PunyashlokAhilyadevi Holkar Solapur University, Solapur

Name of the Faculty: Science &Technology

NEP 2020

Syllabus: Geo-chemistry

Name of the Course: B.Sc. II (Sem. III & IV)

(Syllabus to be implemented from June 2025)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Three Majors in First Year structure as per NEP-2020 Approved in For AC Meeting on 18/04/2024

4- Year Multidisciplinary UG Program with DSC as a Major (4 -Year Bachelor of Science (Honors)/(Honors with Research)

Level/ Difficulty	Sem.	Faculty			Generic/ Open Elective GE/ OE	Vocational and Skill Enhancement Courses (SEC/VSC)	Ability Enhancement Course (AEC), IKS, VEC	Field Project/ RP/CC/Internship/Apprenticeship/ Community Engagement & Services	Credits	Cumulative Credits
		Major		Minor						
		DSC	DSE							
4.5 100-200	I	DSC1-1 (2+2)#	--		GE1/ OE1(2)	SEC1 (2)	L1-1(2) IKS (2) VEC1(2) (Indian Constitution And Democracy)	--	22	**44 UG Certificate (44)**
		DSC2-1 (2+2)#	--							
		DSC3-1 (2+2)#	--							
	II	DSC1-2 (2+2)#	--		GE2/ OE2(2)	SEC 2 (2)	L1-2(2) VEC2(2) (Environmental Studies)	CC1 (2)	22	
		DSC2-2 (2+2)#	--							
		DSC3-2 (2+2)#	--							
Exit option: Award of UG Certificate in Major with 44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor										
5.0/200	III	DSC1-3 (2+1)	---	DSC2-3 (2+1)	GE3 / OE3(2)	VSC1 (2) (DSC1) VSC2(2) (DSC2)	L2-1 (2)	CC2 (2)	22	**44 UG Diploma (88)**
		DSC1-4 (2+1)	---	DSC-2-4 (2+1)						
	IV	DSC1-5 (2+1)	---	DSC2-5 (2+1)	GE4/ OE4 (2)	VSC3 (2) (DSC1) VSC4(2) (DSC2)	L2 -2(2)	FP1/CEP1(2)	22	
		DSC1-6 (2+1)	--	DSC2-6 (2+1)						
Exit option: Award of UG Diploma in Major with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major										
5.5/300	V	DSC1-7 (3+2) DSC1-8 (3+2) DSC1-9 (3+2)	DSE1-1 (2+1) or DSE1-2 (2+1)	----	----	VSC3 (2) (Hands on Training related to DSE)	IKS 2 (2) (related to major subject)	--	22	**44 UG degree (132)**
	VI	DSC1-10 (3+2) DSC1-11 (3+2) DSC1-12 (3+2)	DSE1-3 (2+1) or DSE1-4 (2+1)	----	---	VSC4 (2) (Hands on Training related to DSE)		FP2/CEP2/OJT1 (2)	22	
	Total Credits 3 Yrs	**66-8#**	**6**	**12 +8#** 20	**08**	**16**	**16**	**08**	**132**	
Exit option: Award of UG degree in Major with 132 Credits OR Continue with Major										
6.0/400	VII	DSC1-13 (4+2) DSC1-14 (4+2)	DSE1-5 (4+2)	Research Methodology (4)	------	----	----	---	22	**44 UG Honours Degree in Main faculty (176)**
	VIII	DSC1-15 (4+2) DSC1-16 (4+2)	DSE1-6 (4+2)		----	-----	----	OJT/In-house Project/ Internship/ Apprenticeship (4)	22	
	Total 4 Yrs	**90-8#**	**18**	**16+8#**	**08**	**16**	**16**	**12**	**176**	
Award of Bachelor of Science Honors., (B.Sc. Honors.) degree with Major and Minor (176 credits)										

		OR								
6.0/400	VII	DSC1-13 (4) DSC1-14 (4)	DSE1-5 (4)	Research Methodology (4)	------	----	----	Research Project (6)	22	**44 UG Honours with research Degree in Main faculty (176)**
	VIII	DSC1-15 (4+2) DSC1-16 (4+2)	DSE1-6 (4)		----	-----	----	Research Project (6)	22	
	Total 4 Yrs	**86-8#**	**14**	**16+8#**	**08**	**16**	**16**	**20**	**176**	

#Out of the three major courses in the first year, one major (comprising 4 credits for the 1st semester and 4 credits for the 2nd semester) will transition into a minor starting from the second year. Consequently, 8 credits will be reallocated from the major course credit count and added to the minor credit count, thereby meeting the requisite credit criteria for the minor as stipulated in the guidelines.

