed the prescribed course in practical satisfactory and same should be produced at the time of practical examination. No students shall be allowed for the examination without completed journal/practical records.
7. There is no provision for seeking improvement in practical paper examination and internal assessment marks.

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RANI CHANNAMMA UNIVERSITY, BELAGAVI

B. A. / B. Sc SEMESTER GEOGRAPHY (OPTIONAL)

COURSE STRUCTURE (SCHEME) UNDER CBSE SYSTEM

WITH EFFECT FROM 2015-2016 ON WARDS

THEORY & PRACTICAL PAPER- I & II

Semester	Title of the Paper	Teaching Hours per Week	Marks	Internal Assessment Marks (IA)	Total Marks	Duration of Examination
I	**Theory Paper - I** Part – A: Physical Geography **Practical Paper - I** ***Representation of Relief***	05 04	80 40	20 10*	100 50	3 hours 4 hours
II	**Theory Paper - II** Part – B: Physical Geography **Practical Paper - II** ***Basics of Cartography (Maps & Scales)***	05 04	80 40	20 10*	100 50	3 hours 4 hours

*Note: Practical IA includes: 07+03=10 Marks for Assignments/Journal work and Attendance only

B. A. /B. Sc. SYLLABUS IN GEOGRAPHY

SEMESTER – I

THEORY PAPER-I

PART – A: PHYSICAL GEOGRAPHY

Objectives: The objective of the course is to familiarize the students with the need for understanding of physical geography with reference to certain fundamental concepts, focusing on the unity of Geomorphology in the earth materials and the processes with or without an element of time. Process of component of Geomorphology is segmented into the internal and external processes of landscape evolution.

Course structure : One Theory and One Practical
Teaching Theory : 05 hours per week
Practical **:** 04 hours per week
Examination **:** One Theory paper of 80 Marks and 20 Marks for internal assessment (IA)
One Practical of 40 Marks and 10 Marks for internal assessment (IA) (out of 10 IA marks 7 marks for practical record and journal and 3 marks for attendance).

Units	Topic	Teaching Hours
I	Introduction to Physical Geography: The Nature, Scope & Content of Physical Geography, Relationship between Physical Geography and other branches of sciences, Significance of Physical Geography.	10
II	Earth as a Planet: Latitude and Longitudes: Rotation and Revolution of the earth, Origin and Evolution of the Earth; Nebular & Tidal theory Interior of the Earth, Earth Movements: orogenic and epeirogenic movements: Faults, Folds & related land forms.	12
III	Wegner's theory of Continental Drift; Weathering and its types; Rocks; origin, types and distribution and their economic significance	10
IV	Endogenetic & Exogenetic Forces; Earthquakes and Volcanoes and its distribution, causes and effects, Examples of earthquakes in India	12
V	Denudation- Work of river, Wind, Glacier, Underground Water and Sea Waves and its effects	16
	Total	**60 hours**

Reference:

1. Physical Geography: Strahler & Strahler
2. Physical Geography: R. N. Tikka
3. Physical Geography: Majid Hussain
4. Physical Geography: Das Gupta & Kapoor
5. Physical Geography (Kannada): Mallappa P
6. Physical Geography (Kannada): Ranganath
7. Physical Geography (Kannada): M. B. Gaudar
8. Physical Geography (Kannada): S. S. Nanjannavar
9. Fundamentals of Physical Geography: F. J. Mankhouse

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B. A. /B. Sc. SYLLABUS IN GEOGRAPHY

SEMESTER – I

PRACTICAL PAPER – I

REPRESENTATION OF RELIEF

Units No.	Topic	Teaching Hours
I	Significance of Relief Features in Physical Geography	02
II	Different Methods of Representation of Relief; Pictorial/Qualitative methods- Hachures, Layer-tinting/Colouring and Hill shading and Mathematical/Quantitative methods- Contours, Form lines, Spot heights, Bench marks and Trigonometrical stations	08
III	Contour Diagrams: Drawing of cross section of the following geographical features with brief explanation; a. **Hills with different types of Slopes**- uniform, gentle, steep, convex, concave and undulating slopes b. **Types of Valleys:** V-Shaped Valley, U-Shaped Valley, Gorge, Cirque and Hanging Valley c. **Landforms:** Mountain, Plateaus, Mesa, Escarpment and Spur d. **Landforms:** Waterfall, Rapids, Cliff, Ridge/Saddle, Pass and Volcano with Crater e. **Coastal Landforms:** Fiord and Ria coast	30
IV	Viva	
	Total	**40 hours**

Reference:

1. R. L. Singh: Elements of Practical Geography
2. Gopal Singh: Practical Geography
3. Dr. Ranganat: Practical Geography (Kannada Version)
4. Singh and Kanoj: Practical Geography
5. R. P. Misra and Ramesh: Fundamental of Cartography
6. M. F. Karennavar & S. S. Nanjannavar: Practical Geography
7. M .F. Karennavar & S. S. Nanjannavar: Practical Geography (Kannada Version)
9. Pijushkanti Saha & Partha Basu: Advanced Practical Geography

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B. A. / B. Sc. I Semester (CBSE)

PATTERN/MODEL OF THEORY QUESTION PAPER

Paper-I: Part-A Physical Geography

Time: 3 Hours **Max.Marks: 80**

Instructions: 1. Attempt all sections

2. Wherever necessary draw diagrams and maps.

SECTION-A **(2 x 10 = 20 marks)**

Note: 1) Answer **any Ten** questions.

2) Answer should **not** exceed **50** words

3) **Each** question carries **two** marks.

1	
2	
3	
4	
5	
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7	
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9	
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12	

SECTION-B **(5x 6= 30 marks)**

Note: 1) Answer any Six questions.

2) Answer should not exceed 200 words

3) Each question carries five marks.

13	
14	
15	
16	
17	
18	
19	
20	

SECTION-C **(10 x 3 = 30 marks)**

Note: 1) Answer any Three questions.

2) Answer should not exceed 500 words

3) Each question carries Ten marks.

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22	
23	
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25	
26	

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B. A. / B. Sc. I Semester (CBSE)

PATTERN/MODEL OF PRACTICAL QUESTION PAPER

Practical Paper- I: REPRESENTATION OF RELIEF

Center No :……. **Max. Marks: 40**

Seat No : ……. **Date:……..**

Time : 3 Hours

Instructions:

1. Attempt all questions.
2. This question paper should be attached with the main answer book.
3. Examiner should prepare the question paper covering each unit of the syllabus.

