

**SYLLABUS (COURSE OF STUDIES)
FOR
FOUR SEMESTER MA/ MSc DEGREE
IN
MUSEOLOGY
2009**



**DEPARTMENT OF MUSEOLOGY
UNIVERSITY COLLEGES OF ARTS & COMMERCE
UNIVERSITY OF CALCUTTA
(ALIPORE CAMPUS)
1, REFORMATORY STREET (9TH FLOOR)
KOLKATA 700 027
Telephone: (91) (33) 2479 1645/ 2861, Extn: 357/360**

Preface

The Department of Museology of the University of Calcutta, founded in the year 1959, is one of the pioneering university museology departments in India. Only the M.S. University, Baroda (now Vadodara) preceded it in 1952. Many other universities and institutions followed those pioneering efforts, e.g., the Benares Hindu University, Varanasi, Aligarh Muslim University, Aligarh, Osmania University, Hyderabad, *Prachya Niketan*, Bhopal, Birla Institute of Technology & Science, Pilani, National Museum Institute of History of Art, Conservation and Museology (NMIHACM), New Delhi, State Institute of Archaeology, Art History, Conservation and Museology (SIAACM), Tripunithura, Kerala, Rabindra Bharati University, Kolkata, North Bengal University, West Bengal, etc.

In fact, success in museology courses in Indian universities had inspired many other universities abroad to initiate such training. The speciality of the museology courses in Indian universities has been the equal emphasis on the theory & practice of the core museological principles, as well as, on the application of basic academic disciplines. The famous Philip Rawson Report on Museology, 1965 (UNESCO), testifies to the fact.

The Department of Museology of the University of Calcutta initially offered two-year post-graduate diploma. Later, since 1972, the University started awarding two-year full-time MA and MSc degrees for the students of Social Sciences & Humanities and Natural History respectively. Presently the Department runs post graduate full time courses in museology leading to MA & MSc degrees. It also offers research programmes at doctoral and post-doctoral level. The department is a centre for advanced academic activities, by means of organising, *inter alia*, conferences, seminars, symposia, publications, etc., to disseminate knowledge in museology, encourage its development and set its scientific and social objective on a firm foundation. Being situated within the sphere of a number of museums, galleries, heritage institutions and centres, the Department ensures appropriate blending of theoretical instruction with practical experience in the various specialist museum techniques.

Every year students of this Department succeed in the National Education Test (NET) conducted by the Universities Grants Commission (UGC). The research projects undertaken by the research fellows (UGC, University & others) of this Department have regularly been appreciated at the appropriate forum. The National Assessment & Accreditation Council (NAAC) has acclaimed the Department as one of the rare & valuable departments of this five-star university.

The syllabus is in conformity with the UGC guidelines as well as the ICOM Curricula Guidelines for Museum Professional Development (ICGMPD).

Some of the salient features of the curriculum are as follows:

1. The curriculum is structured and divided into several complete application-oriented Papers (as a matter of fact, the Department may offer short-term training programmes on each of the Papers to the in-service trainees from the industry, if University authorities permit, on self-financing basis). Some of the topics of the Graduation level have to be repeated in different Papers in order to emphasize their relevance in different museological contexts. All the topics have been upgraded and some new topics/techniques/methodologies have been included to keep pace with current developments and make the course wide based.

2. Stress is given to cover the wider aspects of related subjects, such as information technology, modern management theories, quality management, accreditation, marketing, cultural and natural heritage, tourism, entrepreneurship, etc.
3. Internship in industries is an integral part of the curriculum of any professional course in modern world. The compulsory three-month internship is also an integral part of this curriculum.
4. India possesses numerous excellent science and technology museums, planetaria, science parks, theme parks, spread all over the country. Growth in this sector has been enormous, new science centres and science cities are coming up regularly. The existing science museums are also regularly upgrading their infrastructure and services. Properly trained museologists are regularly needed in these museums. Unfortunately, at present there is no course available in the country that caters to the needs of the science & technology museums. The new Group-C would train museologists specially trained for the science & technology museums.
5. Globalisation has opened enormous opportunities for the Department as well as properly trained museologists. The course is in conformity with the international standard. Emphasis has been put to make the students self-sufficient.

The outline of the curriculum is given below:

A. Scheme of Studies

Duration: 2 Academic Years, comprising four semesters, leading to MA/MSc degree

Semester 1 (July to December)

Paper	Title	Type	Marks
1	Organisation & Management	Theoretical	100
2	Exhibition & Education	Theoretical	100
3	Care & Conservation	Theoretical	100

Semester 2 (January to June)

Group A (Arts & Humanities)

Paper	Title	Type	Marks
4	History & Archaeology	Theoretical	100
5	Ethnic Art & Culture of India	Theoretical	100
6	History of Art	Theoretical	100

Group B (Life Science & Related Subjects)

Paper	Title	Type	Marks
4	Earth Science	Theoretical	100
5	Life Science	Theoretical	100
6	Anthropology	Theoretical	100

Semester 3 (July to December)

Paper	Title	Type	Marks
7	Museum Technique	Practical	100
8	Care & Conservation	Practical	100
9	Group A: Archaeology, Ethnic Art & History of Art	Practical	100
	Group B: Earth Science, Life Science & Anthropology		

Semester 4 (January to June)

Paper	Title	Type	Marks
10	Project Report & Field Report	Report	100
11	Internship Report	Report	100
12	Dissertation	Thesis	100

Distribution of Marks: Theoretical Papers – 600
 Practical Papers – 300
 Reports & Dissertation – 300

Total Marks: 1200

B. Details of the papers of 1st Semester for both MA & MSc

Paper-I: Organisation & Management (Theoretical, full marks 100)

Unit- 1:

- Definition of Museum – scope and function (aims and objectives).
- Museology, museography and other developments, e.g. new museology, critical museology, total museology, inclusive museology, heritage study, digital heritage, etc.
- Types and classification of museums, changing concepts of museums.
- History and philosophy of museums in India and abroad, Museum movement in India.
- Inclusion of zoo, botanical garden, planetarium, science centre, reserve forest & sanctuary, ecomuseum, open-air museum, neighbourhood museum, virtual museum, heritage centres, etc., in the ambit of classical museums.
- Cultural property: definition, scope and changing concepts, Indian Cultural Policy.
- Laws governing cultural property:
 - The Indian Treasure Trove Act, 1878.
 - The Ancient Monuments and Archaeological Sites and Remains Act, 1958.
 - The Antiquities and Art Treasure Act, 1972.
 - The Wild Life Protection Act, 1972.
 - The Indian Museums Act, 1961.
 - International laws governing cultural heritage, copyright, intellectual properties, etc.
- Museology as a profession – Professional ethics.