Structure as per NEP-2020

B. Sc. II (Geo-chemistry)

Structure as perNEP-2020
(GEOCHEMISTRY)

SEMESTER-III					
Sr.No.	**Course Type**	**Course**	**Code**	**PaperTitle**	**Credit**
1	Minor	DSC2-3(T)		Geochemistry Paper I (Introduction to Geochemistry)	2
		DSC2-3(P)		Practical-I	1
2.	Minor	DSC2-4(T)		Geochemistry Paper II (Introduction to Solar system and Geo-sphere)	2
		DSC2-4(P)		Practical II	1
3	VSC	VSC-2		VSC2	2
				Total	**08**
SEMESTER-IV					
4.	Minor	DSC2-5(T)		Geochemistry Paper III (Principles of Geochemistry)	2
		DSC2-5(P)		Practical -III	1
5.	Minor	DSC2-6(T)		Geochemistry Paper IV (Chemistry of the Earth)	2
		DSC2-6(P)		Practical- IV	1
6.	VSC	VSC-4		VSC4	2
				Total	**08**

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ।। विद्यया संपन्नता ।। NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**PunyashlokAhilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Geo-chemistry) Semester-III** **Vertical: DSC2-3** **Course Code:** **Course Name:Geochemistry Paper I (Introduction to Geochemistry)**
***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: This course includes the concepts from phase equilibria and basic organic chemistry. This course deals with Gibbs phase rule, phase diagrams of water and sulphur. This further includes the chemistry of solid state materials. Second unit of this course includes the chemistry of carbon compounds and colloidal systems.

	Course Objectives:
●	To study the phase diagrams
●	To know the crystalline solids
●	To sketch the phase diagrams of chemical systems
●	To study the crystal structures of rock salt, zinc sulphide etc
	Course Outcomes: After completion of the course students will be able to
CO1:	Understand the concept of phase diagram
CO2:	Apply phase rule to the chemical systems
CO3:	Know about the crystal systems
CO4:	Study the crystal structure parameters
Unit I:	(15 L)
1	(7L)
1.1	Gibbs phase rule
1.2	applications of phase rule to one component system (water system and Sulphur system),
1.3	Goldschmidt's Mineralogical phase rule
2	(8L)
2.1	The states of matter, the crystalline state,
2.2	Principles of crystal structure, formation of crystal, lattice energy of crystals, radius ratio, coordination number,
2.3	Structure of Sodium Chloride, Cesium Chloride, Zinc Sulphide.
2.4	Brief idea of radii of common ions in rock forming minerals. General rules of the three dimensional structure with the help of solid geometry
Unit II:	**(15L)**

3	(7L)
3.1	Chemistry of carbon compounds,
3.2	General characteristics of organic compounds,
3.3	classification of organic compounds, homologous series,
3.4	empirical and molecular formula of organic compound.
4	(8L)
4.1	Colloids-Definition, kinds of colloidal system, ,
4.2	electrical, mechanical and optical properties of colloids
4.3	electrical charges on colloids, silica as chemical sediment, clay minerals as colloids,
4.4	geological evidences of silica and clay minerals
	Reference Books:
1	Brian Mason-Principles of Geochemistry
2	H. H. Read(ed.)-Rutley's Elements of Mineralogy
3	K B Krauskopf-Introduction to Geochemistry
4	H R Rollinson-Using geochemical data: Evaluation, Presentation, and Interpretation.

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ॥ विद्यया संपन्नता ॥ NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**PunyashlokAhilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Geo-chemistry) Semester-III** **Vertical: DSC2-3P** **Course Code:** **Course Name: Practical -I**
***Teaching Scheme** **Practical:02Hours/week, 01Credit**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

Course Preamble: This practical course designed in order to develop the practical skills. This course will develop volumetric analysis skills. The practicals related to the estimation of calcium, magnesium, alumina etc. are included in this course.