Q. No. 1	For framing the question, Examiner should refer unit no 1.	3 marks
Q. No. 2	a). Explain the methods of representation of relief by applying qualitative methods…….. (Examiner should refer unit no 2).	3 marks
	b). Explain the methods of representation of relief by applying quantitative methods…….. (Examiner should refer unit no 2).	3 marks
Q. No. 3	a). Hills with different slopes (any two) i) ……. ii) ……. (Examiner should refer unit no 3).	6 marks (3X2)
	b). Draw contour diagram along with cross section of the following features and interpret. i) ……. ii) ……. iii) ……. iv) ……. (Examiner should refer unit no 3).	20 marks (5X4)
Q. No. 4	Viva	5 marks
	Total	40 marks

OoOoo

7. **BIOTECHNOLOGY (Optional)**

B.Sc Biotechnology (Optional Subjects) Semester System Syllabus (w.ef: 2017-18 & onwards)

Semester	Title of the paper	Number of hours/week/paper	Duration of Examination	Internal Assessment Marks- 20/10				Semester end Examination Marks
				I Test	II Test	SEM - Assignment	ATTENDANCE	
I	Cell biology and Genetics	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40 Marks
II	Biochemistry &Biostatistics	04 Hours	03 Hours	04	10	03	03	80 Marks
	LAB	04 Hours	04 Hours	10Marks				40Marks
III	Microbiology and Immunology	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40 Marks
IV	Molecular Biology & Bioinformatics	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40 Marks
V Paper I	Plant and animal Biotechnology	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40 Marks
V paper II	Genetic Engineering & NanoTechnology	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10Marks				40 Marks
VI Paper I	Industrial,& Environmental Biotechnology	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40 Marks
VI Paper II	Agricultural & Medical biotechnology	04 Hours	03 Hours	04	10	03	03	80 Marks
	Lab	04 Hours	04 Hours	10 Marks				40Marks

SYLLABUS FOR BIOTECHNOLOGY (OPTIONAL)

B.Sc .I Semester

Paper-1.1 CELL BIOLOGY AND GENETICS

Teaching hours: 50

Unit: 1 General Introduction and cell as a basic unit of life: Introduction to Biotechnology, Scope and branches of Biotechnology. Historical perspectives, the cell theory, Ultra structure of animal and plant cells and their organelles: Cell wall, Plasma membrane, Mitochondria, Chloroplast, Ribosome, Golgi complex, Endoplasmic Reticulum, Nucleus, Lysosome, Peroxisomes, Vacuoles, Cytosol and Cytoskeleton structures, Cell –Cell interaction

(10 Hours)

Unit: 2 Chromosomes and Cell division: Discovery, morphology and structural organization: Number, size and types, Chromosomal Morphology, fine structure and models, heterochromatin and Euchromatin, Giant chromosomes. Cell Division: Cell cycle, Mitosis and Meiosis and its applications**. (06 Hours)**

Unit: 3 Transport across Cell Membrane: Active and passive transport. **(02 Hours)**

Unit: 4 Cancer Biology: Causes, symptoms, types of cancer and its prevention (**02Hours)**

Unit: 5 Gametogenesis: Spermatogenesis and Oogenesis**. (02Hours)**

Unit: 6 Cell motility: Amoeboid, cilliary and flagellar movements **(02 Hours)**

Unit: 7 Cell senesces and programmed cell death **(01 Hour)**

Unit:8 Introduction to genetics: History and scope and branches of Genetics. Mendalisim: Mendel's work, Laws of heredity, back cross, Test-cross, Incomplete Dominance and simple problems

Supplementary factors: Comb pattern in Fowls, Complementary factors: Flower color in sweat pea Multiple factors: Skin color in human beings Multiple allelism : Blood group in human beings ,Epistasis : Plumage color in Poultry **Sex determination in Plants and**

Animals: Concept of allosomes and autosomes, XX-XY, XX-XO, ZW-ZZ, ZO-ZZ Types

(10 Hours)

Unit: 9 Linkage and crossing over: Coupling and repulsion hypothesis, Linkage in maize and Drosophila, Mechanism of crossing over and its importance, chromosomal mapping-Linkage map in maize

(05Hours)

Unit: 10 Chromosomal Variation: Structural and numerical aberrations, chromosomal evolution in wheat and cotton **Mutations:** Types-Spontaneous and Induced; Mutagens – Physical and chemical mutagens, Induced Mutations in Plants, Animals and Microbes for economic benefit.

Cytoplasmic inheritance: Plastid inheritance in Mirabilis, Petite character in yeast and Kappa particles in Paramecium.

Population Genetics: Hardy Weinberg law and its role in evaluation and speciation.

Human Genetics: Karyotype in man, Inherited disorders – Allosomal (Klinfelter's andTurner's syndrome), Autosomal (Downs and Cri-du-chat syndrome)

(10 Hours)

- **PRACTICALS 1.2- CELL BIOLOGY AND GENETICS**

1. Study of fixatives and stains**:** Preparation of Formaldehyde
2. (4-10%), Alcohol (70- 100%),Bouin's fixative, Carnoy's solution,
3. Borax carmine (alcoholic), Eosin (alcoholic), Heamatoxylin,
4. Acetocarmine, Aceto-orcein, Schiff's reagent (Feulgen method), Giemsa
5. Stain.
6. Squash preparation**:** Onion root tip to study stages of mitosis.
7. Squash preparation: Grasshopper testis / onion flower bud/ Tradiscantia to study stages of meiosis.
8. Squash preparation of salivary gland chromosomes:
9. Drosophila /Chironomous larva.
10. Karyotyping analysis.
11. Micrometry.
12. Buccal epithelial smear and Barr body.
13. Extraction of cellular materials in saline buffers, solvents and precipitation.
14. Demonstration of Laws of inheritance by using color beads
    a. Law of segregation
    b. Law of independent assortment
    c. Solve genetic problems
15. Each student is required to submit 2 permanent slides of Mitosis and Meiosis: at least one from each.

