Syllabus and Course Scheme

Academic year 2020-21

Bachelor of Science- Geology

Exam.- 2021

UNIVERSITY OF KOTA

MBS Marg, Swami Vivekanand Nagar,
Kota - 324 005, Rajasthan, India

Website: uok.ac.in

University of Kota, Kota

B.Sc.- Pt-I (Geology) Exam

The examination shall consist of three theory papers and one practical.

		Hr/Week	Exam/Hr.	M. Marks
A. Theory Papers				
Paper I :	Physical Geology	2	3	50
Paper II :	Paleontology	2	3	50
Paper III :	Crystallography and Mineralogy	2	3	50
B. Practical		4	4	75
Total Marks				**225**

Note:

Time: 3 hrs **MM 50**

Note: Each paper will be divided into THREE parts.

Section- A

This section contains one compulsory question with 10 parts, having 2 parts from each unit, short answer in 20 words for each part. All questions carry equal marks.

Section –B

This section contains 10 questions having 2 questions from each unit. Answer 5 questions (250 words each) selecting one question from each unit. All questions carry equal marks.

Section –C

This section contains 04 descriptive type questions (questions may have sub divisions) covering all units but not more than one question from each unit. Answer any two questions (500 words each). All questions carry equal marks.

Paper I- PHYSICAL GEOLOGY

Duration: 3 Hours **Max. Marks: 50**

UNIT-I

Earth as a member of the solar system. Origin and age of the Earth. Physical parameters of the Earth, Internal constitution of the Earth. Concept of Isostasy.

Unit –II

Surface features of the Earth. Distribution of land and ocean. Coral reefs. Distribution and causes of earthquakes. Seismic waves as indicator of the Earth's interior. Volcanoes: causes, distribution and types.

Unit-III

Weathering and erosion. Geological work of wind, rivers, ocean, and glacier.

Unit IV

Major tectonic features of the Earth: Mountain belts, shields, island arcs, trenches, mid-oceanic ridges and ocean basins.

Unit-V

Geosynclines, Continental Drift Concept of Plate Tectonics. Evolution of Himalayas and Indo-Gangetic Plain.

Paper-II- PALAEONTOLOGY

Duration : 3 Hours **Max. Marks: 50**

UNIT-I

Definition, subdivisions of Paleontology and its relation with allied subjects. Fossils, their modes of preservation. Uses of fossils. Habitats and Habits. Elementary ideas of organic evolution. Classification and Nomenclaure.

Unit-II

Morphology and geological distribution of Foraminifera, Graptoloidea and Echinoidea.

Unit- III

Morphology and geological distribution of Gastropoda, Pelecypoda and Cephalopoda.

Unit-IV

Morphology and geological distribution of Brachiopoda, Corals and Trilobita.

Unit V

Elementary knowledge of Gondwana plant fossils. Vertebrate fossils of Siwaliks of India. Evolutionary history of man.

Paper III- CRYSTALLOGRAPHY AND MINERALOGY

Duration : 3 Hours **Max. Marks: 50**

UNIT-I

Fundamental laws of Crystallography, Elements of crystal symmetry, Millers and Wiess systems of notation. Crystal forms and their classification into Crystal system.

UNIT- II

Study of holohedral classes of following crystal systems-Cubic system, Tetragonal system, Hexagonal system, orthorhombic system, Monoclinic system and Triclinic system.

UNIT- III

Physical properties of minerals, Concept of isomorphism and polymorphism. Elementary ideas about structure and classification of silicate minerals Study of physical and optical properties of quartz, feldspar and mica families.

UNIT –IV

Petrologic microscope and its construction: principles of optics as applied to orthoscopic study of minerals, color, form, birefringence, and pleochroism. Ideas about uniaxial and biaxial characters of minerals.

UNIT -V

Study of the physical and optical properties of following rock forming mineral families: Olivine,, pyroxene, amphibole, and feldspar. Study of optical properties in particular of following minerals: Muscovite, biotite, quartz, orthoclase, microcline, albite, olivine, augite, diopside, hypersthene, hornblende and tremolite.

B.Sc. FIRST YEAR GEOLOGY PRACTICAL 2020-2021

Examination will be of four hours duration.

Maximum Marks 75

Physical Geology	10
Paleontology	20
Crystallography-Mineralogy	20
Field Work	10
Viva Voce	05
Record	10
Total	**75**

(i) Paleontology

Identification and description of following fossils in hand specimens:

Foraminifera	:	*Nummulites Assilina, Alveolina.*
Echinoidea	:	*Hemiaster, Micraster.*
Brachiopoda	:	*Rhynchonella, Terebratula.*
Pelecypoda	:	*Pecten, Ostrea, Trigonia.*
Gastropoda	:	*Trochus, Murex, Physa, Turritella, Conus.*
Ammonoidea	:	*Phylloceras, Ceratites.*
Coleoidea	:	*Belemnites.*
Nautilodidea	:	Nautilus.
Trilobita	:	*Calymene, Phacops, Agnostus, Trinucleus, Paradoxides.*
Graptoloidea	:	*Monograptus, Diplograptus.*
Plant fossils	:	*Glossopteris, Gangmopteris, Vertibraria, Ptilophyllum.*

(ii) Crystallography and Mineralogy:

Description and identification of the following minerals in hand specimen : Quartz, feldspar, muscovite, biotite, chlorite, hornblende, augite, olivine, talc, gypsum, apatite, fluorite, topaz and corundum.

Drawing, description and identification of crystal models.

(iii) Physical Geology:

Preparation of charts and diagrams illustrating important processes of erosion and weathering. Distribution of important mountain ranges of the world (Himalaya, Alps, Andes, Applachian, Rocky)

(iv) Field Training:

Geological field excursion relevant to syllabus and report thereon.

Books suggested, besides the Internet: B.Sc. Part-I

Datta A.K.: Introduction to Physical Geology, Kalyani Publishers, New Delhi.

Ford, W.E.: Dana's Textbook of Mineralogy, John Wiley & Sons, New York.

Hamblin W.K.: Earth's Dynamic Systems, Macmillan Publishing Company, New Yourk.

Homes A.: Principles of Physical Geology, Thomas Nelson & Sons, London.

Mahapatra G. B.: A Textbook of Geology, CBS Publishers & Distributions, Delhi.

Mukerjee P.K.: A Textbook of Geology, The world Press Pvt. Ltd., Calcutta,

Parbin Singh: Engineering & General Geology, S.K. Kataria & Sons, New Delhi.

Read H.H.: Rutley's Elements of Mineralogy (revised by C.D. Gribble), CBS Publishers & Distributors, Delhi.

Sharma, N.L.: Determinative Tables, ISM, Dhanbad.

Shrock R.R. & Twenhofel W. H.: Principles of Invertebrate Palaeontology, CBS Publishers & Distributors, Delhi.

Tarbuck E.J. & Lutgens F.K.: The Earth- An Introduction to Physical Geology, Merrill Publishing Company, London.

Woods, Henry: Paleontology Invertebrates, CBS Publishers & Distributors, Delhi.

K.M. Bangar: Principles of Engineering Geology, Standard Publ. Distributor, Delhi.

A.B. Roy: Fundamental of Geology. Alpha Science Internation limited.