

KAKATIYA UNIVERSITY
B.Sc. Final Year (Under CBCS)
SEMESTER – V
(SEC-3) Skill Enhancement Course-III
(FOR ALL SCIENCE FACULTY DEPARTMENTS)

VERBAL REASONING FOR APTITUDE TEST

Credits: 2

Theory: 2 hours/week

Marks - 50

Unit – I NUMBERS AND DIAGRAMS

1.1 Series Completion: Number series, Alphabet Series

1.2 Series Completion: Alpha Numeric Series, Continuous Pattern Series

1.3 Logical Venn Diagrams

1.4 Mathematical Operations: Problem solving by substitution, Interchange of signs and numbers

Unit – II ARITHMETICAL REASONING

2.1 Mathematical Operations: Deriving the appropriate conclusions

2.2 Arithmetical Reasoning: Calculation based problems, Data based problems

2.3 Arithmetical Reasoning: Problems on ages, Venn diagram based problems

2.4 Cause and Effect Reasoning

Text Book: A Modern Approach to Verbal & Non-Verbal Reasoning by
Dr. R.S. Aggarwal

KAKATIYA UNIVERSITY
B.Sc. Final Year (Under CBCS)
SEMESTER – V
(GE-1) GENERIC ELECTIVE-I
(FOR ALL SCIENCE FACULTY DEPARTMENTS)

PUBLIC HEALTH AND HYGIENE

Credits: 2

Theory : 2hours/week

Marks:50

UNIT – I : NUTRITION AND ENVIRONMENT

1.1 Balanced diet and Malnutrition.

1.2 Nutritional deficiencies and disorders- Carbohydrates, proteins, lipids, vitamins and minerals.

1.3 Occupational, Industrial, agricultural and urban Health-Exposure at work place, urban areas, industrial workers, farmers and agricultural labourers, Health workers and health disorders and diseases.

1.4 Environmental pollution and associated Health hazards, Water borne diseases and Air borne diseases.

UNIT-II : DISEASES AND HEALTH CARE

2.1 Causes, Symptoms, Diagnosis, Treatment and Prevention - Malaria, Filariasis, Measles, Polio, Chicken pox, Rabies, Plague, Leprosy,.

2.2 Causes, Symptoms, Diagnosis, Treatment and Prevention of non communicable diseases - Hypertension, Coronary Heart diseases, Stroke, Diabetes, Obesity and Mental ill-health.

2.3 Health care legislation in India – Termination of pregnancy act, Maternity benefit act, Biomedical waste act, ESI act.

2.4 First Aid and Health awareness, personal health care record maintenance.

KAKATIYA UNIVERSITY
U.G. Geology (Under CBCS)
B.Sc. Final Year (DSC-1E)
SEMESTER – V

Indian Geology and Palaeontology

UNIT-I

Indian Geology: Definition of stratigraphy, principles of stratigraphy, lithostratigraphy, standard geological time scale. Physiographic divisions of India with their stratigraphic and structural characteristics. Brief study of type area, distribution in India; lithology, fossil content and economic importance of Dharwar system, Cuddapah system, Vindhyan system, Kurnool system and Gondwana system.

UNIT-II

Brief study of type area, distribution in India; lithology, fossil content and economic importance of the systems : Triassic of spiti, Jurassic of Kutch, Cretaceous of Tiruchirappalli Deccan Traps and their Age, Siwaliks with vertebrate fossils.

Stratigraphic contacts boundaries between Archaean and Proterozoic and cretaceous and tertiary boundaries (K-T boundary). Geology of Telangana state.

UNIT – III

Palaeontology:

Definition of Palaeontology, conditions of fossilization, modes of preservation and uses of fossils. Morphological characteristics and Geological distribution of Phylum echinodermata, Phylum Brachiopod and Phylum Mollusca.

UNIT-IV

Morphological characteristics and Geological distribution of Phylum Arthropoda, Phylum Hemichordata, Phylum Coelenterate.

Study of the following fossils with respect to their classification, morphology and geological distribution.

Cidaris, Micraster, Holaster, Hemiaster, Terebratula, Spirifer, Rhynchonella, Productus, Turritella, Murex, Cypraea, Notica, Voluta, Pecten. Gryphaea, Arca, Cardita, Exogyra, Nautilus, Ammonoids, Bellemnites, Calymene, Paradoxide, Corals and Graptolites.

Study of plant fossils glossopteris, gangamopteris, ptylophyllum.

Practicals: (3 hrs/week)

45 hrs (Credits: 1)

1. Locating of different type areas and equivalents of systems /groups of India in the Indian political map and study of their economic importance.
2. Drawing and description of invertebrate fossils: Cidaris, Micraster, Holaster, Hemiaster, Terebratula, Spirifer, Rhynchonella, Productus, Turritella, Murex, Cypraea, Notica, Voluta, Pecten. Gryphaea, Arca, Cardita, Exogyra, Nautilus, Ammonoids, Bellemnites, Calymene, Paradoxide, Corals and Graptolites.
3. Drawing and description of plant fossils : glossopteris, gangamopteris, ptylophyllum.