References:

CELL BIOLOGY:

1. Alberts, B.Bray, D.Lewis, J. Roff, M.Roberts, K, and Watson, J D 1994: 3rd edition,molecularbiology of "The Cell".Bolsover, S.R Hysams, J.E Jones, S. Shepherd, E.A and White, ,H.A.1997:Form genes to cells wileys-less .Inc New York.
2. Cambell, N .A .Mitchell, L .G. and Reece, J.B. 1996: General Biology. Benjamin cunning.
3. Cooper, GM. 1997 The Cell: A molecular approach, ASM press, USA.
4. De- Robertis , E.D.P. and Robertis , E.M.S. 1996 : Cell and Molecular Biology , Holt Saunders International
5. Garrett, R.H. and Gresham, C.M. 1995: Molecular aspects of cellbiology , International edition , Saunders college publishing
6. P.K.Gupta Cell and molecular. Biology:
7. Gilbert and Raunio 1997 : Embryology – constructing the organism
8. Holly Ahern 1992 : Introduction to Experimental Cell biology , W.M.C.Brown publishers
9. Inder Singh, 1997: Text book of human Histology , Jaypee brothers Medical publishers , New Delhi.
10. Karp, G. 2000 Cell and Molecular Biology : Concepts and Experiments, John Willey and sons Inc. New York.
11. Lodish .H.Berk. A. Zipursky , S.L. Matsiduvaria . P. Baltimore, D.
12. Darnell, J. 2000: Molecular cell Biology, Freeman W.H. and co. New York.
13. Singh, H.R. 2000: Animal Physiology and related Biochemistry, S.
14. Loban lal Nagin Chand and co. Educational publishers , New Delhi.
15. Smith and Wood 1992: Cell biology, Chapman and Hall.
16. ◆Tobin and Morel 1997; Asking about "Cells "Saunders College Publishing.
17. ◆Vasudev Rao , K.1994 : Developmental Biology – A modern Synthesis ,
18. Oxford IBH publishing .
19. ◆Wilson, E.B.: Cells in Development and inheritance, Mac Millan , New York.

20. GENETICS :

21. Daniel .L Hartl , " Basic Genetics" , Jones and Barlett Publishers USA.
22. Edgar Attenburg , " Genetics" , Oxford and IBH Publications .
23. Fairbanks , D.J.R. Anderson , W.R. 1999 : Genetics , the continuity of
24. life . Brooke and Cole Publication. Co. New York.
25. Lewin . B. 2000 : Gene VII , Oxford University Press , New York .
26. Lewin , R 1999 : Human Genetics : Concept and applications , 3 edition
27. WCB , Mc Graw Hills Dubuque , IA.
28. Miglani G.S. 2000, " Basic Genetics" Narosa publishing house . New Delhi .
29. Sandhya Mitra , " Genetics – Blue print of life" Tata Mc. Graw Hill
30. publications
31. Snuustad , P.D. and Simmons , M.J. 2000 : Principles of Genetics , 2nd
32. Ed. John Wiley and Sons Inc. New York.
33. Stricberger , M.W. 1995 : Genetics 3 Ed. Prentice Hall Inc. London .
34. Sturitevant , A. Hand Bredle , G.W. 1989: An Introduction to genetic W.B. Saunders
35. Philadelphia .
36. Tamarin , R.M. 2000: Principles of genetics 6 Ed. WMC Publication co. London.Winchester Sinnot and Dorm , " Principles of Genetics"

B.Sc Degree Examinations

Biotechnology

B.Sc. Biotechnology Theory Question Paper Pattern

Time: 3 Hrs Max. Marks: 80

Q.No.I. Answer any **TEN** of the following 2X10= 20

1)
2)
3)
4)
5)
6)
7)
8)
9)
10)
11)
12)

Q.NO.II Answer any **FOUR** of the following 4X5= 20

13)
14)
15)
16)
17)
18)

Q.No.III. Answer any **FOUR** of the following 4X10= 40

19)
20)
21)
22)
23)

B.Sc Degree Examinations

Biotechnology

B.Sc. Biotechnology Practical Question Paper Pattern

RANI CHANNAMA UNIVERCITY BELAGAVI

B.Sc I Sem Biotechnology Practical Examination

Cell biology & Genetics

Time: 04hrs **Max. Marks – 40**

……

Q. No I. Make a temporary stained mounting of Squash preparation from the given sample

(10 Marks)

Q.No.II. Measure / Count the given biological specimen using Micrometry / Heamocytometer

(05 Marks)

Q.No.III. Identification

Permanent slide/ Barr body / Genetic Problem/Different fixatives strains **(10 Marks)**

Q. No.IV. Submission of permanent slides: Mitosis/Meiosis **(05 Marks)**

Q. No.V Journal **(05 Marks)**

Q.No.VI Viva –voce **(05 Marks)**

8. MATHEMATICS (Optional)

SYLLABUS FOR THE ACADEMIC YEAR 2014-15 ONWARDS

B.Sc I Semester

Paper-I DIFFERENTIAL CALCULUS
Teaching Hours : 50 Hours

UNIT-I

REAL NUMBERS **10 Hours**

Real numbers, Postulates and their Consequences.Inequalities and Absolute values.Archimedean property.LUB and GLB properties.

UNIT-II

LIMITS AND CONTINUITY **10 Hours**

Recapitulation of limits and continuity.Algebra of limits (with proofs).Properties of continuous functions.Boundedness of continuous functions.Intermediate value theorem.Borel covering theorem (statement only).Uniform continuity.

UNIT-III

HIGHER ORDER DERIVATIVES **10 Hours**

The n^{th} derivative of $(ax + b)^n$, $1/ax+b$, $\log (ax+b)$, e^{ax+b}, $\sin(ax+b)$, $\cos(ax+b)$, $e^{ax} \sin (bx+c)$, $e^{ax}\cos (bx+c)$, Leibntz's Rule for n^{th}derivative of a product.

UNIT-IV

MEAN VALUE THEOREMS **15 Hours**

Rolle's Theorem, Lagrange's Mean Value Theorem, Cauchy's Mean Value Theorem, Taylor's Theorem (with Sclomilch and Rouche's form of reminder), Maclaurin's Series.

UNIT-V

INDETERMINATE FORMS **05 Hours**

L-Hospital's rule (statement only), Indeterminate forms of 0/0, ∞/∞, $0\times\infty$, $\infty - \infty$, 0^0, $1^\infty$and ∞^0.