Unit – 2:

- **Administration:** Administrative set-up & control, Governing bodies & other committees, Societies – their relationships, rules & procedures, mission/ vision statement, tender, contracts, MOU, etc.
- **Personnel Management:** Human resource planning & management: personnel patterns, hierarchy, duties & responsibilities, eligibility, recruitment, training, motivation, control, etc. Part-timers, time sharers, volunteers, etc.
- **Financial Management:** Strategy, planning, fund, fund raising, grant, sponsorship, income generation, budgeting, accounting and financial control, audit.
- **Marketing & Public relations:**
 - Museum, heritage and non-profit making institution marketing principles & ethics, marketing strategy, types & means, market research.
 - Mass media – media relations, advertisement, hand outs, briefing for print & electronic media, Reception, Museum shop.
 - Museum societies, friends of museums, museum club.
 - Professional organisations like ICOM, MAI, etc.
 - Corporate relations – sponsorship.
 - Heritage, museums and tourism.
 - Museum Information Service, Information Management.

Unit – 3:

- **Museum Architecture:**
 - Concept and development of museum architectural types.
 - Planning a new building: selection of site, architectural considerations, like space, climate, need, fund, selection of architect, construction, supervision, completion, etc.
 - Adaptation of old building.

- Requirements for different types of museums.
- Gardening & landscaping.
- Museum building interior: space utilisation & management, colour, lighting, circulation, ventilation, and air-conditioning.
- Installation of machinery & equipment.
- Infrastructure:
 - ✓ Museum Store – material management, stacking/racking, access, climate control, etc., for reserve collection and other materials.
 - ✓ Museum workshop.
 - ✓ Museum laboratory.
 - ✓ Conference hall, projection hall, auditorium.
 - ✓ Exhibition hall.
 - ✓ Museum library.
 - ✓ Restaurant & cafeteria.
- **Museum Access:** Different categories of disabled, rights of disabled, concerned national & international legal provisions, steps to make barrier free environment, access audit.
- **Safety & Security:** of building, collection, staff and public; physical, mechanical against various destructive factors, e.g., accident, theft, fire, cyclone, flood, earthquake, armed conflict, terrorist act, vandalism, etc., including prevention, disaster management.

Unit – 4:

- **Collection Management:**
 - **Acquisition:**
 - ✓ History of collection.
 - ✓ Ethics of collection.
 - ✓ Modes of acquisition: Gift/bequeath, excavation, exploration, expedition, loan, exchange, purchase, confiscation, and fabrication.
 - ✓ Art purchase committee.
 - ✓ Insurance.
 - ✓ Replication/duplication, forgery, export/import, auction.
 - **Registration & Documentation:**
 - ✓ Accessioning & deaccessioning.
 - ✓ Numbering.
 - ✓ Marking.
 - ✓ Identification, classification, dating, search of bibliographical reference.
 - ✓ Cataloguing.
 - ✓ Indexing.
 - ✓ Photo documentation.
 - ✓ Computerised documentation, digital cataloguing.
 - ✓ Problems in documentation, e.g., fabricated exhibits, plastic art, oral history (non-material culture/ intangible heritage), etc.
 - **Storage & transport of collection.**
 - **Packaging** – material, methods, etc.
 - **Transshipment** – modes, methods, insurance.

Unit – 5:

- **Information Technology:**
 - Use of I.T. in museums and other non-profit heritage institutions.
 - Creation of database – methods, software.
 - Information processing, storage, access/retrieval, dissemination.

- CD-ROM, DVD, Websites.
- Public access to information.
- Image management.
- Copyright/intellectual property right.
- Fair use (ethics).

Unit – 6:

- **Project management:**
 - Strategic planning: resources, core competence, comparative advantage, USP, etc.
 - Feasibility study.
 - Setting goal (target).
 - Resource mobilisation – fund, space, know-how/expertise, collection, etc.
 - Selection & organisation of project team.
 - Project execution/implementation.
 - Evaluation/ impact factors/ assessment, correction/adjustment.
 - Project report.
- **Business and operational management.**
- **Organisational Theory.**
- **Museology & entrepreneurship.**

Paper-II: Exhibition & Education (Theoretical, full marks 100)

Unit-1:

- **Display & Exhibition:**
 - Purpose and principles.
 - Display furniture and fixtures: cases, pedestals, stands, panels, mounts, structures, etc.
 - Lighting fixtures.
 - Circulation: random, suggestive, directional.
 - Labels: types, material, size, language, position, execution, evaluation, etc.
 - Visual & verbal aids: charts, graphs/graphics, photographs, film/video, CD-ROM/DVD, etc.
 - Types of exhibits: original/fabricated, static/movable, models (scale/non-scale, working/non-working), participatory/interactive, diorama/habitat group, tableaux, etc.
 - Types of exhibitions: object-oriented/concept-oriented, thematic, contextual, chronological, geographical, integral, comparative, natural, synthetic, didactic, special, permanent/temporary/travelling/circulating/mobile, etc.
- **Exhibition Designing:**
 - Principles of exhibition designing.
 - Human factors: basic human dimensions (anthropomorphic data), ergonomics, human nature & tendencies.
 - Principles of exhibit arrangement & use of space.
 - Objective (individual exhibits & overall exhibition).
 - Conceptualisation, goal/target, theme development, sequencing & story development, reference research.
 - Curator – Designer – Educator interaction; division of labour.
 - Planning & designing exhibits in a particular setting: layout drawing, mock-up (scale model), colour scheme, accessibility, visitor circulation, evaluation (front-end) & correction.
 - Designing individual exhibits, working sheets/drawings, collection/fabrication, and arrangement/mounting/installation.

- Animation techniques: optical, mechanical, electrical, electromechanical, electronic, computerised, robotics, etc.
- Interaction/participation modes.
- Principles of exhibit lighting.
- Audio-visual aids.
- Text: content, size, fonts, background, placement, and storyline.
- Documentation.
- Scheduling.
- Evaluation: front-end, formative & summative; correction.
- **Principles & problems of organising exhibitions in different museum set-up:**
 - Art, History, Archaeology, Anthropology, Ethnic Art, Zoology, Botany, Geology, Geography, Marine Science, Fishery, Forestry, Biography/ Personalia, Literary, Philatelic, Science & Technology, etc.

Unit- 2:

- **Communication:**
 - Principle.
 - Theory.
 - Major models.
 - Communication strategies, interpersonal relations.
 - Verbal & visual communication.
- **Museum photography/videography:**
 - Principles of photography/ videography.
 - Digital photography, CD/ DVD

Unit- 3:

- **Principles of museum education:**
 - Definition of education.
 - Museum as a learning resource.
 - Museum education Vs formal education.
 - Museum as centres for special education.
 - Elements of educational & behavioural psychology (cognitive psychology).
 - Theories of learning & visual perception.
- **Educational programmes:**
 - Pre-visit orientation, guiding, popular lectures, demonstration lectures, discovery rooms, film shows, audio-video shows, quiz programmes, declamation, essay competition, science kit, art kit, sit & draw, hobby activities, creativity centres, production of educational resource material, Teachers' training programme, etc.
- **Extension/ out-reach programmes:**
 - School loan service.
 - Travelling exhibition, mobile exhibition, museobus: design, organisation, scheduling.
 - Special programmes at the school, science or art fairs, seminars, walk-through trip to cultural/ natural heritage sites, etc.
- **Special programmes:**
 - For children, aged, handicapped, under privileged, etc.
- **Museum recreation & games, discovery/ activity rooms.**
- **Museum publication:** cards, folders, monographs, bulletins, guidebooks, catalogues, statutes, annual reports, mission/ vision statements, forward plans, etc.