Text Books :

1. Geology of India & Burma- M.S.Krishnan.
2. Geology of India- D.N. Wadia,
3. Fundamentals of Historical geology & stratigraphy of India- Ravindra Kumar.
4. Palaeontology – Invertebrate- Henry Wood.
5. Outlines of Palaeontology Paperback - Henry Hurd Swinnerton (Author)

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Indian Geology and Palaeontology Practical

Time: 2 Hours

Credits : 1
Max.Marks:25

- 1) Locate the type area and equivalents of the Cuddapah System and add a note on the available economic important minerals in the given political map of India. (5 M)
- 2) Identify the given invertebrate fossils 1-8 and write their classification morphology and age. (5x2=10 M)
- 3) Identify the given plant fossils 9-10 and write their classification, morphology and age. (2x2½=5 M)
- 4) Record & Viva (5 M)

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SEMESTER – V

Discipline Specific Elective

A) Hydrogeology

UNIT-I

Introduction: Definition of Hydrology, Hydrogeology, Scope and application of Hydrogeology.

Hydrological Cycle: Concept of Hydrological cycle, Evaporation, Condensation, Precipitation, Infiltration, Transpiration, Evapotranspiration. Groundwater and Runoff, Connate water, Juvenile water, Movement of subsurface water.

Ground Water: Origin, Occurrence, vertical distribution of sub-surface water, zone of aeration soil water, vadose water, capillary fringe. zone of saturation – water table. Perched water table.

UNIT-II

Aquifers : Definition of aquifer, Aquitard, Aquiclude, Aquifuge. Types of aquifers, confined, semi-confined, unconfined. Properties of Aquifer – Porosity, retention of water in rocks, yield of water from rocks (specific yield and specific retention), Darcy's law, permeability, hydraulic conductivity. Storage co-efficient .

Quality of Groundwater : Physical, Chemical and Bacteriological characteristics of groundwater. Suitability of groundwater for drinking (with special reference to fluoride content).

Pollution of Groundwater: Pollution in relation to water use urban, industrial and Agricultural sources and causes of pollution.

UNIT-III

Groundwater Investigations: Scope of investigations, Methods of groundwater explorations, Brief account of Geologic, hydrogeologic, Geo-botanical investigations, Introduction to Remote Sensing techniques.

UNIT-IV

Geophysical Exploration: Basic principles of Geophysical exploration methods, Electrical methods – Schlumberger and Wenner configuration, Resistivity profiling and Vertical Electrical Sounding.

Practicals: (3 hrs/week)

45 hrs (Credits: 1)

1. Methods of water analyses for physical and chemical parameters.
2. pH Electrical conductivity and total dissolved solids estimation in water.
3. Electrical Resistivity - Schlumberger method and VES for groundwater exploration.

Field work: Field visit.

Text Books :

1. Groundwater hydrology by Todd.
2. Hydrogeology by Davis and Dewiest.
3. Hydrogeology by Karanth.
4. Groundwater Assessment - Development and Management by Karanth.
5. Applied Hydrogeology by Fetter.
6. Applied principles of Hydrogeology by Mannings.

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Discipline specific Elective

A) Hydrogeology Practical

Time: 2 Hours

Credits: 1
Max.Marks:25

- 1) Analyze the given water sample and estimate their chlorides, carbonates, Bi-carbonates and calcium. (5 M)
- 2) Find out the pH and Electrical conductivity of the given water sample. (5 M)
- 3) Conduct the geophysical survey in field for ground water exploration and suggest a suitable point for bore well / open well by interpreting the data. (10 M)
- 4) Record & Viva (5 M)

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Discipline specific Elective

B) Mineral Exploration

UNIT-I

Definition and scope of mineral prospecting and exploration. Prospecting criteria and detailed geological guides: Physiographic, lithological, structural and stratigraphic guides.

UNIT – II

Geochemical prospecting –Types of Geochemical surveys and exploration tools, Primary and secondary dispersion, pathfinder elements.

UNIT-III

Geophysical exploration brief description and application of gravity, magnetic seismic electrical and radioactive methods.

UNIT-IV

Estimation of Ore reserves – classification – Sampling: chip sampling, grab sampling, pitting, trenching and Calculation of Ore Reserves and characterisation under UNFC.

PRACTICALS :

1. Sample preparation - Coning and quartering.
2. Estimation of ore reserves 1. Bedded type and vein type (included area and extended area method problems).
3. Field work: Field visit.

Text Books :

1. Courses in mining geology - R.N.P.Arogya Swamy.
2. Geological Prospecting and exploration- V.M.Kneiter.
3. Mineral Economics - R. K.Sinha & N.L.Sharma.
4. Mining Geology - Mc.Kinstry.
5. Introductory Mining Engineering Hardcover – Howard L. Hartman (Author).

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Discipline specific Elective

B) Mineral Exploration

Time: 2 Hours

Credits: 1
Max.Marks:25

Practical Model Paper

- 1) Sample preparation
- 2) Ore reserve estimation.
- 3) Record & Viva