Reference Books:

Deferential Calculus – Shantinarayan and Mittal
Mathematical Analysis-Shantinarayan
First Course in Real Analysis-M.k.Singal and Asha Rani
Text book of B.sc Mathematics- G.K. Raganath

Paper-II ALGEBRA AND TRIGNOMETRY

Teaching Hours : 50 Hours

UNIT-I

DETERMINANTS **05 Hours**

Determinant of fourth order, Symmetric and Skew-Symmetric determinants, Reciprocal determinants.

UNIT-II

MATRICES **15 Hours**

Recapitulation of Matrices of Symmetric matrices and Skew symmetric matrices, Elementary transformations, Rank of a Matrix, Reduction to Normal forms, Inverse of matrix, Solution system of Linear equations.

UNIT-III

SET THEORY **10 Hours**

Equivalence relations, Partition of a Set, Arbitrary unions and intersections. De Morgan's laws, Countable and Uncountable sets.

UNIT-IV

THEORY OF EQUATIONS **10 Hours**

Polynomial equation of n^{th} degree in one variable, Euclidean algorithm, Reminder Theorem, Factor Theorem, Fundamental Theorem of Algebra, Relation between the roots and coefficient of general polynomial equation in one variable, Synthetic division. If one of the root of an equation $a_0x^n+a_1x^{n-1}+-------+a^n$ has one of its rational root is p|q, then p is an exact divisor of a_n and q is an exact divisor of a_0.Solution of cubic and Bi- quadratic equations.

UNIT-V

TRIGONOMETRY **10 Hours**

Expansions of Sine and Cosine functions, Series of Sines and Cosines. Hyperbolic functions, Logarithm of a Complex number, Summations of Trigonometricseries.

Reference Books:

1. Modern Algebra- D.C. Pavate
2. Algebra -Vasistha
3. Matrices –Ayres(Schaumpubl co)
4. Matrices and determinants- M.L. Khanna
5. Trigonometry- P.N.Chatterji
6. Geometry and Trignometry-D.C. Pavate

9. BOTANY (Optional)

B.Sc. SEMESTER-I
BOTANY (optional)

FOR THE ACADEMIC YEAR 2017-18 &ONWARDS

Paper- I PLANT ANATOMY AND EMBRYOLOGY,

50 Hours

UNIT-I **10 Hours**

Tissues- meristems, types, characters, histological organisation of root & shoot apices theories. Permanent tissues- simple & complex. Types of vascular bundles. Tissue systems- dermal, mechanical, secretary- nectary, laticiferous& oil glands.

UNIT-II **15 Hours**

Internal structure of primary plant body- root,stem & leaf (dicot & monocot). Secondary growth – root & stem. Abnormal secondary growth – general account with the examples Bignonia, Boerhaavia, Dracaena & Beetroot.

UNIT-III **05 Hours**

Wood anatomy- General account, ring porous, diffuse porous, distribution & types of wood parenchyma, Tracheary elements, fibre types.

UNIT-IV **10 Hours**

Anther – development, microsporogensis & male gametophyte, MGU. Palynology applications of palynology in taxonomy, coal, oil exploration & forensic science. Ovule – development, types, structure of anatropus ovule, megasporogenesis, development of gametophyte-monosporic, bisporic & tetrasporic types (Peperomia, Drusa, Fritillaria&Adoxa.) & FGU.

UNIT-V **10 Hours**

Fertilization – Pollen –pistil interaction, entry of pollen tube into the stigma, style &embryosac, double fertilization. Endosperm – Types. Embryogeny – dicots (crucifer) & monocot (grass). A brief account of polyembryony & apomixes & their significance.

B.Sc. I - SEMESTER Practicals

Total number of hours per week: 04 Internal Assessment=10 Marks Max Marks: 40 Marks

1. Non- living cell inclusions – reserve, secretory & excretory.
2. Demonstration of double–staining technique (sectioning, staining & mounting)
3. Tissue organisation in root & shoot using permanent slides,
4. Simple tissues: different types of parenchyma, collenchyma & sclerenchyma (sclereids&fibres).
5. Complex tissues – xylem & phloem (in T.S & L.S) & maceration technique.
6. Primary internal structures of root, stem and leaf (dicot & monocot).
7. Normal secondary growth – dicot stem and root (stelar and extra stelar)
8. Abnormal secondary growth – Bignonia, Boerhaavia, Dracaena & Beet root.
9. Demonstration of Microtomy.
10. Study of microsporogenesis, Ovule types and megasporogenesis by using permanent slides.
11. Structure of pollen grain using wholemounts (Catharanthes and Hibiscus).
12. Isolation & mounting of endosperm & embryo (cucumis and maize grain).

B.Sc. I Semester Practical Examination Subject: Botany

Time: 4 Hours Max Marks: 40

1. Make a double stained micro preparation of T.S of material. 'A' Draw a labelled diagram & mention the features of anatomical interest (show the preparation to the examiner)

Marks 08

2. Make a temporary micro preparation of specimen 'B' so as to expose and draw the diagram. (Show the preparation to the examiner)

Marks 05

3. Mount non- living cell inclusion in this specimen 'C' and draw the diagram (show the preparation to the examiner).

Marks 05

4. Mount endosperm/embryo in the specimen `D` and draw the diagram (show the preparation to the examiner)

Marks 05

5. Identify & mention the important features observed in the slide / material E, F, G and H

Marks 12

6. Journal

Marks 05

B.Sc. I Semester Practical Examination Subject: Botany

Instructions to Examiners.

Q.1. Material A- Bignonia, Boerhaavia, Dracaena stem.
8 marks (Preparation -4 marks, Diagram- 2 marks, Explanation- 2 marks).

Q.2. Specimen B- Sclereids, Vascular bundles, Lenticel, Tylosis, Stomata, Types of wood. 5 marks
(Preparation -3 marks, Diagram- 1mark, oral- 1mark).

Q.3.Specimen C- Reserve, Secretory and Excretory Products.
(Preparation -3 marks, Diagram- 1mark, oral- 1mark). 5 marks

Q.4.Specimen D- Mounting of Embryo /Endosperm- Cucumis seeds/Maize grain. 5 marks
(Preparation -3 marks, Diagram- 2 marks).

