

Chhindwara University, Chhindwara (M.P.)

SYLLABUS OF M.Sc. GEOLOGY SEMESTER - II

Name of Paper	Title of paper	Max. Marks			Minimum Marks			Total Marks
		Theory	CCE	Practical	Theory	CCE	Practical	
Paper- I	IGNEOUS AND METAMORPHIC PETROLOGY	40	10	-	15	4	-	50
Paper- II	SEDIMENTOLOGY	40	10	-	15	4	-	50
Paper- III	STRATIGRAHY OF INDIA	40	10	-	15	4	-	50
Paper- IV	PALAEOBIOLOGY	40	10	-	15	4	-	50
PRACTICAL - I	PETROLOGY	-	-	50	-	-	20	50
PRACTICAL - II	PALAEONTOLOGY AND STRATIGRAPHY	-	-	50	-	-	20	50

Board of Studies :

Chairman -

Sphandana
16.2.2020

Subject Expert -

1. Dr. M.L. PAMUALS

2. Dr. K.R. RANDIVE

3. Dr. H.W. KHANDARE

ref
Randive
16.02.2020
16/2/20

CHHINDWARA UNIVERSITY, CHHINDWARA (M.P.)

Session -2019-2020

CLASS : M.Sc.
SEMESTER : SECOND
SUBJECT : GEOLOGY
PAPER : FIRST
TITLE : IGNEOUS AND METAMORPHIC PETROLOGY
MAX.MARKS : 40

- Unit-I** Origin of Magma. factors affecting Magma composition. Evolution of Magma by Differentiation and Assimilation. Phase Equilibria of Monary (Silica), Binary (Mixed and Eutectic) and Ternary (Ab - An - Di), (fo - Fa - Silica) Silicate Systems.
- Unit-II** Classification of igneous rocks including IUGS system. Bowen Reaction Series. Textures of igneous rocks and interpretation of crystallisation history. Layered igneous structures.
- Unit-III** Origin of Granite: Magmatic and granitisation processes. Petrogenesis, Petrography and Indian occurrences of Basalt, Dunite, Andesite, Carbonatite, Alkaline rocks and Kimberlite, gabbro,
- Unit-IV** Agents of metamorphism. Kinds of metamorphism. Metamorphic differentiation, Structures and Textures of metamorphic rocks. Concept of metamorphic zones, Depth zones and Barrovian zones.
- Unit-V** Metamorphic grades, facies of contact and regional metamorphism, Elementary idea of facies series. Facies classification. Metasomatism and their types. Origin and types of Migmatites, Charnockites and Khondalites, Banded Gniess, schist, slates, phyllite, marble, & metabasic.

REFERENCES:

- Best, M.O.1986: Igneous and Metamorphic Petrology, CBS Publ. Bose, M.K.1997: Igneous Petrology, World Press
- Bucher, K & Frey, M. 1991: Petrogenesis of Metamorphic Rocks, Springer
- Verlag Kretz, R. 1994: Metamorphic crystallization, John Wiley
- Mc Birney, A.R. 1993: Igneous Petrology, Jones and Bartlet Publ.
- Phillipots, A. 1992: Igneous and Metamorphic Petrology, Prentice Hall. Turner, F.J. 1980: Metamorphic Petrology, Mc Graw Hills
- Yardley,BW 1989:An Introduction to Metamorphic Petrology, Longman
- Winkler, : Petrogenesis of Metamorphic Rocks, Springer Verlag
- Miyashiro: Metamorphism and Metamorphic Rocks, George Allen and Unwin
- Wyllie, P.J: Ultramafic Rocks.
- P.J Heffer Baily, B. Introduction to Petrology, Prentice Hall

Board of Studies –

1- Chairman –Prof. Arun K. Shandilya

Arun K. Shandilya
16.2.2020

2. Subject Expert –

I. Prof. M.L. Pakhale

II. Prof. K.R. Randive

K.R. Randive

CHHINDWARA UNIVERSITY, CHHINDWARA (M.P.)

Session -2019-2020

CLASS : M.Sc.
SEMESTER : SECOND
SUBJECT : GEOLOGY
PAPER : SECOND
TITLE : SEDIMENTOLOGY
MAX.MARKS : 40

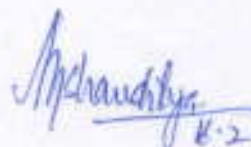
- Unit-I Processes of Sedimentation. Fluid flow, origin of sediments. Modes of transport of sediments. Stoke's and Impact Laws of sediment settling. Classification and nomenclature of the common sediments (rudites, arenites and argillites). Classification of sedimentary rocks.
- Unit-II Origin, classification and significance of primary, secondary and organic sedimentary structures. Classification of sandstone and limestone. Dolomite. Significance of Sedimentary Structures in Palaeocurrent studies.
- Unit-III Textures of sedimentary rocks and their genetic significance. Granulometric analyses of clastic particles, statistical measure and interpretation of nature of sediments. Diagenesis.
- Unit-IV Elements and types of depositional environments: Continental (Fluvial, lacustrine, Aeolian and glacial). Transitional and marine environments, Evaporates and Volcano-clastic sediments.
- Unit-V Provenance and mineral stability. Concept and types of sedimentary provenance. Heavy minerals: their separation and utility in the provenance analyses. Tectonic framework of sedimentation (Kay's classification of tectonic elements). Cyclothem.