Unit- 4:

- **Museum and the community:**
 - Museum & social interactions/social needs. Social accountability/ responsibilities of museums.
 - Museums as means for social change/technology transfer.
 - Museum visitor – type, classification, behaviour, etc., visitor service, orientation.
 - Community relations. Community access.
- **Visitor survey & evaluation of museum programmes:**
 - Methods & techniques.
 - Principles of observation, interview & other methods.
 - Questionnaire preparation.
 - Survey design, data collection, data processing, data analysis, data interpretation, reporting.
 - Use of computers in visitor survey.

Unit- 5:

- **Museum & research:**
 - Research methodology (principles).
 - Research on collection/collection management.
 - Research on exhibition.
 - Research on education and other programmes.
 - Research on environment and conservation.
 - Research on visitors.

Unit- 6:

- **Quality management:**
 - Concepts, standards, ethics.
 - Goal setting.
 - Quality tools.
 - Evaluation.
 - Identification of non-conformance.
 - Correction.
 - Social audit in museums.
 - Museum accreditation.

Paper-III: Care & Conservation (Theoretical, full marks 100)

Unit- 1:

- Understanding conservation, preservation & restoration.
- Ethics of conservation.
- Material composition of objects & their properties, introduction to basic chemistry.
- Laboratory documentation procedures, Photo documentation.
- Instruments & equipment used in a conservation laboratory: Principle & use.

Unit- 2:

- **Museum environment:** Humidity, temperature, light – their effects (individual & combined) on cultural objects.
- **Atmospheric pollution** & their effect on cultural properties.
- **Monitoring** of museum environment, control & remedial measures.

- **Various agents/factors** for deterioration of cultural objects: Physical, chemical & biological; control & remedy.

Unit- 3:

- **Deterioration, conservation & care of organic materials:**
 - Wood, bamboo, basketry, reed, palm-leaf, birch-bark, etc.
 - Leather, parchment, vellum, hair, feather, etc.
 - Paper, papyrus – prints, drawings, manuscripts, photograph, etc.
 - Textiles.
 - Ivory, bone, horn & antler.
 - Natural history specimens.

Unit- 4:

- **Deterioration, conservation & care of inorganic and siliceous materials:**
 - Metals: iron & steel, copper, gold, silver, lead, tin – their alloys, pewter.
 - Clay & terracotta, porcelain, glass, faience, enamel.
 - Stone.
 - Geological specimens – minerals, rocks & fossils.
 - Polymer, audio/ video tapes, CD/ DVDs.

Unit- 5:

- **Deterioration, conservation & care of composite materials:**
 - Easel painting.
 - Ethnographical objects, Scientific instruments, etc.
 - Building, monuments, murals, etc.

Unit- 6:

- **Museum architecture** & climate control.
- **Museum store & storage of cultural properties:** store design, climate control, and objects storage from the point of view of conservation.
- **Packaging, transport & exhibition:** safety of the objects in transit & in display.
- **Recent advancements in conservation.**

C. Papers of 2nd Semester

(MA or MSc, according to the basic discipline/graduation degree)

Since the papers of 2nd semester comprise the specialised subject fields, the stress has been given on the information on the very recent advancements in the relevant areas of the specialisation. Special emphasis has been given on the technical know-how for proper interpretation of the subjects through exhibition so that the society can be served better.

Group- A

Paper-IV: History & Archaeology (Theoretical, full marks 100)

- General History of Archaeology.
- Outline of Indian Archaeology:
 - Pre-historic/ Historic.
- Major events in Indian history.
- Indian Architecture:
 - Ancient, Mediaeval.

- Hindu, Buddhist, Jaina, Islamic, Colonial.
- Indian Sculpture:
 - Pre-historic, Ancient, Mediaeval.
- Indian Iconography:
 - Hindu, Buddhist, Jaina.
- Indian Numismatics.
- Indian Epigraphy.
- Pottery & Terracotta:
 - Pre-historic, Ancient, Mediaeval.
- Ornaments & Jewellery.
- Field work:
 - Exploration, Expedition, Excavation.
- Laws governing antiquities, sites & monuments.
- Collection, display & exhibition of archaeological & historical objects.
- Problems concerning display & interpretation of archaeological & historical objects.
- Archaeological sites, monuments & cultural tourism – role of museums.
- Museums and the heritage sites & structures.
- Museum programmes on History & Archaeology.

Paper-V: Ethnic Art & Culture of India (Theoretical, full marks 100)

- Outline of ethnology of India.
- Cultural distribution.
- Social customs & rituals.
- Theatrical arts.
- Ballads/ story-telling forms.
- Puppetry & shadow plays.
- Skits & social satires.
- Wall & floor decorations.
- Tattoo.
- Traditional Textile: major types.
- Dolls & toys.
- Ritual objects.
- Jewelleries & ornaments.
- Scroll paintings.
- Woodcraft, metal craft, pith work.
- Potter's art.
- Basketry.
- Entertainment, games, etc.
- Folklore (oral literature) – folk story, song, proverbs, myths, riddles, etc.
- Collection, arrangement & display of ethnic art.
- Problem of documentation & presentation of non-material culture/ intangible heritage.
- Ethnic art & social dynamics.
- Ethnic art & dissemination of information.
- Ethnic art & traditional knowledge base/ wisdom/ collective memory.
- Museum programmes on ethnic art.
- Indigenous/ traditional merit & current international trade (Trade Related Intellectual Property Rights – TRIPS).

Paper-VI: History of Art (Theoretical, full marks 100)

- Art Philosophy:
 - General principle of art, particularly visual art.
 - Principles of Indian art.
 - Indian Treatises on painting – brief survey.
 - References on painting in Indian literature.
 - *Rasa* theory, *Sadanga*, etc.
 - Significant views of visual art – Western, Indian, Chinese, Islamic, Modern.
- History of Indian Painting:
 - Prehistoric murals.
 - Historic murals.
 - Manuscript painting – Western Indian and Eastern Indian (particularly Jain and Buddhist manuscript painting).
 - Mediaeval painting (major schools): Rajasthani, Mughal and *Pahari*.
 - Company's school of painting.
 - Abanindranath Tagore and his disciples (Bengal School).
 - Calcutta Group of Artists.
 - Major painters of modern India.
- Problems:
 - Dating of Art objects.
 - Forgery/ duplication of art.
 - Special features of collection, handling, storage, documentation, mounting and display of art/ decorative art objects.
 - Art appreciation and art criticism (including verbal expression of visual elements in art and problems of art vocabularies).
 - Quality reproduction of painting – colour faithfulness, blow up, close-up view, detail exposure, etc.
 - Copyright and Intellectual Property Rights.
 - Art collection as educational aids, especially for the visitors with special needs.