Q.5. E- Slide from anatomy. F- Material from microtomy. G and H – Slides from Embryology. 12 marks

Q.6. Journal
5 marks

Books for Reference:

1. Sundara Rajan (1998) College Botany, Himalaya Publication House Vol.1 and Vol. 2 Nagapur
2. Dutta A.C. (1968) A Botany for Degree Oxford Press, London
3. Tayal M.S. (1983) Plant Anatomy RastogiPubilcation, Meerut
4. Ganguli, Das, Dutta (1981) College Botany New Central Book Agency Vol. 1 Kolkatta
5. Pandey B.P. (1993) Plant Anatomy S.Chand& Co. Pvt. Ltd.
6. Saxena A.K. & R.P. Sarabhai A text Book of Botany KitabGhar, Gwaliar Vol. 2 Embryophyta
Pergamon Press, Oxford
7. Fahn A (1967) Plant Anatomy
8. Singh V, Pande P.C. D.K. Anatomy of Seed Plants Restogi Publication, Meerut
9. Esau K (1977) Anatomy of Seed Plants John Wilex 7 Sons, New York.
10. Earnes A.J. & Introduction to Plant Mc. Graw Hill Book Pub. L.H. MacDaniel (1947) Anatomy
New York.
11. Maheshwari P. (1972) An Introduction to Tata Mc Graw Hill Book Pub. Embryology of
Angiosperms

12. Bhojwani S.S. Bhatnagar S.P. Embryology of Angiosperms Vikas Pub. House. Pvt. Ltd. NewYork .
13. Pandey B.P. (2003) Embryology of Angiosperms S. Chand & Co.Pvt. Ltd.

B.Sc I Semester Theory Examination
Subject: Botany Pattern of Question Paper
Time: 3 Hours **Max Marks: 80**

All Questions are compulsory

Q.I - Answer any ten out of twelve (1 to 12 sub- questions)
10x2=20
From Unit 1- Plant Anatomy: 07 sub- questions. From Unit 2- Plant Embryology: 05 sub-questions.

Q.II -Answer any six out of Eight (13 to 20 sub- questions)
6x5=30
From Unit 1- Plant Anatomy: 4 sub- questions. From Unit 2- Plant Embryology: 4sub - questions.

Q.III- Descriptive Answers.

21. a) From Unit 1- Plant Anatomy. **OR** b) From Unit 1- Plant Anatomy.
1x10=10
22. a) From Unit 2- Plant Embryology. **OR** b) From Unit 2- Plant Embryology.
1x10=10
23. a) From Unit 1- Plant Anatomy. **OR** b) From Unit 2- Plant Embryology.
1x10=10

Note: - Minor changes in the Question Paper Pattern is permitted, with respect to the teaching hours allotted for each topic.

10. **COMPUTER SCIENCE (Optional)**

Revised syllabus of BSc Computer Science (OPTIONAL) subject w.e.f. academic year 2017-18 and onwards

BSc Computer Science (OPTIONAL) (w.e.f. 2017-18 and onwards)							
Subject Code	Subject Title	Teaching Scheme Hrs/week		Examination			
				Exam. Duration (Hrs)	Marks		
		Theory	Practical		Theory/ Practical	IA	Total
w.e.f. 2017-18 and onwards							
17BScCSCT11	Computing Fundamentals and Programming in C	4	--	3	80	20	100
17BScCSCP12	Programing Lab- C Lab	--	4	3	40	10	50
w.e.f. 2017-18 and onwards							
17BScCSCT21	Data Structures Using C	4	--	3	80	20	100
17BScCSCP22	Programing Lab-Data Structures Using C	--	4	3	40	10	50
w.e.f. 2018-19 and onwards							
17BScCSCT31	Digital Logic and Computer Design	4	--	3	80	20	100
17BScCSCP32	Programing Lab-Digital Logic	--	4	3	40	10	50
w.e.f. 2018-19 and onwards							
17BScCSCT41	Operating System Principles	4	--	3	80	20	100
17BScCSCP42	Programing Lab-Linux	--	4	3	40	10	50
w.e.f. 2019-20 and onwards							
17BScCSCT51	Relational Database Management System	4	--	3	80	20	100
17BScCSCP52	Programing Lab-SQL and PL/SQL lab	--	4	3	40	10	50
17BScCSCT53	Object Oriented Programming using Java	4	--	3	80	20	100
17BScCSCP54	Programing Lab- Java programming	--	4	3	40	10	50
w.e.f. 2019-20 and onwards							
17BScCSCT61	Data Communications and Computer Networks	4	--	3	80	20	100
17BScCSCP62	Programing Lab-Data Communication and Networking lab	--	4	3	40	10	50
17BScCSCT63	Web Programming	4	--	3	80	20	100
17BScCSCP64	Programing Lab-Web Programming Lab.	--	4	3	40	10	50

17BScCSCT11: Computing Fundamentals and Programming in C

Teaching Hours: 4 Hrs/week **Marks: Main Exam: 80**

IA: 20

Objectives: To provide a comprehensive study of the C programming language, so that studentsdevelop ability of writing modularand efficient programs.

Expected Learning Outcomes:

- Ability to design algorithm and draw flow charts for a given problem
- Ability to write, compile and debug programs in C language.
    - Using c programming features – control statements, arrays, structures, functions, pointers, and files

UNIT I 10Hrs

Evolution of information processing: Concept of data and information, data processing. Hardware – CPU, Storage Devices & Media, VDU, Input – Output devices, Types of Software – System Software, Application Software. Overview of OS. Programming Languages and its Classification, Compiler, Interpreter, Linker, Loader.

Problem Solving: Problem Identification, Analysis, flowcharts, Decision Tables, Pseudo codes and algorithms, Program Coding, Program Testing and Execution..

UNITII 10Hrs

Overview of C: Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, shorthand assignment operators, conditional operators and increment and decrement operators, Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

UNIT III 10Hrs

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement. Decision making & looping: For, while, and do-while loop, jumps in loops - break, continue statement, Nested loops.

Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C. User defined functions: definition, prototype, Local and global variables, passing parameters, recursion.

UNITIV 10Hrs

Arrays, strings and pointers: Definition, types, initialization, processing an array, passing arrays to functions, Array of Strings. String constant and variables, Declaration and initialization of string,

Input/output of string data, Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime.

String Handling: String Library Functions: strlen, strcat, strcmp, strcpy, strrev.