	Course Objectives:
●	To inculcate practical skills
●	To do the semi microanalysis of the given sample
●	To acquire basic glassware handling skills
	Course Outcomes: After completion of the course students will be able to
	On successful completion of this practical course student will be able to:
●	Identify the metal present in the given ore sample
●	Know the paper chromatographic technique
●	Identify the positive and negative ion present in the given ore sample
	List of Experiments
Sr. No.	**A) Organic Qualitative Analysis: (Any four compounds)**
	Volumetric analysis
1	Estimation of alumina in ore
2	Estimation of manganese in ore
3	Estimation of calcium and magnesium in carbonate rocks
4	Estimation of Ca, Mg carbonates, bicarbonates, chlorides, and sulphates.
	Reference Books:
1	Practical geochemistry by Paul Alexandre
2	Geochemistry concepts and applications edited by Inamuddin
3	Essentials of geochemistry by john V. Walther

4	Geochemistry by Maria Uhle

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-III** **Vertical : DSC2-4** **Course Code:** **Course Name: Geochemistry Paper II- Introduction to Solar system and Geo-sphere**
***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: This theory course is designed to understand our solar system and geo sphere. This course will help in understanding the composition and geological evolution of atmosphere and hydrosphere. This further helps in studying zonal structure of the Earth

	Course Objectives:
•	Learn about the fundamentals of solar system, meteorites, zones of the earth
•	Get introduced to different zones of earth and their composition
•	Learnabout evolution of atmosphere through geological time.
	Course Outcomes: After completion of the course students will be able to
CO1:	learn about the origin, composition of sun, meteorites
CO2:	get information about atmosphere, hydrosphere
CO3:	Learn about the composition and geological evolution of atmosphere and hydrosphere
Unit 1:	(15L)
1.	(8L)
1.1	Nature of solar system, composition of the sun; Composition of Meteorites and their types; Cosmic Abundance of the elements
1.2	Zonal structure of the earth, Composition of the crust, mantle and core; Composition of the earth as a whole; primary differentiation of the elements, Geochemical classification of the elements.
Unit II:	(15L)
2.	(7)
2.1	Structure of atmosphere, composition of the atmosphere, variable constituents of the atmosphere; Evolution of the atmosphere and composition of the

	primary atmosphere; Atmospheric additions and losses During geological time.
2.2	Nature of the hydrosphere, composition of sea water, composition of Terrestrial waters; Gains and losses of elements in the oceanic water.
	Reference Books
1.	Principles of Geochemistry – Brian Mason and C.B. Moore
2.	IntroductiontoGeochemistry - Krauskopf
3.	StandardManuals-Procedures foranalysisandestimationsofores,minerals&rocks
4.	A Text Book of Geology - P.K. Mukherjee, World Press, Kolkata
5.	Principles of Physical Geology - Arthor Holmes, Champman and Hall, London
6.	A text book of Physical geology- Mahapatra, G.B., 1994. CBS Publishers
7.	Earth Science: The Earth, The Atmosphere, and Space - S. Marshak and R. Rauber, W.W. Norton & Co.
8.	Encyclopedia of Geomorphology - Andrew S. Goudie, Routledge
9.	Introduction to Coastal Processes and Geomorphology - Robin Davidson-Arnott, Cambridge

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***Teaching Scheme** **Lectures:02 Hours/week, 01Credit**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

Course Preamble: This practical course is designed to study the important concepts like our solar system, the interior and exterior part of the Sun, the atmosphere and its different zones. The students will study the hydrological cycle and the composition of different types of water

	Course Objectives:
•	To know about solar system
•	To understand the external and internal structure of the Sun
•	To study atmosphere, its different zones
•	To study water cycle
	Course Outcomes: After completion of the course students will be able to
CO1:	Understand the solar system
CO2:	Know about the interior of the Sun
CO3:	Understand different zones of the atmosphere
CO4:	Study the hydrological cycle
	Practicals
1.	Draw labelled diagram of Solar system and Describe in brief composition of Sun
2.	Draw and Describe characters of Inner and Outer Planets of Solar system
3.	Draw labelled diagram of interior of the earth with discontinuities and describe the earth crust
4.	Draw labelled diagram showing different zones of Atmosphere and describe different zones with composition, Characters
5.	Describe distribution of water in Hydrosphere
6	Draw and describe Hydrological cycle in nature
7	Describe composition of sea water and terrestrial water
	Reference Books
1.	PrinciplesofGeochemistry – BrianMasonandC.B.Moore
2.	IntroductiontoGeochemistry - Krauskopf
3.	StandardManuals-Procedures foranalysisandestimationsofores,minerals&rocks