Group- B

Paper-IV: Earth Science (Theoretical, full marks 100)

- Elementary knowledge about the Earth Sciences – its various branches and importance.
- Elementary knowledge of earth as a planet, its origin, the nature of the crust and interior.
- Geological work done by weathering, ground water, rivers, glaciers, wind, sea, earthquake, volcanic activity and mountain formations (Broad outline).
- Definition of minerals & rocks, classification and formation of rocks, physical character of minerals.
- Palaeontology:
 - Fossil, its definition, modes of preservation of plant and animal, value of fossil in historical geology.
- Introduction to stratigraphy, broad outline of stratigraphy of India.
- India: Special emphasis on physical aspects – Relief-Structure, Climate, Drainage, Soil characteristics, Land use, Soil erosion, Vegetation.
- Geography of settlements – types and patterns.
- Demographic set up of the world with special reference to India and adjacent countries.

- Economic activities and agricultural and mining, pastoral, lumbering, fishing, industries with reference to India.
- Environment:
 - Physical and non-physical.
 - Man's adaptation to environment: changing technique.
 - Environment conservation.
 - Environmentalism and its impact.
- World distribution of natural regions.
- Natural calamities – Earthquake, Cyclone, Flood. Disaster management, with special reference to India.
- Recent advancements in Earth Sciences.
- Elementary knowledge of the planetary system.
- Indian history of Geography & Astronomy – month, year, zodiacs, knowledge of planets, *Vedanga jyotish*, Aryabhatt, Varahamihir, Brahmagupta, Mahavira, Munjal, Sripati, Sridhar, Satananda, Bhaskara, the *Bakhshali* manuscript, different *Jyotish Siddhantas*.
- Present status of Geographical/ Geological/ Palaeontological museums in India, Fossil parks.
- Collection of specimens related to Earth Sciences.
- Presentation and interpretation of Earth Sciences through exhibition.
- Museum programmes based on various aspects of Earth Sciences.

Paper-V: Life Science (Theoretical, full marks 100)

- General principles of Life Science:
 - Phenomenon of life.
 - Difference between living and non-living.
 - Difference between the plant and animal kingdom.
 - General biology and evolution of organs.
 - General morphology of cells, types of cells, tissues and organs.
- Taxonomy of plants and animals – outlines of main systems, Classification and characteristics of different groups, up to families.
- Agricultural crops, fruits and vegetables – few important examples.
- General knowledge of plant pathology – few important examples.
- Horticulture, forestry, fibre, medicinal products, oil seeds and oil yielding plants, gums and resins. Dyes and tanning materials, paper and papier-mâché materials, raw products, seeds in various other industries.
- Ethno botany.
- Elements of Tissue Culture.
- Phytogeography: group life in various regions and environments. Adaptation to environments.
- Zoogeography: Origin and distribution of animals in space and time.
- Biodiversity conservation, endangered plants & animals.
- Ecology & Ethology.
- Evolution and heredity.
- Elements of histology, embryology and genetics.
- Bionomics and life history of selected parasites and insects.
- General concept of microbiology and molecular biology.
- Bio statistics.

- Recent advancements in Life Sciences.
- History of Biology:
 - Greece – Anaximander, Xenophanes, Pythagoras, Alcameon, Empedocles, Aristotle (Biology & Zoology), Theophrastus (Botany)
 - Rome – Socrates, Plato, Varro, Pliny, Botany (Pendaneos Deoscoridis).
 - Arab – Botany.
 - Modern Europe – Albartus Magnus (Zoology & Botany).
 - Renaissance – Advent of modern science – Leonardo da Vinci, Roger Bacon, Andreae Vesalii, Hieronymus Fabricius, William Harvey, Robert Hooke, Leeuwenhoek, Malpighi, Linnaeus, Haeckel, Cuvier, Wallace, Lamarck, Darwin, Schwann, Mendel, Weismann, De Vries, Pasteur, Haldane, Oparin, Morgan, Watson & Crick, etc.
- Collection & preservation of natural history specimens, colour preservation.
- Present status of zoological/ botanical/ forest museums, zoological & botanical gardens, herbaria, biological parks, reserve forest/ sanctuaries, etc. of India.
- Presentation and interpretation of Life Sciences through exhibitions.
- Museum programmes based on different aspects of Life Sciences.

Paper-VI: Anthropology (Theoretical, full marks 100)

- Elementary knowledge of comparative anatomy of primates, human Palaeontology and evolution.
- General outline of Anthropology and Ethnology of India.
- General knowledge of Indian pre-history – Palaeolithic, Mesolithic, Neolithic and Chalcolithic Cultures, Indus Valley Civilisation (these include technique, typology, geographical distribution, stratigraphy).
- Megalithic structures.
- Indian prehistoric art.
- Metal ages.
- General knowledge of racial and cultural distribution of Indian people.
- Genetics and heredity.
- Man and living primates.
- Evolution, Ecology and Adaptation.
- Tribal types, distribution in space and time.
- Tribal medicines.
- Tribal arts and crafts.
- Study of any three tribes in India, their material culture – hunting, fishing, agriculture, housing, transport and travel, industries and crafts of people such as pottery, basketry, etc.
- Linguistic Anthropology.
- Social customs and manners, religion, institutions – marriage, family, clan, race, etc.
- History of agriculture, domestication of animals.
- Invention of wheel, boat & sail, irrigation & river training.
- Technique of fieldwork.
- Collection & preservation of ethnological specimens.
- Ethnographic museums in India.
- Presentation and interpretation of Anthropology through exhibitions.
- Recent advancements in Anthropology, e.g. Forensic Anthropology.
- Museum programmes based on different aspects of Anthropology.

D. Papers of 3rd Semester

Paper-VII: Museum Technique (Practical, full marks 100)

Unit- 1: (50 marks)

- Basic concept of scale, plan, drawings & museum design.
- Preparation of gallery layout & sketches.
- Preparation of mock-ups, diorama, etc.
- Designing & fabrication of various kinds of exhibits/exhibition.
- Animation techniques: optical, mechanical, electrical, electromechanical, electronic, computerised, robotics, etc.
- Moulding & casting.
- Handling & care of audio-visual equipment.
- Museum photography/Photo documentation, Silk-screen printing.
- Use of computers in exhibit/exhibition designing: use of different software, e.g., AutoCAD, PhotoShop, Illustrator, CorelDraw, Flash, etc., Multimedia, Web page designing.
- Use of computers in documentation: use of different software.
- Use of computers in visitor survey & data collection.
- Evaluation & visitor survey/ minor project/ museum & field visit.
- Museum training.

Unit- 2: (50 marks)

- Display layout/arrangement of pictures/photographs/exhibits, etc.
- Preparation of catalogues, labels, etc.
- Preparation of layout of poster, folder, guidebook, etc.
- Preparation of report, press release, copies for advertisement, etc. – 30 marks
- Evaluation/visitor survey/project report/ field report. – 10 marks
- Viva voce. – 10 marks

Paper-VIII: Care & Conservation (Practical, full marks 100)

- Introduction to conservation, General laboratory procedures, Elementary Chemistry.
- Different equipment & their use.
- Monitoring Museum Environment: Relative Humidity, Temperature, Light, etc.
- Identification of different museum materials.
- Identification of deterioration/ degradation.
- Preparation of various chemicals, preservatives, etc.
- Treatment of decayed objects.
- Methods of restoration.
- Use & application of preservatives, etc. – 70 marks
- Laboratory note book. – 20 marks
- Viva voce. – 10 marks

Paper-IX: Practical on Papers IV, V & VI (Full marks 100)

Group-A:

Sub-Group-1:

- **History & Archaeology (35 marks)**
Unit-1 (20 marks)

- ⇒ Identification of historical & archaeological specimens (sculpture, architecture, terracotta, coin, etc.).
- ⇒ Dating of archaeological objects.
- ⇒ Forgery/ duplication of archaeological objects.
- ⇒ Valuation.
- ⇒ Presentation and interpretation of historical & archaeological objects.
- ⇒ Preparation of museum educational programmes on History & Archaeology.