UNIT V 10Hrs

Structure & Union: Definition of Structure, Declaring Structure, Accessing Structure Elements, Array of Structure, Nesting of Structure. Definition of Union, declaring and using Union.Difference between Structure & Union.

Error Handling during I/O Operations, Command Line Arguments, Documentation, debugging, C Processors, Macros.

References:

1. Gill Nasib Singh, Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delh..
2. Balagurusamy E., Computing Fundamentals and C Programming, Tata McGraw Hill.
3. Kenneth.A., C problem solving and programming, Prentice Hall.
4. R.G. Dromey, How to Solve it by Computer, Pearson Education

Additional reading

5. Anil V. Chouduri, The Art of Programming through Flowchart and Algorithms, Laxmi Pub.
6. Gottfried, Byron S., Programming with C, Tata McGraw Hill.
7. E. Balaguruswamy, Programming in ANSI C, McGrawhill.
8. Ashok N. Kamthane, Programming in C, Pearson Education.
9. www.cprogramming.com

17BScCSCP12: Programming Lab- C programming

Practical Hours: 4 Hrs/week **Marks: Main exam: 40**

IA: 10

Students are encouraged to use Linux-Open Source OS for executing c –programs using gcc/similar compiler available with Linux.

Students shall gain familiarity with working in Linux environment with the help of course teacher in Lab. Following shall be practiced

- Using vi editor for writing c programs
- Familiarity with bash/similar shell for executing basic shell commands such as ls, cd, mv, man, mkdir, rm, locate, touch, cat, etc.

URL for reference: http://www.ee.surrey.ac.uk/Teaching/Unix/ , https://www.tutorialspoint.com/unix/unix-vi-editor.htm , https://www.tutorialspoint.com/compile_c_online.php

Student shall gain hands-on experience of drawing flow chart, writing algorithm, and writing cprograms and executing the c program. Following assignments shall be implemented inC.

1. Write a program to enter length and breadth of a rectangle and find its perimeter and area.
2. Write a program to enter P, T, R and calculate Simple Interest.
3. Write a program to find maximum between three numbers.
4. Write a program to check whether year is leap year or not using conditional/ternary operator.
5. Write a program to function as a basic calculator; it should ask the user to input what type of arithmetic operation he would like, and then ask for the numbers on which the operation should be performed. The calculator should then give the output of the operation.
6. Write a program that takes in three arguments, a start temperature (in Celsius), an end temperature (in Celsius) and a step size. Print out a table that goes from the start temperature to the end temperature, in steps of the step size; Celsius to Farenheit.
7. Write a program to sort array elements in ascending order.
8. Write a program to subtract/add/multiply two matrices.
9. Write a program to check whether an alphabet is vowel or consonant using switch case.
10. Write a program to display all possible permutations of a given input string--if the string contains duplicate characters, you may have multiple repeated results. Input should be of the form permute *string* and output should be a word per line.
    Here is a sample for the input *cat*
    cat
    cta
    act
    atc
    tac
    tca
11. Write a function that accepts a number, n, and prints all prime numbers between 1 to n.
12. Write an iterative function calculate factorial of a given integer.
13. Write a program to find HCF (GCD) of two numbers by passing two numbers to function compGCD().
14. Write a program to find maximum and minimum element in an array by passing array to function.
15. Write a program to input electricity unit charges and calculate total electricity bill according to the given condition:
    For first 50 units Rs. 0.50/unit
    For next 100 units Rs. 0.75/unit
    For next 100 units Rs. 1.20/unit
    For unit above 250 Rs. 1.50/unit
    An additional surcharge of 20% is added to the bill
16. Write a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following. Use structure to create array of students and compute percentage and grade by passing structure to function.
    Percentage >= 90% : Grade A
    Percentage >= 80% : Grade B
    Percentage >= 70% : Grade C
    Percentage >= 60% : Grade D
    Percentage >= 40% : Grade E
    Percentage < 40% : Grade F
17. Write a C program to add two complex numbers by passing structure to a function. Consider the following structure definition for complex number.

```
typedefstruct complex
{
float real;
floatimag;
} complex;
```

18. Write a C program to illustrate difference between structure and union by defining emp_Name, slaray, job as members and displaying the size of the defined structure and union. (ie. In terms of memory allocation)
19. Write a program that accepts a base ten (non-fractional) number at the command line and outputs the binary representation of that number.
20. Write a C program to concatenate two strings without using library function
21. Write a C program to compare two strings without using library function
22. Write a C program to illustrate string library functions (copy, concat, uppercase to lower case and vice-versa, length of string, sort set of strings(use strcmp()).
23. Write a program that accepts a base ten (non-fractional) number at the command line and outputs the binary representation of that number.

Note: Students shall draw the flow chart and write algorithm for a minimum of 12 assignments from the above list as identified by the course teacher

11. STATISTICS (Optional)

Question Paper Pattern

WITH EFFECT FROM 2017-18.

Part- A In all 12 Questions to be asked

- Questions must be numbered from 1 to 12.
- Each question carries **2** marks.
- Students have to answer any ***10*** questions
- There should not be any multiple choice questions.
- At least two questions should be set on each unit.
- Total marks 2 X 10 = 20 marks.

Part- B In all 6 Questions to be asked

- Questions must be numbered from 13 to 18.
- Each question carries **5** marks.
- Students have to answer any **4** questions.
- Out of six questions, three questions should be problem oriented.
- At least one questions should be set on each unit
- Total marks 5 X 4 = 20 marks.

Part- C In all 6 Questions to be asked

- Questions must be numbered from 19 to 24.
- Each question carries **10** marks.
- Students have to answer any **4** questions
- At least one questions should be set on each unit
- Total marks 10 X 4 = 40 marks.

SYLLABUS OF B.A/ B.Sc. COURSE IN STATISTICS (OPTIONAL)
WITH EFFECT FROM: 2017-18.

FIRST SEMESTER: THEORY PAPER **Total 50 Hrs**

STTH-1: UNIVARIATE DATA ANALYSIS AND PROBABILITY

Unit 1: Introduction:
Meaning and scope of statistics Data Measurement scales: Nominal, Ordinal. Variable: Discrete and Continuous variables. Presentation of data: Classification and tabulation Frequency distribution. Diagrams-Simple, Multiple and Percentage Bar, Pie chart and Graphs-Histogram, frequency polygon, frequency curve and Ogives.

