



**NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT
SYLLABUS FOR THE WRITTEN EXAMINATION FOR THE POST OF
ASSISTANT MANAGER IN GRADE 'A'**

ENVIRONMENTAL ENGINEERING /SCIENCES

(The syllabus is illustrative and not exhaustive. The syllabus should not be considered as the only source of information while preparing for the examination. Keeping in view the nature of examination, all matters falling within the realm of the subject concerned will have to be studied by the candidate as questions can be asked on all relevant matters under the subject. Candidates appearing for the examination should also prepare themselves for answering questions that may be asked on the current/latest developments/Acts taking place under the subject(s) although those topics may not have been specifically included in the syllabus.)

Ecology and its scope, bio-ecohers, habitat, niche, limiting factors, concept of ecosystem, abiotic, and biotic components, energy flow through ecosystem, food chain, food web, biomass, primary and secondary production, gross and net production – quantification (energy budget 10% net commercial production), pattern of primary production and biomass in the major ecosystem of the world, nutrient budget, man's impact on nutrient cycles.

Ecosystems of the world, distinguishing characters of forests, grasslands, arid lands and wet lands. Ecological succession, types of successions, climate, factor and acclimatization, agricultural practices, land use pattern.

Population growth, dynamics, species interactions – inter and intra specific competition symbiosis, commensalism, parasitism, prey-predator intersections.

Types of forests in India and their coverage statistics – forest degradation problems caused by deforestation, bio-diversity, threats to bio-diversity, wild life conservation biosphere reserves, national parks, sanctuaries.

Definition and Sources of Pollution :

- Type and sources of primary and secondary air pollutants, atmospheric dispersion – distribution and transport of pollutants, influence of micro-metrological parameters, effects of fog and smoke. Pollutants on plants, human beings, animals and non-living projects, air pollution control approaches, acid rain, causes and consequences.
- Sources and types of water pollution, eutrophication, environmental consequences and health effects of water pollution, water quality, DO BOD COD of water pollution. Pesticides pollution and its ecological consequences, treatment methods in water pollution, control.
- General ideas of environmental legislation – EPA (EPA-Environmental Protection Act, 1956), water and air pollution legislation.
- Sources of soil pollution, harmful effects, problems and methods of solid waste disposal.
- Energy and environment renewable and non-renewable energy sources, causes of energy crisis, fuel wood crisis, bio-gas, non-conventional energy, sources, solar, wind, etc. potential advantage limitation.

- Relationship between development and environmental impact. Concept in EIA, methodology, impact identification, EIA of thermal, power projects, mining hydro electric projects, irrigation projects, etc., agricultural practices.
- Green house gases, global warming, climate change and ozone depletion, status in Indian sub-continent.