Unit-2 (15 marks)

- ⇒ Practical note book (10 marks).
- ⇒ Viva voce (5 marks).

Sub-Group-2:

- **Ethnic art & culture of India (35 marks)**

Unit-1 (20 marks)

- ⇒ Identification of specimens of ethnic art & culture (*Pata chitra, Sara, Manasa Ghat*, dolls and toys, different folk art & culture forms, etc., including tribal and folk textiles and embroideries).
- ⇒ Presentation and interpretation of ethnological objects.
- ⇒ Preparation of museum educational programmes on ethnic art & culture.

Unit-2 (15 marks)

- ⇒ Practical note book (10 marks).
- ⇒ Viva voce (5 marks).

Sub-Group-3:

- **History of Art (30 marks)**

Unit-1 (20 marks)

- ⇒ Study of characteristic features of different types/ schools/ localities.
- ⇒ Identification of painting, artist, date, region, media, school, etc.
- ⇒ Problem of identification.
- ⇒ Problem of forgery/ duplication: identification.
- ⇒ Presentation and interpretation of objects of art.
- ⇒ Preparation of museum educational programmes on art.
- ⇒ Appreciation/ criticism writing.
- ⇒ Estimation of quality of reproductions.

Unit-2 (10 marks)

- ⇒ Viva voce.

Group-B:

Sub-Group-1:

- **Earth Sciences (35 marks)**

Unit-1 (10 marks)

- ⇒ Identification of minerals & ores.
- ⇒ Identification of rocks.
- ⇒ Identification of fossils.
- ⇒ Microscopic study of geological specimens.

Unit-2 (10 marks)

- ⇒ Drawing of cartograms to show (a) Economic resources, (b) Demographic changes.

- ⇒ Study of contour maps.
- ⇒ Interpretation of Topographical maps (Plateau & Plain).
- ⇒ Elementary surveying and location of sites.

Unit-3 (5 marks)

- ⇒ Presentation and interpretation of Earth Sciences specimens.
- ⇒ Preparation of museum educational programmes on various topics of Earth Sciences.

Unit-4 (10 marks)

- ⇒ Practical Note Book (5 marks).
- ⇒ Viva voce (5 marks).

Sub-Group-2:

• **Life Science (35 marks)**

Unit-1 (10 marks)

- ⇒ Plant cells, cell-inclusions and cell division.
- ⇒ Knowledge of algae, fungi, lichen, bryophytes, pteridophytes, gymnosperm and palaeobotany.
- ⇒ Plant physiology – General principles of assimilation, transpiration, respiration, reproduction.
- ⇒ Histology, anatomical features of main groups of cryptogams and phanerogams.
- ⇒ Microscope and microtom studies of plants and plant materials. Photography and photomicrography.
- ⇒ Field collection, exploration of plant specimen, identification, preservation, separation of dried and fluid plant specimen, Herbarium and Museum techniques. Preservation of fruit. Colour preservation.
- ⇒ Elements of tissue culture.

Unit-2 (10 marks)

- ⇒ Collection, identification and preservation of various groups of invertebrates and vertebrate animals.
- ⇒ Microscopy, microtomy, photography, photomicrography, staining and mounting of sections and specimens.
- ⇒ Detailed knowledge of bones, thin articulations, attachments, knowledge of skeleton system and anatomy.
- ⇒ Bleaching of bones and mounting of skeletons.
- ⇒ Study of skin, skinning, mounting of animals.
- ⇒ Collection, preparation and preservation of egg – fresh, incubated, rotten, etc.
- ⇒ Preservation of embryo.

Unit-3 (5 marks)

- ⇒ Plaster casts, mounts, moulds and finish.
- ⇒ Presentation and interpretation of Natural History specimens.
- ⇒ Collection, culture and analysis of biodeteriogens (flora & fauna) of a museum environment.
- ⇒ Preparation of museum educational programmes on various topics of Life Sciences.

Unit-4 (10 marks)

- ⇒ Practical Note Book (5 marks).
- ⇒ Viva voce (5 marks).

Sub-Group-3:

- **Anthropology (30 marks)**

- **Unit-1 (15 marks)**

- ⇒ Identification and classification of racial types.
- ⇒ Somatometry.
- ⇒ Identification of prehistoric tools.
- ⇒ Knowledge of implements and methods of their use as for hunting, fishing, agriculture, weapons of war and chase.
- ⇒ Methods of transport and travel, industries and crafts of the people.
- ⇒ Presentation and interpretation of anthropological specimens.
- ⇒ Preparation of museum educational programmes on various topics of Anthropology.

- **Unit-2 (15 marks)**

- ⇒ Practical Note Book (10 marks).
- ⇒ Viva voce (5 marks).

E. Papers of 4th Semester

Paper-X: Full marks 100

- **Project report (50 marks)**

- Candidates will be assigned projects under the supervision of particular faculty member/s, by the Departmental Committee, on various aspects of the museology. The projects may be completed within the specified time and the report be submitted for evaluation.

- **Field report (50 marks)**

- Field study/ educational tour shall be the essential feature in the course curriculum. Candidates shall have to prepare and submit a report, on the tour, within a stipulated period.

Paper-XI: Full marks 100

- **Internship report**

- Candidates shall be required to complete an internship of three months duration in an assigned museum/ alike institution in the 4th semester. Candidates shall submit a detailed report on the internship, along with a certificate from the concerned institution that the internship is successfully completed.

Paper-XII: Full marks 100

- **Dissertation**

- Candidates have to prepare and submit, within a stipulated time, a dissertation on a relevant topic from the course content, under the supervision of a faculty member decided by the Departmental Committee.

F. Group-C: for the students of Physical Sciences, Engineering & Technology

There has been a constant demand for museology courses for the students of Physical Sciences, Engineering & Technology. This specialised group would prepare museologists for Science museums/ centres, Science parks, Theme parks, Planetaria, etc. The course content of

this group would be finalised in consultation with the specialists in the concerned field. However, a broad outline is given below.

❑ **Admission criteria for M.Sc. in Museology (Group- C)**

A good Bachelors degree (with Honours, wherever applicable) or a Masters degree in Physics/ Chemistry/ Bio-Physics/ Bio-chemistry/ Radio-Physics/ Electronics/ Conservation/ Computer Science/ Information Technology/ Astrophysics/ Astronomy/ Atmospheric Science/ Science Communication/ Engineering & Technology/ History of Science & Technology.