10 Hours

Unit 2: Measures of location:
Purpose of Measures of location, Definition of A.M, G.M, H.M and their Properties (with proof), Median and Mode. Partitioned values: Definition of Quartiles, Deciles and Percentiles.

10 Hours

Unit 3: Measures of dispersion:
Purpose of measures of dispersion, Absolute and relative measures of dispersion. Definition of Range, quartile deviation, Mean deviation, Standard deviation, the effect of origin and scale on standard deviation and combined standard deviation of two groups. Definition of Moments, Definition and types of skewness, Measures of skewness: Karl Pearson's , Bowley's and Moments based measures. Kurtosis- definition, types of kurtosis and moments based measure of kurtosis.

10 Hours

Unit 4: Probability:
Random experiment, Sample space, Outcome, Event, Simple event, Compound event, Mutually exclusive, Equally likely and Exhaustive events with Examples. Probability: Mathematical, Statistical, Axiomatic approach. Derivations of $0 \leq P(A) \leq 1$, $P(A) + P(\bar{A}) = 1$, $P(\Phi) = 0$ and $P(A) \leq P(B)$ for $A \subset B$. Conditional probability, Addition and Multiplication law of probability . Baye's theorem (with proof) and examples.

10 Hours

Unit 5:Random variable:
Definition of Random variables - Discrete and Continuous random variable. Probability mass function (pmf) and Probability density function (pdf) and simple examples. Univariate transformation of variables and examples. Cumulative distribution function and properties (without proof). Definition of Expectation, Moments about origin and mean, Moment generating function (m.g.f) and its properties (with proof).

10 Hours

FIRST SEMESTER:

STPR-1: PRACTICAL PAPER

1. Construction of frequency distributions and diagrammatic and graphical representation.
2. Measures of Central tendency: A.M, G.M, and H.M and their interpretations.
3. Measures of Location: Mode and Median and their interpretations.
4. Measures of Dispersion: Standard deviation and Coefficient of variation.
5. Measures of Skewness and kurtosis and moments.
6. Probability of an event using addition and compound law of probability.
7. Computation of unknown constant k in p.m.f ,p.d.f and c.d.f.

Books for study:

1. Bhat.B.R.Srivenkataramana T..And Rao.Madhav K.S. (1996): Statistics: A Beginner's Text, Vols I and II, New Age International (P) Ltd.
2. Gupta S.C and Kapoor V.K.: Fundamentals of Mathematical Statistics- Sultan Chand & Sons publications.
3. Goon AM, Gupta M.K., Das Gupta.B.(1991): Fundamentals of Statistics vol-I World Press, and Kolkatta.
4. Hogg .R.V.and Craig.A.T(1978):Introduction to Mathematical Statistics.Amerind Publishing company.
5. Medhi.J. (1992) Statistical Method: An Introductory text. New Age.

Books for Reference:

1. Anderson T.W. and Sclove S.L (1978): An Introduction to the Statistical Analysis of Data.Houghton Miffin & Co.
2. Cooke, Cramer and Clake: Basic Statistical Computing, Chapman and Hall.
3. Mood.A.M.,Graybill.F A. and Boes D.C.(1974): Introduction to the Theory of Statistics.

   McGrawHill.
4. Speigel M.R. (1967): Theory & Problems of Statistics, Schaum's publishing Series.
5. Hogg and Craig: Introduction to Mathematical Statistics. Macmillan.
6. Mukhopadhyay.P. (1996): Mathematical Statistics. Calcutta Publishing House.

12. ZOOLOGY (Optional)

RANI CHANNAMMA UNIVERSITY, BELAGAVI

ZOOLOGY (Optional)

Semester Scheme (CBSC – Pattern)

(B.Sc I semester to IV semester)

From 2017-2018 onwards

Study of Zoology should lead to a clearer insight into and make Students conversant with the existence, functioning and diversity of life forms. They should have a reasonably in depth knowledge of the origin of life and life-forms at the level of the most basic unit the cell and all the way through organ systems. Inter-relation of living and non-living forms, relation between life forms and their habitat will create awareness about sustainable living so essential to ensure future life on planet earth. Knowledge of basics of applied biology with refrence to areas like pharmacy and food cultivation and processing, can help in creating jobs, ensuring food security and environmental friendly practices. Basics of sunrise and important areas in Biology with great potential for higher studies and research can help students take up higher studies and research. All this has been compiled with the view to make our students confident and competent to participate in national and global educational program and career options.

Smt. S.G.MAHALDAR.
Chairman
Board of Studies in Zoology (Under Graduate)
RANI CHANNAMMA UNIVERSITY, BELAGAVI.

BSc I Semester Scheme (CBSC - Pattern)

Zoology (Optional) (Revised)

Syllabus 2017-2018 Onwards

Semesters	Syllabus	Total Hours	Theory & Practical/ Week
I	**BIOLOGY OF NON-CHORDATES**	50hrs.	4 hrs.
	PRACTICAL	12	4 hrs.

NOTE:

THEORY MARKS			PRACTICAL MARKS		
Internal	**Annual**	**Total Marks**	**Internal**	**Annual**	**Total Marks**
20	80	100 marks	10	40	50 marks

Question paper pattern for THEORY examination

Que.No.	Marks	Solve	Total Marks
I	02	10	20
II	04	05	20
III	10	04	40
			TOTAL --- 80 MARKS

PRACTICAL pattern for examination

Que.No.	Solve	Total Marks
I	Dissection (Explain any one system)	06
II	Mounting	05
III	Identification / Spotting (12)	24
IV	Journal	05
		TOTAL --- 40 MARKS

B.Sc I Semester Syllabus

ZOOLOGY (Optional) 2017-18 onwards

Total Marks-80 Total Teaching-50hrs.