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-III** **Vertical :VSC 2** **Course Code:** **Course Name: Practical VSC 2**
***Teaching Scheme** **Lectures:04 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: This course includes the practicals. This course will help students in strengthening their practical skills. This course includes the chromatographic technique. The separation of metal ions and its detection will be studied. The study of different types of important minerals will be through this course.

	Course Objectives:
●	To know about chromatography
●	To understand the principle and working of the chromatographic technique.
●	To identify different metal ions present in the ore solution
	Course Outcomes: After completion of the course students will be able to
CO1:	Understand the basic concepts of chromatography
CO2:	Separate and detect metal ions present in ores
CO3:	Study physical properties of minerals
CO4:	Identify ore minerals
	Chemistry Practicals
	Chromatography
	Detection of traces of metals by chromatography (Any three)
	Geology practicals
1	Study of Physical properties of Minerals
2	Megascopic Identification of Ore Minerals (Part -I) - Hematite,magnetite, Pyrite, pyrolusite,psilomelane,galena, Sphalerite
3	Megascopic Identification of Ore Minerals (Part -II) - Graphite, Chalcopyrite, malachite,

	Azurite, chromite, bauxite,coal, Sulphur
4	Megascopic Identification of Industrial minerals (Part - III) - muscovite,biotite,calcite,dolomite,garnet,quartz,olivine,tourmaline,talc,Fluorite
5	Megascopic Identification of Ore and Industrial Minerals (Part -IV) - Barytes,kyanite,asbestos, plagioclase,orthoclase,andgypsum.
	Reference Books
1	PrinciplesofGeochemistry – BrianMasonandC.B.Moore
2	IntroductiontoGeochemistry - Krauskopf
3	StandardManuals-Procedures foranalysisandestimationsofores,minerals&rocks

Semester IV

पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ ।। विद्यया संपन्नता ।। NAAC Accredited-2022 'B++' Grade (CGPA-2.96)	**PunyashlokAhilyadevi Holkar Solapur University, Solapur** **Second Year BSc(Geo-chemistry) Semester-IV** **Vertical : DSC2-5** **Course Code:** **Course Name: Geochemistry Paper III- Principles of Geochemistry**
***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: This theory course includes the unit of chemical equilibrium and organic material sediments. These units deals with law of mass action, Le Chatelier's principle, Vont Hoff's isotherms, isotope geochemistry, radioactive and radiogenic isotopes etc.

	Course Objectives:
•	
•	
	Course Outcomes: After completion of the course students will be able to
CO1:	Learn law of mass action
CO2:	Understand Le Chatelier's rule
CO3:	Study Van't Hoff isotherm equation
CO4:	Apply isotope geochemistry
Unit 1:	**(15L)**
	Chemical Equilibrium (07L)
1.1	The law of mass action, an example of equilibrium, hydrogen chloride, the effect of temperature, other examples as CO2 in water and calcium sulphate. Le chateliar's rule, stability, Van't Hoff isotherm equation
	Acids and Bases (8L)
1.2	Chemical definition, Geological usage, pH, Hydrolysis of Na2CO3; Estimation of ionic concentration, carbonate equilibrium, Temperature changes; Changes in pressure & organic activity
Unit II	**(15L)**
2	**Organic material sediments**
2.1	Organic reactions, carbon in rocks, origin of petroleum, origin of coal, organic matter in black shale, carbon compoundsas reducing agent
2.2	Elements of geochemical thermodynamics, Isotope geochemistry: Kinds

	of isotopes, radioactive and radiogenic isotopes, strontium and lead; stable isotopes.
	Reference Books
1	Brian Mason-Principles of Geochemistry
2	H. H. Read(ed.)-Rutley's Elements of Mineralogy
3	K B Krauskopf-Introduction to Geochemistry
4	H R Rollinson-Using geochemical data: Evaluation, Presentation, and Interpretation.