❑ **Scheme of Curriculum**

Semester 1 (July to December)

Paper	Title	Type	Marks
1	Organisation & Management	Theoretical	100
2	Exhibition & Education	Theoretical	100
3	Care & Conservation	Theoretical	100

Semester 2 (January to June)

Group C (Physical Science, Engineering & Technology)

Paper	Title	Type	Marks
4	Physical Science	Theoretical	100
5	Electronics & Computer Science	Theoretical	100
6	Astronomy & History of Science	Theoretical	100

Semester 3 (July to December)

Paper	Title	Type	Marks
7	Museum Technique	Practical	100
8	Care & Conservation	Practical	100
9	Group C: Physical Science, Electronics & Computer Science & Astronomy	Practical	100

Semester 4 (January to June)

Paper	Title	Type	Marks
10	Project Report & Field Report	Report	100
11	Internship Report	Report	100
12	Dissertation	Thesis	100

Distribution of Marks: Theoretical Papers – 600
 Practical Papers – 300
 Reports & Dissertation – 300

Total Marks: 1200 (20% for internal assessment as per the provisions in the clauses 5.7 & 5.8 of the Regulations)

□ Details of the Papers of 2nd Semester

Paper-IV: Physical Science (Theoretical, full marks 100)

- (To be finalised in consultation with the specialists)
-
- Recent advancements in Physical Science.
- Presentation & interpretation of Physical Science.
- Museum programmes on Physical Science.

Paper-V: Electronics & Computer Science (Theoretical, full marks 100)

- (To be finalised in consultation with the specialists)
-
- Recent advancements in Electronics & Computer Science.
- Presentation & interpretation of Electronics & Computer Science.
- Museum programmes on Electronics & Computer Science.

Paper-VI: Astronomy and History of Science & Technology (Theoretical, full marks 100)

• **Group-1 (50 marks): Astronomy**

- (To be finalised in consultation with the specialists)
-
-
- Concept of space & universe.
- Planets, stars, meteorites, asteroids, etc.
- Black holes.
- Forces acting between the planets. Tides.
- Sky observation.
- Planetaria.
- Telescopes – optical, radio, etc.
- Space research, rocket, satellite, spacecraft, space station, etc.

- Space research in modern India.
 - Recent advancements in Astronomy.
 - Presentation & interpretation of Astronomy.
 - Museum programmes on Astronomy.
- **Group-2 (50 marks): History of Science & Technology**
 - Prehistoric man – Palaeolithic tools & implements, discovery & use of fire.
 - Neolithic period – Agriculture, domestication of animal, pottery, weaving, house building.
 - Discovery of metal & their use – gold, copper, tin, bronze, brass, silver, lead, iron – copper, bronze & iron ages. Glass.
 - Invention of wheel, boat & sail, irrigation & river training.
 - Development of civilization – Babylon, Egypt & India.
 - Indus valley civilization – house building, town planning & architecture, weaving, pottery, metallurgy, metrology, use of decimal system.
 - Early history of Mathematics – Babylon (sexagesimal system, algebra), Egypt (Rind Papyrus at the British Museum, arithmetic, geometry), India – Vedic mathematics (number & calculation, decimal system, arithmetic, algebra, geometry), China (Chiu-chang Suan-shu, San-tsu Suan-ching).
 - Early history of Astronomy – Babylon, Egypt, India (month, year, zodiacs, knowledge of planets, *Vedanga jyotish*), China (concept of comet, nova).
 - Greek Science – Thales, Anaximander, Anaximenes, Pythagoras, Paemenedes, Anaxagorus, Empidocles, Archytus, Leucippus, Democretes.
 - Athens – Plato, Aristotle, Euddocssus, Menechmus, Heraclides of Pontus, Ecphantus.
 - Alexandria – Euclid, Archimedes, Apollonius, Aristarchus, Eratosthenes, Hipparchus, Claudius Ptolemy, Stasibius, Phillo, Heron.
 - Greek chemistry – Alexandrian Alchemy – Leiden & Stockholm Papyrus.
 - Chinese Alchemy.
 - Roman & Greco-Roman Science – Stoic & Epicurean philosophy – Lucretius, Roman Mathematics & Astronomy – Diophantus, Pappus, Theon of Alexandria, Hypesia, Boethus. Public works & Architecture – Vitruvius & Frontisus.
 - India – post-Vedic period:
 - Technology education.
 - Mathematics & Astronomy – Aryabhata, Varahamihir, Brahmagupta, Mahavira, Munjal, Sripati, Sridhar, Satananda, Bhaskara – the *Bakhshali* manuscript.
 - Mathematics – Decimal system, invention of zero, arithmetic, algebra, geometry, trigonometry.
 - Astronomy – different *Jyotish Siddhantas*.
 - Chemistry – Charak & Susrut, Nabanitak, Vagbhat, Brinda, Chakrapanidatta, *Tantric* alchemy, *Rasaratnakar*,

Rasaratnasamuchyaya, equipment/ instruments used in ancient Indian chemistry.

- Metallurgy – Copper, Bronze, Brass, Bell-metal, Iron & Steel, Lead, Tin – discovery of Zinc – test of metals, extraction of metal, process of alloy making.
- Atomism, Structure of matters, Mechanics – *Vaiseshika Nyaya*.
- Arab – Mathematics, Astronomy & Physics (*Al biruni*, *Omar Khayyam*), Chemistry (*Jabir ibn Hayyan*), Technology (Windmill, irrigation – artesian well, paper, gallery-oven, compass, etc.)
- Europe in mediaeval period – Mathematics, Physics, Alchemy, Astronomy – Robert Grosseteste, Roger Bacon (*Opus majus*), St. Tomas Aquinas, Fibonacci, Dante (*Divina commedia*), Geber, etc.
- European renaissance – advent of modern science – Technological inventions – spectacles, mechanical clock, compass, paper, printing, movable type, telescope, etc.– Physics, Mathematics, Mechanics, Chemistry, Metallurgy, Astronomy – Leonardo da Vinci, Copernicus, Tycho Brahe, Kepler, Galileo, etc.

Details of the Paper of 3rd Semester

Paper-IX: Practical on Papers IV, V & VI (Full marks 100)

- **Sub-Group-1:**
 - **Physical Science (40 marks)**
 - Unit-1 (10 marks)**
(Physics)
(To be finalised in consultation with the specialists)
 - Unit-2 (10 marks)**
(Chemistry)
(To be finalised in consultation with the specialists)
 - Unit-3 (10 marks)**
⇒ Preparation, presentation and interpretation of Physical Science exhibits.
⇒ Preparation of museum educational programmes on various topics of Physical Sciences.
 - Unit-4 (10 marks)**
⇒ Practical Note Book (5 marks).
⇒ Viva voce (5 marks).
- **Sub-Group-2:**
 - **Electronics & Computer Science (40 marks)**
 - Unit-1 (10 marks)**
(Electronics)
(To be finalised in consultation with the specialists)
 - Unit-2 (10 marks)**
(Computer Science)
(To be finalised in consultation with the specialists)
 - Unit-3 (10 marks)**
⇒ Preparation, presentation and interpretation of Electronics & Computer Science exhibits.

