**OPT. I Environment Science**

**Specification Grid**

**Class IX Time: 2:15 hrs.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Unit | Topic | Period |  | | | | | | | | | | | | | | |
| knowledge | | | Understanding | | | Application | | | Higher  Ability | | | Total number of questions | | |
| VS | S | L | VS | S | L | VS | S | L | VS | S | L | VS | S | L |
| 1 | Introduction of environment | 6 |  |  |  |  | 1 |  |  |  |  |  |  |  |  | 1 |  |
| 2 | Ecology and ecosystem | 11 | 1 |  |  |  | 1 |  |  |  |  |  |  |  | 1 | 1 | 1 |
| 3 | Natural resources and Biodiversity of Nepal | 18 | 1 |  |  | 1 |  |  |  |  | 1 |  |  |  | 2 |  |
| 4 | Environmental Pollution | 18 | 1 |  |  | 1 |  |  |  |  |  |  |  | 1 | 2 |  | 1 |
| 5 | Climate change and its effects | 12 | 1 |  |  |  | 1 |  | 1 |  |  |  |  |  | 2 | 1 |  |
| 6 | Alternative Energy | 9 | 1 | 1 |  |  |  |  |  |  |  |  |  |  | 1 | 1 |  |
| 7 | Environment and Sustainable Development | 14 |  | 1 |  |  |  |  |  |  |  |  | 1 |  |  | 2 |  |
| 8 | Environment and Public Health | 11 |  |  |  | 1 |  |  |  | 1 |  |  |  |  | 1 | 1 |  |
| 9 | Natural Disaster and its Management | 12 | 1 |  |  |  |  |  |  |  |  |  | 1 |  | 1 | 1 |  |
| 10 | Environment Management | 17 | 1 |  |  |  |  | 1 |  |  |  |  |  |  | 1 |  | 1 |
|  | Total | 128 | 7 | 2 |  | 3 | 3 | 1 | 1 | 1 | 1 |  | 2 | 1 | 11 | 8 | 3 |

**Specification Grid:**

|  |  |  |
| --- | --- | --- |
| Types of questions | Total questions | Full marks |
| Very short questions | 11 | 11 X 1= 11 |
| Short Questions | 8 | 8 X 5 = 40 |
| Long questions | 3 | 3 X 8 = 24 |
| Total | 22 | 75 |

**Notes:**

* All questions are compulsory
* One extra (or question) will be asked from environmental pollution for long type answer.
* One extra (or question) each from ecology and ecosystem, environment and public health will be asked for short (answer type) question.

**FIRST TERMINAL EXAMINATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit** | **Topic** | **Period** | **Teaching methods** | **Evaluation, techniques and tool** |
| 1 | Introduction to environment  1.1 Concept of Environment | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 2 | Ecology and Ecosystem  2.1 Concept and Importance of Ecology and Ecosystem | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 3 | Natural Resources and biodiversity of Nepal  3.1 Introduction, types and importance of Natural Resources  3.2 Status, Importance, Conservation measures of water resources | 10 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 4 | Environmental Pollution  4.1 Concept of environmental pollution and pollutants  4-2 Types and sources of environmental pollution | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 5 | Climate change and its effects  5.1 Concept of weather and Climate  5.2 Causes of weather and Climate change | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 6 | Alternative Energy  6.1 Concept and Importance of alternative energy | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 7 | Environment and Sustainable development  7.1 Introduction of Sustainable development and its needs | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 8 | Environmental Health  8.1 Introduction and importance of environmental health | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 9 | Natural disaster and disaster Management  9.1 Basic Concept and Introduction of Natural disaster  9.2 Types of Hazards | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 10 | Environmental Management  10.1 Concept and Importance of  Environmental management  10.2 Role of Individual in  Environmental management | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
|  |  | 67 |  |  |

**MID TERMINAL EXAMINATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit** | **Topic** | **Period** | **Teaching methods** | **Evaluation, techniques and tool** |
| 1 | Introduction to Environment  1.2 Importance of environment  1.3 Environmental Components | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 2 | Ecology and Ecosystem  2.2 Components of Ecosystem  2.3 Types of Ecosystem with examples | 7 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 3 | Natural Resources and Biodiversity in Nepal  3.3 Status, Importance and Conservation measure of soil Resources  3.4 Status importance, conservation measures of mineral resource | 10 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 4 | Environmental Pollution  4.2 effects of environmental pollution mitigating measures | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 5 | Climate change and its effects  5.3 Effects of Climate Change | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 6 | Alternative Energy  6.2 Types of alternative energy  6.3 Status of alternative energy | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 7 | Environment and Sustainable Development  7.2 Concept of carrying capacity of Earth and ways to maintain it | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 8 | Environmental health  8.2 Relationship between environment and health | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 9 | Natural disaster and Disaster management  9.3 Causes and Effects of natural disasters | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 10 | Environment Management  10.3 Role of family, community in environment Management | 7 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
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**SECOND TERMINAL EXAMINATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit** | **Topic** | **Period** | **Teaching methods** | **Evaluation, techniques and tool** |
| 1 | Introduction to environment  1.3 Introduction and Importance of environmental science | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 2 | Ecology and Ecosystem  2.4 Trophic level in ecosystem  2.5 Ecological Pyramid and its types | 7 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 3 | Natural Resources and Biodiversity in Nepal  3.5 Status, Importance of Forest  3.6 Causes and Effects of Deforestation | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 4 | Environment Pollution  4.3 Indoor and Outdoor pollution and their causes, effects, control measures | 7 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 5 | Climate change and its effects  5.4 Effects of Global warning | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 6 | Alternative Energy  6.4 Effects of lack of energy conservation | 3 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 7 | Environment and Sustainable development  7.3 Environment friendly lifestyle | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 8 | Environmental Health  8.3 Characteristics of Healthy habitat | 3 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 9 | Natural disaster and disaster management  9.4 Preparedness, Mitigation of natural disasters | 8 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 10 | Environment management  10.4 Role of local body in  Environment management | 3 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
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**ANNUAL EXAMINATION**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit** | **Topic** | **Period** | **Teaching methods** | **Evaluation, techniques and tool** |
| 1 | Introduction to environment  Revision | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 2 | Ecology and Ecosystem  2.6 Food chain and Food web | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 3 | Natural Resources and Biodiversity in Nepal  3.6 Conservation measures of Forest resources  3.7 Soil Formation Process  3.8 soil erosion causes and effects | 9 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 4 | Environment Pollution  4.4 Water Purification and its methods | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 5 | Climate change and its effects  5.5 Measures to control global warming | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 6 | Alternative Energy  6.5 Methods of Energy Conservation | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 7 | Environment and Sustainable development  7.4 Use of Environment Friendly Technologies for Sustainable Development | 6 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 8 | Environmental Health  -Effects of unhealthy Environment | 4 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 9 | Natural disaster and disaster management  9.5 Management of Natural Disasters | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
| 10 | Environment management  10.5 Environment Friendly  Indicators | 5 | Explanation,  Field visit,  Class discussion | Exercise as per text,  Group Discussion,  Project Work,  Unit Test |
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