REFERENCES:

- Allen, P.1997: Earth surface Processes. Blackwell
- Davis, R.A. 1992: Depositional Systems. Prentice hall
- Einsele, G 1992: Sedimentary Basins. Springer Verlag
- Miall AD. 2000: Principles of Sedimentary Basin Analysis. Springer Verlag
- Nichols, G. 1999: Sedimentology and Stratigraphy. Black well
- Reading H G. 1996: Sedimentary Environments. Black well
- Sengupta, S 1997: Introductions of Sedimentology. Oxford IBH
- Pettijohn, F J: Sedimentary Petrology.
- Thompson and Collison: Sedimentary Structures.
- Pettijohn, Potter and Seiver: Sand and Sandstones.

Board of Studies –

1- Chairman –Prof. Arun K. Shandilya


6.2.2020

2. Subject Expert –

I. Prof. M.L. Pakhale

II. Prof. K.R. Randive




CHHINDWARA UNIVERSITY, CHHINDWARA (M.P.)

Session -2019-2020

CLASS : M.Sc.
SEMESTER : SECOND
SUBJECT : GEOLOGY
PAPER : THIRD
TITLE : STRATIGRAHY OF INDIA
MAX.MARKS : 40

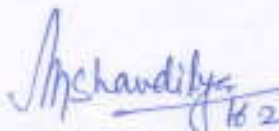
- Unit-I Criteria for the Stratigraphic classification and correlation. Litho-Bio-and Chrono-stratigraphic units. Geological time-Scale. Orogenic cycles of the Indian Stratigraphy. Tectonic framework of India. Geological Column of the Indian Stratigraphy.
- Unit-II Ice-ages in the Indian Stratigraphy: Precambrian, Permo-Carboniferous and Pleistocene ice ages, their evidences. Archaean (Azoic) History of India: Distributions and stratigraphy of the Archaeans of South India, Madhya Pradesh, Rajasthan, Jharkhand and Orissa.
- Unit-III Precambrian (Proterozoic) History of India: Distribution and Stratigraphy of the Cuddapah and Vindhyan Super Groups. Palaeozoic history: Distribution and stratigraphy of Salt Range and Spiti. Origin and age of Saline Formation. Precambrian – Cambrian Boundary problem
- Unit-IV Mesozoic history: Distribution and stratigraphy of Triassic of Spiti, Jurassic of Cutch (Kachchh) and Cretaceous of South India. Bagh Beds, Lameta Beds, Deccan Traps. Permo – Triassic Boundary problem.
- Unit-V Palaeoclimate, Classification, distribution and stratigraphy of the Gondwana Super Group. Cenozoic history: Tertiary of Assam, its economic importance, Siwaliks and its vertebrate, fossil record. K-T Boundary.

REFERENCES:

- Boggs Sam Jr, 1995: Principles of Sedimentary and Stratigraphy. Prentice Hall
- Krishnan, M S: Geology of India and Burma. Higginbothams, Madras
- Ravindra Kumar: Historical Geology and Stratigraphy of India. John Wiley
- Wadia, D N: Geology of India. MacMillan & Co
- Doyle and Brennet MR 1996: Unlocking the Stratigraphy: Concepts and Application. Prentice H

Board of Studies –

1- Chairman –Prof. Arun K. Shandilya


16.2.2020

2. Subject Expert –

I. Prof. M.L. Pakhale

II. Prof. K.R. Pandey



CHHINDWARA UNIVERSITY, CHHINDWARA (M.P.)

Session -2019-2020

CLASS : M.Sc.
SEMESTER : SECOND
SUBJECT : GEOLOGY
PAPER : FOURTH
TITLE : PALAEOBIOLOGY
MAX.MARKS : 40

- Unit-I** Modes of fossilization, uses of fossils, Classification, evolution, geological history of Trilobites, Graptolites, Echinoids and Corals.
- Unit-II** Classification, evolution, geological history of the following; Brachiopoda, Gastropoda, Lamellibranchia and Cephalopoda.
- Unit-III** Succession of the Vertebrate Life through the geological time. Evolutionary history of Human, Elephant and Horse.
- Unit-IV** Micropaleontology: Classification, separation of microfossils. Application of microfossils in fossile fuel exploration, Morphology and geological history of foraminifera
- Unit-V** Concept of Palaeobotany and Palynology, Plant life through ages. Characteristic features of Lower Gondwana flora. Characteristic features of Upper Gondwana flora.

REFERENCES:

- Moore, Lalihar and Fischer: Invertebrate Palaeontology.
- Woods, Henry: Invertebrate Palaeontology
- Clarkson ENK 1998: Invertebrate Palaeontology and Evolution, Blackwell
- Stearn CW and Carrol RL 1989: Palaeontology- the Record of Life, John Wiley
- Smith AB 1998, Bringing Fossil to Life. An Introduction of Palaeobiology, McGraw
- Ananthraman and Jain: Text book of Palaeontology.
- Banner F T and Lord A R: Aspects of Micropalaeontology
- Roger A S: Vertebrate Palaeontology
- Jones D J: Microfossils
- Glassner M P: Principles of Micropalaeontology
- Haq B U and Boersma A: Introduction to Marine Micropalaeontology
- Andrew: Palaeontology

Board of Studies –

1- Chairman –Prof. Arun K. Shandilya


16.2.2020

2. Subject Expert –

I. Prof. M.L. Pakhale

II. Prof. K.R. Randive




CHHINDWARA UNIVERSITY, CHHINDWARA (M.P.)


Session -2019-2020

CLASS : M.Sc.
SEMESTER : SECOND
SUBJECT : GEOLOGY
PAPER : PRACTICAL - 1
TITLE : PETROLOGY
Max. Marks : 50

PAPER : PRACTICAL - 2
TITLE : PALAEONTOLOGY AND STRATIGRAPHY
Max. Marks : 50

Board of Studies -

1- Chairman - Prof. Arun K. Shandilya


16-2-2020

2. Subject Expert -

I. Prof. M.L. Pakhale

II. Prof. K.R. Randive