⇒ Preparation of museum educational programmes on various topics of Electronics & Computer Sciences.

Unit-4 (10 marks)

⇒ Practical Note Book (5 marks).

⇒ Viva voce (5 marks).

• **Sub-Group-3:**

▪ **Astronomy (20 marks)**

Unit-1 (10 marks)

⇒ (To be finalised in consultation with the specialists)

⇒

⇒ Preparation, presentation and interpretation of astronomical exhibits.

⇒ Preparation of museum educational programmes on various topics of Astronomy.

Unit-2 (10 marks)

⇒ Practical Note Book (5 marks).

⇒ Viva voce (5 marks).

Details of the Papers of 4th Semester

Paper-X: Full marks 100

• **Project report (50 marks)**

- Candidates will be assigned projects under the supervision of particular faculty member/s, by the Departmental Committee, on various aspects of the museology. The projects may be completed within the specified time and the report be submitted for evaluation.

• **Field report (50 marks)**

- Field study/ educational tour shall be the essential feature in the course curriculum. Candidates shall have to prepare and submit a report, on the tour, within a stipulated period.

Paper-XI: Full marks 100

• **Internship report**

- Candidates shall be required to complete an internship of three months duration in an assigned museum/ alike institution in the 4th semester. Candidates shall submit a detailed report on the internship, along with a certificate from the concerned institution that the internship is successfully completed.

Paper-XII: Full marks 100

• **Dissertation**

- Candidates have to prepare and submit, within a stipulated time, a dissertation on a relevant topic from the course content, under the supervision of a faculty member decided by the Departmental Committee.

G. Text Books

□ Semester-I

❖ Paper-I: Organisation & Management

1. Agrawal, Usha – Museums of India, a brief directory
2. Ambrose, Timothy & Paine, Crispin – Museum Basics
3. Basu, S & Chakrabarti, M – Museum Norms and Terms, a selective approach
4. Baxi, Smita & Dwivedi, Devendra – Modern Museum
5. Bhattacharya, Somnath & Bhattacharya, Sachindranath – *Sangrahashalar Itihas O Sangrakshan* (in Bengali)
6. Bennett, Tony – The Birth of the Museum
7. Boylan, Patrick J (ed.) – Museums 2000
8. Coleman, L V – Museum Buildings
9. Dudley, Dorothy, et al – Museum Registration Methods
10. Edson, Gary & Dean, David – The Handbook for Museums
11. Fahy, Anne (ed.) – Collections Management
12. Fenneley – Museum, Archive & Library Security
13. Fondation de France & ICOM – Museums Without Barriers
14. Fopp, Michael A – Managing Museums and Galleries
15. Hooper- Greenhill, Eilean – Museums & the Shaping of Knowledge
16. Hunter, Eric J – Computerised Cataloguing
17. ICOM – Statutes and Code of Professional Ethics
18. Knell, Simon (ed.) – Care of Collections
19. Light, F B, Roberts, D A, Stewarts, J D – Museum Documentation System
20. Liston, David (ed.) – Museum Security and Protection
21. Markham and Hargreaves – The Museums of India
22. Mclean, Fiona – Marketing the Museum
23. Moore, Kevin (ed.) – Museum Management
24. Moore, Kevin (ed.) – Management in Museums
25. Nigam, M L – Fundamentals of Museology
26. Ripley, Dillon – The Sacred Grove
27. Orna, Elizabeth – Information Handling in Museums
28. Roy Chowdhury, Anil – Art Museum Documentation and Practical Handling
29. Sarasan, L & Neuner, A M – Museum Collection and Computers
30. Sarkar, H – Museums and Protection of Monuments and Antiquities in India
31. Sivaramamurthy, C – A Directory of Museums in India
32. Thompson, John M A, et al (ed.) – Manual of Curatorship
33. Tillotson, Robert G – Museum Security
34. UNESCO – Field Manual for Museums
35. UNESCO – Protection of Cultural Property in the event of Armed Conflict
36. UNESCO – Organisation of Museums, Practical Advice
37. Wittlin, Alma S – Museums in Search of a Usable Future

❖ Paper-II: Exhibition & Education

1. Ambrose, Timothy & Paine, Crispin – Museum Basics
2. Baxi, Smita & Dwivedi, Devendra – Modern Museum
3. Brawne, Michael – Museum Interior
4. Coleman, L V – Museum Buildings
5. Dale, Edger – Audio-Visual Methods in Teaching
6. Dean, David – Museum Exhibition, Theory & Practice
7. Devenish, David C – Museum Display Labels

8. Edson, Gary & Dean, David – The Handbook for Museums
9. Evans, Desmond W – People and Communication
10. Fondation de France & ICOM – Museums Without Barriers
11. Hooper-Greenhill, Eilean (ed) – Museum and Gallery Education
12. Hooper-Greenhill, Eilean (ed) – Museum, Media, Message
13. Hooper-Greenhill, Eilean (ed) – Museums and their Visitors
14. Kumar, J – Mass Communication in India
15. Miles, R S, et al (ed.) – The Design of Educational Exhibits
16. Nigam, M L – Fundamentals of Museology
17. North, F J – Museum Labels
18. Pearce, Susan M (ed.) – Interpreting Objects and Collections
19. Robinson, E S – The Behaviour of the Museum Visitor and others
20. Sixsmith, Mike – Touring Exhibitions
21. Thompson, John M A, et al (ed.) – Manual of Curatorship
22. UNESCO – Temporary & Travelling Exhibition
23. UNESCO – Museums, imaginations and education

❖ **Paper-III: Care & Conservation**

1. Agrawal, O P – Preservation of Art Objects and Library Materials
2. Agrawal, O P (ed.) – Conservation in the Tropics
3. Agrawal, O P – Conservation of Manuscripts and Paintings of Southeast Asia
4. Agrawal, O P & Barkeshli, Mandana – Conservation of Books, Manuscripts and Paper Documents
5. Agrawal, O P & Dhawan, S (ed.) – Biodeterioration of Cultural Property
6. Ambrose, Timothy & Paine, Crispin – Museum Basics
7. Bhattacharya, Sachindranath – *Shilpabastu Sangrakshan* (in Bengali)
8. Dhawan, S (ed.) – Recent Trends in Conservation
9. Gairola, T R – Handbook of Chemical Conservation of Museum Objects
10. Horie, C V – Material for Conservation, Organic Consolidants, Adhesives and Coatings
11. Edson, Gary & Dean, David – The Handbook for Museums
12. Knell, Simon (ed.) – Care of Collections
13. Kuhn, H – Conservation and Restoration of Works of Art and Antiquities
14. Mills, John S & White, Raymonds – Organic Chemistry of Museum Objects
15. Mora, Mora, Philippot – Conservation of Wall Paintings
16. Nigam, M L – Fundamentals of Museology
17. Plenderleith, H J and Werner, A E A – The Conservation of Antiquities and Works of Art
18. Savage, George – The Art and Antique Restorers Handbook
19. Stolow, N – Conservation and Exhibition
20. Swarnakamal – Protection and Conservation of Museum Collection
21. Thompson, Garry – The Museum Environment
22. Thompson, John M A, et al (ed.) – Manual of Curatorship
23. UNESCO – The Conservation of Cultural Properties with Special Reference to the Tropical Countries
24. UNESCO – Preserving and Restoring Monuments and Historic Buildings