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-IV** **Vertical : DSC2-5 P** **Course Code:** **Course Name: Practical-III**
***Teaching Scheme** **Lectures:02 Hours/week, 01 Credits**	***Examination Scheme** **UA:15 Marks** **CA: 10 Marks**

Course Preamble: This course is of practicals. This course includes the practicals based on identification of ores. This course helps in students to build practical skills.

	Course Objectives:
•	To do qualitative analysis of given ore
•	To identify the given ore
	Course Outcomes: After completion of the course students will be able to
CO1:	Do the qualitative analysis of the cation and anion present in the given ore
CO2:	Identify the unknown ions present in the ore
	Chemistry Practicals
1	Qualitative analysis and identification of representative ores and minerals. (Any Five)

	Reference Books
1	Brian Mason-Principles of Geochemistry
2	H. H. Read(ed.)-Rutley's Elements of Mineralogy
3	K B Krauskopf-Introduction to Geochemistry

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-IV** **Vertical :DSC2-6** **Course Code:** **Course Name: Geochemistry Paper IV-Chemistry of the Earth**
***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA:30 Marks** **CA: 20 Marks**

Course Preamble: Course Preamble: This theory course consists of two units. Unit I deals withGeochemical cycle, Radioactive and Radiogenic Isotope Geochemistry and Geochronology while unit II deals with Weathering and soil formation, Formation of clay minerals, Environmentalpollution and Study of Materials of the crust

	Course Objectives:
•	To gain knowledge of geochemical cycle
•	To deal with radioactive isotope geochemistry
•	To study pollution with respect to air, water and soil pollution
	Course Outcomes: After completion of the course students will be able to
CO1:	Learn geochemical cycle
CO2:	Understand isotope geochemistry
CO3:	Study the phenomena of weathering and soil formation

CO4:	Study environmental pollution
UNIT-I	**15L**
1	
1.1	The earth as a physico-chemical system; Geochemical cycle
1.2	Fundamentals of Radioactive and Radiogenic Isotope Geochemistry.
1.3	Geochronology: long-lived radioactive decay systems. Radiogenic Isotopic tracers:
1.4	Crust as a separate system Evolution of Mantle, Crust and Sediments.
1.5	Oxidation potentials- Oxidation and reduction, electrode reactions, standard potentials, use of the table of oxidation potentials;
1.6	Redox Potential, Ionic potential, Hydrogen ion concentration, Limits of pH and Eh in nature, Eh and pH diagrams
UNIT-II	**15L**
2	
2.1	Weathering and soil formation, elemental mobility in surface environment
2.2	Formation of clay minerals, their classification, types, composition. Properties of soils
2.3	Environmentalpollution:Definitionofpollution,Briefintroduction, types AndsourcesofAir, WaterandSoilPollutions
2.4	Study of Materials of the crust
	Reference Books
1.	Inorganic Preparations – Alexander King George Allen & Unwind Ltd.
2.	Quantitative Inorganic Chemistry – A.I. Vogel.
3.	Practical Chemistry – Physical – Inorganic – Organic and Vice-voce by Balwant Rai Satija. Allied Publishers Pvt. Ltd.
4.	Basic Concepts in Analytical Chemistry – S.M. Khopkar.
5.	Vogel's Text Book of Quantitative Inorganic Analysis – Bassett, Denny, Jeffery Mendham.

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-IV** **Vertical :DSC2-6P** **Course Code:** **Course Name: Practical–IV**
***Teaching Scheme** **Lectures:02 Hours/week, 01 Credits**	***Examination Scheme** **UA: 15 Marks** **CA: 10 Marks**

	Course Objectives:
•	To build the practical skills among the students
•	To understand various steps involved in the analysis of water
•	To understand various steps involved in the analysis of soil
	Course Outcomes: After completion of the course students will be able to
CO1:	Do geochemical analysis of surface water
CO2:	Do geochemical analysis of soil
	Practicals
1.	Draw and describe Geochemical Cycle
2.	Geochemical Analysis of Surface Water (Part -I)
3.	Geochemical Analysis of Sub-Surface Water (Part -I)
4.	Geochemical Analysis of Sub -Surface Water (Part -II)
5.	Geochemical Analysis of Soil (Part -I)
6.	Geochemical Analysis of Soil (Part -II)
	Reference Books
1	Brian Mason-Principles of Geochemistry
2	H. H. Read(ed.)-Rutley's Elements of Mineralogy
3	K B Krauskopf-Introduction to Geochemistry