Biology of Non-chordates

UNIT-I

Taxonomy: Binomial nomenclature and concept of Species. 2 hrs

Protozoa: General characters & Classification up to classes with examples. General Topics-Locomotion and Nutrition in Protozoa**.** 4hrs

Porifera: General characters & Classification up to classes with examples. Type study-Sycon-Structure & Life history, Canal system, spicules, Spongin-fibres and Gemmule 5 hrs

UNIT-II

Coelenterate: General characters & Classification up to classes with examples. Structure &life history of Obelia. Polymorphism. 4 hrs

Platyhelminthes: General characters & Classification up to classe with examples. Type Study-Fasciola hepatica Externals character, Reproductive system & Life history. Parasitic adaptation in Platyhelminthes. 3 hrs

Aschelminthes: General characters & classification up to classes with examples .Parasitic adaptations in Aschelminthes. 2 hrs

UNIT-III

Annelida: General characters & classification up to classes with examples. Type study Pheretima posthumous- Externals characters, Digestive system, Excretory system, Nervous system, Circulatory system and Reproductive system. 5 hrs

Arthropoda: General characters & Classification up to classes with examples. Type study Prawn- Externals characters, Digestive system. Nervous system & Reproductive system. Appendages of prawn. Mouth parts of Cockroach, House fly, Butter fly & Mosquito. 7 hrs

UNIT-IV

Mollusca: General characters & Classification up to classes with examples. Type study Pila globosa Externals characters, Digestive system. Respiratory system. Nervous system & Reproductive system. 6 hrs

Echinodermata: General characters & classification up to classes with examples. Type study-Starfish-External characters, Digestive system, Water vascular system, and Echinoderm larvae. 5hrs

UNIT-V

Parasitology: External structure, Life Cycle,and mode of Transmission, Pathogenecity and control measure of the following.07hrs

1. Plasmodium vivax
2. Entameoba histolytic
3. Taenia solium
4. Ascaris
5. Wacheria bancrofti
6. Ectoparasites – Ticks & mites.

PRACTICALS

Total Practical – 12

1. Study of protozoan culture & preparation of slides. 01
2. Classification of up to classes with one suitable example from Each Protozoa, Porifera, Coelenterate, Platyhelminthes. Aschelminthes & Annelid.
3. Classification of up to classes with one suitable example from Each Arthropoda, Mollusca, Echinodermata. 05
4. Mouth parts of Cockroach, House fly, Butter fly & Mosquito. 01
5. Parasitic adaptations in Taenia solium, Wacheria bancrofti & Fasciola hepatica. 01
6. Explanation & Demonstration in Earth worm. 04
   a). External characters
   b). Digestive system
   c). Nervous system
   d).Reproductive system
   e). Mounting of Blood glands, Ovary, Setae & Nephridia.

NOTE:

1. With the help of Charts/Models/Diagrams/Printouts & Xerox Sheets are used in practical's demonstration.
2. As per UGC guidelines **Only one** specimen is to be demonstra -ted by Faculty & students should not do any dissection.
3. Students are supposed to draw neat labelled diagrams & write The explanation in their journal.
4. In practical examination question no I & II are put Charts/ Models/ Diagrams/ Printouts & Xerox Sheets of the system- Students has to identify& write the explanation in their Examination paper.

REFERENCE BOOKS

1. Modern Text Book of Zoology Invertebrate –R.L.Kotpal.
2. Invertebrate Zoology –Dhami & Dhami
3. Non - Chordata (Invertebrata) - Majapuria
4. Functional Organization of Non-Chordata- H Nigam & R.Sobti- Shoban Lal Nagin Chand & Co.
5. A manual of Zoology Invertebrate- M.Ekambarnath Ayyar & Swaminathan Ayyar S. Vishwanath Publisher.
6. The InvertebratesVol-1Protozoa Hyman L.H.McGraw Hill
7. The Invertebrates Vol 2 – Hyman et al.
8. Text Book of Zoology – Parker T.J. & Haswell W.A. Macmillan Co.London

GROUP - III

I SEMESTER

INDIAN CONSTITUTION

(Compulsory Paper) for all U.G. Courses (Total = 80 Marks)

Chapter -I Constitutional History, Preamble salient features, citizenship, Method of Amendment and Recent Amendments **08 Hours**

Chapter -II Fundamental Rights and Directive Principles of State Policy. Fundamental Duties. Difference between Fundamental Rights and Directive Principles of State Policy **10 Hours**

Chapter -III Union Government **10 Hours**

a)President - powers and functions. Vice president powers and functions, Prime Minister and council of ministers

b)Parliament- Lok sabha, Rajya sabha- composition powers and functions.

c)Judiciary (Supreme Court) composition powers and functions Judicial Activism

Chapter -IV State Government **10 Hours**

a) Governor: powers and functions
b) Chief minister:
c) State Legislative Assembly and Legislative Council- composition powers and functions.
d) High Court : composition powers and functions

Chapter -IV Recent Trends in Indian Constitution **12 Hours**

a) Basic structure of Indian Constitution.
b) National Integration- and obstacles to National Integration
c) Federalism, Centre State Relations
d) Recent Electoral Reforms and Anti Defection Law
e) Recommendations of National Commission to Review the working of Indian Constitution.

Books of Reference :

1. M.V.Pylee, An Introduction to the Constitution of India, New Delhi, Vikas, 2005.

2. Subhash C. Kashyap, Our Constitution : An Introduction to India's Constitution and constitutional Law, New Delhi, National Book Trust, 2000.

3. Durga Das Basu, Introduction to the Constitution of India, New Delhi, Prentice Hall of India, 2001.

4. D.C.Gupta, Indian Government and Politics, VIII Edition, New Delhi, Vikas, 1994.

5. J.C.Johari, Indian Government and Politics, Delhi, Sterling Publishers, 2004.

6. V.D.Mahajan, Constitutional Development and National Movement in India, New Delhi, S. Chand and Co., latest edition.

7. Constituent Ascysembly Debates, New Delhi, Lok Sabha Secretariat, 1989.

8. Granville Austin, Working of a Democratic Constitution : The Indian Experience, New Delhi, Oxford University Press, 1999.

9. A.P.Avasthi, Indian Government and Politics, Agra, Naveen Agarwal, 2004

10.S.A.Palekar, Indian Constitution, New Delhi, Serials Publications, 2003.

11.Brij Kishore Sharma, Introduction to the Constitution of India (Second Edition), New Delhi, Prentice-Hall of India, 2004.

12.H.M.Rajashekhar, Understanding the Indian Constitution, Mysore, Prabodha, 2005.
13.J.N.Pandey, Constitutional Law of India, Allahabad. Central Law Agency

13. Indian Policy- M Laxmikanth, MgGRAW hill education WE Series 4th Edition

Model Question Paper

1. There will be Eight questions
2. Student has to answer any Five questions
3. Each question carry 16 Marks

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