# ANNEXURE – A

## SYLLABUS FOR WRITTEN EXAMINATION

## GOA STATE POLLUTION CONTROL BOARD (GSPCB)

**Posts:**

1. Junior Environmental Engineer (JEE)
2. Junior Environmental Officer (JEO)

### Examination Pattern (Common for Both Posts)

| Sr. No. | Subject | Marks |
|---|---|---|
| 1 | Post-Specific Technical Knowledge | 30 |
| 2 | General Knowledge, Reasoning, Mathematics and General Science | 35 |
| 3 | Konkani Language | 10 |
| | **Total** | **75** |

**Type of Examination:** Objective Type – Multiple Choice Questions (MCQs)
**Duration:** 90 Minutes

### 1. Junior Environmental Engineer (JEE)

#### Part I – Post-Specific Technical Knowledge (30 Marks)

**1. Environmental Engineering:** Fundamentals of environmental engineering; air, water, soil and noise pollution; environmental monitoring and sampling; pollution prevention and control; Environmental Impact Assessment (EIA).

**2. Civil Engineering (Environmental Applications):** Water supply and treatment; sewerage and wastewater treatment; sewage treatment plants (STPs) and effluent treatment plants (ETPs); stormwater drainage; solid waste management; basic hydraulics and pumping systems.

**3. Chemical Engineering (Environmental Applications):** Water and wastewater quality parameters (pH, BOD, COD, TDS, TSS); chemical treatment processes; industrial effluent treatment; adsorption, absorption and filtration; hazardous chemicals and waste treatment; industrial emission control.

**4. Mechanical Engineering (Environmental Applications):** Pumps, compressors, blowers and pipelines; mechanical equipment used in STPs and ETPs; air pollution control equipment; boilers and industrial emissions; noise and vibration control; operation and maintenance of pollution control machinery.

**5. Industrial Pollution Control and Waste Management:** Industrial wastewater and emission management; primary, secondary and tertiary treatment; Common Effluent

Treatment Plants (CETPs); Zero Liquid Discharge (ZLD); solid, plastic, biomedical, hazardous and e-waste management; recycling and resource recovery.

**6. Environmental Laws and Regulations:** Water (Prevention and Control of Pollution) Act; Air (Prevention and Control of Pollution) Act; Environment (Protection) Act; EIA Notification; applicable waste management rules; functions of CPCB and SPCBs; Consent to Establish (CTE), Consent to Operate (CTO) and environmental compliance.

## 2. Junior Environmental Officer (JEO)

### Part I – Post-Specific Technical Knowledge (30 Marks)

**1. Fundamentals of Environmental Science:** Ecosystems, biodiversity, natural resources, ecological balance, environmental pollution, climate change, global warming and sustainable development.

**2. Water Pollution and Wastewater Management:** Sources and effects of water pollution; physical, chemical and biological water quality parameters; sampling and analysis; water and wastewater treatment methods; STPs, ETPs and CETPs; water quality monitoring.

**3. Air and Noise Pollution:** Sources and types of air pollutants; ambient air quality monitoring; industrial emissions; air pollution control techniques; noise pollution, measurement and control; National Ambient Air Quality Standards.

**4. Solid and Hazardous Waste Management:** Municipal solid waste, plastic waste, biomedical waste, e-waste and hazardous waste; segregation, collection, treatment and disposal; recycling, composting and resource recovery.

**5. Environmental Monitoring and Management:** Environmental sampling techniques; laboratory analysis of environmental samples; Environmental Impact Assessment (EIA); environmental auditing; environmental management systems; pollution prevention and environmental compliance.

**6. Environmental Laws and Regulations:** Water (Prevention and Control of Pollution) Act; Air (Prevention and Control of Pollution) Act; Environment (Protection) Act; EIA Notification; applicable waste management rules; functions of CPCB and SPCBs; Consent to Establish (CTE), Consent to Operate (CTO) and environmental compliance.

### Part II – General Knowledge, Reasoning, Mathematics and General Science (35 Marks)

*Common for both posts*

**1. General Knowledge and Current Affairs:** Current affairs of Goa, India and the world; history, geography, culture and administration of Goa; Indian Constitution and governance; environmental issues and sustainable development.

**2. Logical Reasoning and Analytical Ability**

**3. Mathematics and Numerical Ability**

**4. General Science:** Fundamental concepts of Physics, Chemistry and Biology; environmental science; scientific developments and their practical applications.

## Part III – Konkani Language (10 Marks)

*Common for both posts*

### General Instructions

1. The written examination shall consist of 75 objective-type Multiple Choice Questions carrying one mark each.
2. The duration of the examination shall be 90 minutes.
3. The questions shall be based on the prescribed educational qualifications and relevant subject knowledge.