□ **Semester-II:**

❖ **Group-A:**

➤ **Paper-IV: History & Archaeology**

1. Banerjea, J N – The Development of Hindu Iconography
2. Basham, A L – The Wonder That Was India
3. Biswas, S S – Terracotta Art of Bengal
4. Brown, Percy – Indian Architecture (Buddhist & Hindu Periods)
5. Coomaraswamy, Ananda Kentish – History of India and Indonesian Art
6. Coomaraswamy, Ananda Kentish – The Dance of Siva
7. Dasgupta, Dr Charuchandra – Origin and Evolution of Indian Clay Sculpture
8. Deva, Krishna – Temples of North India
9. Dublin, Lois Sherr – The History of Beads from 30,000 BC to the Present
10. Ghosh, Amalananda (ed) – An Encyclopaedia of Indian Archaeology (2 vols.)
11. Gopinath Rao, T A – Elements of Hindu Iconography (2 vols.)
12. Gupta, Parameshwari Lal – Coins
13. Gupta, Parameshwari Lal – Gangetic Valley Terracotta Art
14. Gupta, S P – The Roots of Indian Art
15. Majumdar, R C (ed.) – The Struggle for Empire
16. Marshall, John (ed.) – Mohenjo-Daro and the Indus Civilization: Being an Official Account of Archaeological Excavations at Mohenjo-Daro Carried out by the Government of India Between the Years 1922 and 1927
17. Ray, Amita & Mukherjee, S K (eds.) – Historical Archaeology of India: A Dialogue Between Archaeologists and Historians
18. Rowland, Benjamin – The Art and Architecture of India
19. Roy, Sachindranath – The Story of Indian Archaeology, 1784-1947
20. Saraswati, S K – A Survey of Indian Sculpture
21. Srinivasan, K R – Temples of South India
22. Subbarao, B – Personality of India
23. Wheeler, Mortimer – History of India and Pakistan

➤ **Paper-V: Ethnic Art & Culture of India**

1. Allchin, Bridget – The Rise of Civilisation in India
2. Auboyer, I – Daily Life in Ancient India
3. Basham, A L – The Wonder That Was India
4. Bhattacharya, Amitabha – Historical Geography of India and Early Medieval Bengal
5. Bose, Nemaï Sadhan – Indian Awakening and Bengal
6. Chakladar, H C – Social Life in Ancient India
7. Chatterji, S K – The Origin and Development of the Bengali Language
8. Chattopadhyaya, Debiprasad – History and Society
9. Dhamija, Jasleen – Folk Arts and Crafts of India
10. Elton, G R – The Practice of History
11. Neumayer, Erwin – Prehistoric Indian Rock Paintings
12. Sen, Dinesh Chandra – Glimpses of Bengal Life
13. Sur, Atul – *Banglar Samajik Itihas* (in Bengali)

➤ **Paper-VI: History of Art**

1. Archer, W G – Bazaar Paintings of Calcutta
2. Archer, W G – Indian Miniatures
3. Barret, Douglas & Gray, Basil – Treasures of Asia: Indian Paintings

4. Bhattacharya, Bholanath – *Shilpabhabna* (in Bengali)
5. Bhattacharya, Tarapada – The Canons of Indian Art or A Study on Vastuvidya
6. Chattopadhyay, Kamaladevi – Handicrafts of India
7. Coomaraswamy, Ananda Kentish – Christian and Oriental Philosophy of Art
8. Coomaraswamy, Ananda Kentish – The Arts And Crafts of India and Ceylon
9. Dhamija, Jasleen – Indian Folk Arts & Crafts
10. Dutta, Gurusaday – Catalogue of Folk Arts
11. Ganguli, K K – *Banglar Lok Silpa* (in Bengali)
12. Mookherjee, A – Folk Art of Bengal
13. Mookherjee, A – Indian Primitive Art
14. Singh, Madanjit – Ajanta Painting

❖ **Group-B:**

➤ **Paper-IV: Earth Sciences**

1. Bateman, A – Formation of Mineral Deposits
2. Broak & Webb – Geography of Mankind
3. Brown, J C & Dey, A K – India's Mineral Wealth
4. Dayal, P – Text of Geomorphology
5. Gregory, J W & Barrett, B H – General Stratigraphy
6. Harker, A – Petrology for Students
7. Holland, T H – Indian Geological Terminology
8. Joffe, J S – ABC of Soil
9. Longwell, C R, Knopt & Flint, R F – Physical Geology
10. Menon – Our Weather
11. Morley, Davis A – An Introduction to Palaeontology
12. Mukherjee, P K – Text Book of Geology
13. Read, M H – Ruttoly's elements of Mineralogy
14. Robinson – Human Geography
15. Simmons, I G – Biogeographical Processes
16. Strahler, A N, Strahler, A H & Willey, John – Elements of Physical Geography
17. Stores, J A – The Unstable Earth
18. Thornbury, W D & Willey, M – Principles of Geomorphology
19. Trewartha, G T – An Introduction to Climatology

➤ **Paper-V: Life Sciences**

1. Anderson, Stanley H – Managing our Wildlife Resources
2. Ali, Salem – The Book of Indian Birds
3. Datta, A C – A Class Book of Botany
4. Gangulee, Das & Datta – College Botany
5. Ganguly, Adhikary & Sinha – Biology of Animals
6. Gee, E P – The Wild Life of India
7. Hangay, George & Dingley, Michael – Biological Museum Methods
8. Lull, R – Organic Evolution
9. Mitra, Guha, Chaudhuri – Studies in Botany
10. Mukherjee, A K – Endangered Animals of India
11. Nair, S M – Endangered Animals of India
12. Odum, E P – Fundamentals of Ecology
13. Parker & Haswell – Textbook of Zoology

14. Tikader, B K – Threatened Animals of India

➤ **Paper-VI: Anthropology**

1. Allchin, B R – The Birth of Indian Civilization
2. Burkih, M C – The Old Stone Age
3. Burkih, M C – The Early Ancestors
4. Boas, Franz – Race, Language and Culture
5. Boule, M – Fossil Men
6. Chakraborti, Mukul & Mukherji, Dipak – Indian Tribes
7. Das, B M – The Outlines of Physical Anthropology
8. Heladdon, A C – Races of Men
9. Kroeber, A L - Anthropology
10. Leakey, L S B – Adam's Ancestors
11. Le Grof Clark, W E – The Antecedents of Man
12. Le Grof Clark, W E – History of Primates
13. Lowie, R H – Cultural Anthropology
14. Majumder, D N & Madan, T N – An Introduction to Social Anthropology
15. Morgan, L H – Ancient Society
16. Oakley, K P – Man, the Tool Maker
17. Risley, H H – The Peoples of India
18. Sankalia, H D – Prehistory and Protohistory of India and Pakistan
19. Subbarao, B – The Personality of India