	PunyashlokAhilyadevi Holkar Solapur University, Solapur **Second Year BSc(Geo-chemistry) Semester-IV** **Vertical :VSC4** **Course Code:** **Course Name: Practical VSC 4**
***Teaching Scheme** **Lectures:02 Hours/week, 02 Credits**	***Examination Scheme** **UA: 30 Marks** **CA: 20 Marks**

Course Preamble: This course helps to study the colorimetric estimation of metal complexes. This course will deal with the colorimetric technique.

	Course Objectives:
•	To understand about colorimetric technique.
•	To prepare the standard solutions
•	To verify Beer's law
	Course Outcomes: After completion of the course students will be able to
CO1:	Prepare standard solutions of metal ions
CO2:	Plot the graphs and estimation of slope
CO3:	Verify Beer's law
	Chemistry Practicals
	Calorimetric determinations: a) Estimation of alumina b) Estimation of manganese, c) Estimation of total Iron d) Estimation of copper
	Geology practicals
1	Mineral and Rock Calculations - Pyroxene-Hess calculation from given chemical data (Part - I)
2	MineralandRockCalculations - Pyroxene-Hesscalculationfromgivenchemicaldata (Part - II)
3	Mineral and Rock Calculations - Pyroxene-Plagioclase-Feldspar calculations
4	Mineral and Rock Calculations - Norm calculations from given chemical data (Persalic type) (Part - I)

5	Mineral and Rock Calculations – Norm calculations from given chemical data (Persalic type) (Part -II)
	Reference Books:
1.	Quantitative Inorganic Chemistry – A.I. Vogel.
2.	Practical Chemistry – Physical – Inorganic – Organic and Vice-voce by Balwant Rai Satija. Allied Publishers Pvt. Ltd.
3.	Basic Concepts in Analytical Chemistry – S.M. Khopkar.
4.	Vogel's Text Book of Quantitative Inorganic Analysis – Bassett, Denny, Jeffery Mendham.

UA (Theory)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Faculty of Science & Technology.

Nature of Question Paper for CBCS Pattern

B. Sc. (Part- II) w.e.f. AY 2025-26

Time: Total Marks: 30

Instructions

1) All Questions are compulsory

2) Figure to right indicate full marks.

Q.1 Choose correct alternative. (MCQ) 06 Marks

1)

a) b) c) d)

2)

a) b) c) d)

3)

a) b) c) d)

4)

a) b) c) d)

5)

a) b) c) d)

6)

a) b) c) d)

Q.2. Answer the following. (Any three) 6 (2+2+2)

A)

B)

C)

D)

E)

Q.3. Answer the following (Any two). 6 (3+3)

A)

B)

C)

Q.4. Answer the following (Any two). 6 (3+3)

A)

B)

C)

Q.5. Answer the following (Any one). 6 Marks

A)

B)

CA(Theory and Practical)and UA(Practicals)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur.

Faculty of Science & Technology.

Nature of Question Paper for CBCS Pattern

B. Sc. (Part- II) w.e.f. AY 2025-26

Time: Total Marks: 20

- **Theory Internal Evaluation System for 20 Marks**
  - Choose any two of the following
  - Home Assignment / Unit Test / Tutorial /Seminar

- **Practical Internal Evaluation System for 20 Marks**
  - Any one practical from related paper

- **University Practical Evaluation System for 30 +30 Marks**
  - Students has to perform 4 allotted experiments in 2 days

- **Passing Criteria:**
  - University Theory Exam (UA) – 12 out of 30
  - University Practical Exam (UA) – 12 out of 30
  - College Theory Assessment (CA) – 08 out of 20
  - College Practical Assessment (CA) – 08 out of 20

Note: Theory and practical examiners should be appointed from the list provided by the BOS as per section 48(3) of Maharashtra Public University Act 2016.