TED (15) – 3001 Reg. No. ..........................................

(REVISION — 2015) Signature ..........................................

# DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

## ENVIRONMENTAL SCIENCE AND DISASTER MANAGEMENT

[*Time* : 3 hours

(Maximum marks : 100)

### PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define deforestation.
2. Define ecosystem.
3. Describe solid waste.
4. Define disaster.
5. Describe TREM card. (5×2 = 10)

### PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Explain the uses of forest.
2. Point out the characteristics features of grassland ecosystem.
3. Discover the effects of noise pollution.
4. Discuss the causes of flood.
5. List the environmental effects of pesticides.
6. Describe biomagnification.
7. Discuss the control measures of marine pollution. (5×6 = 30)

### PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

III (a) Explain the effect of dams on forest. 8

(b) Describe the importance of alternate energy sources. 7

OR

Marks

| | | | |
|---|---|---|---|
| IV | (a) | Discuss the role of an individual in the conservation of natural resources. | 8 |
| | (b) | Point out the environmental effects of mining. | 7 |

UNIT — II

| | | | |
|---|---|---|---|
| V | (a) | State the importance of biodiversity conservation. | 8 |
| | (b) | Explain the structure and function of desert ecosystem. | 7 |

OR

| | | | |
|---|---|---|---|
| VI | (a) | Explain a food chain with suitable example. | 8 |
| | (b) | Describe the effect of urbanization on environment. | 7 |

UNIT — III

| | | | |
|---|---|---|---|
| VII | (a) | Describe the effects of water pollution. | 8 |
| | (b) | Explain a method to control air pollution. | 7 |

OR

| | | | |
|---|---|---|---|
| VIII | (a) | Describe the causes of thermal pollution. | 8 |
| | (b) | Explain the effects of nuclear pollution. | 7 |

UNIT — IV

| | | | |
|---|---|---|---|
| IX | (a) | Describe the emergency phase of disaster management cycle. | 8 |
| | (b) | What are the sources of chemical disaster ? | 7 |

OR

| | | | |
|---|---|---|---|
| X | (a) | Explain effects of cyclone. | 8 |
| | (b) | Explain the uses of information technology in disaster management. | 7 |

# GOVT. OF KERALA

## DEPARTMENT OF TECHNICAL EDUCATION

### OFFICE OF THE CONTROLLER OF TECHNICAL EXAMINATIONS

**THIRUVANANTHAPURAM**

**DIPLOMA EXAMINATION IN ENGINEERING /TECHNOLOGY/MANAGEMENT**

**CORRECTION NOTE**

**Revision & Sub code:** (15) 3001
**Subject:** Environmental Science and Disaster Management
**Verified by:** Joshy R.S.

In scheme of evaluation Qn.no. VII (b). Figure are not attached. So figures are attached and rectified the scheme.

Joshy
JOSHY R.S.

13 1 1 1

**SHEME OF VALUATION**
(Scoring Indicators)

Revision : 2015 Course Code : 3001

Course Title : Environmental Science & Disaster Management

| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
|---|---|---|---|---|
| I (1) | Deforestation is the removal of a forest and where the Land is thereafter converted to a non-forest use. | 2 | 2 | |
| (2) | Ecosystem is a community made up of living organisms and nonliving components such as air, water, and mineral soil. | 2 | 2 | |
| (3) | Solid waste is a waste type consisting of everyday solid and semi solid items that are discarded by the public. | 2 | 2 | 2x5 =10 |
| (4) | Disaster is a sudden accident or a natural catastrophe that causes great damage or loss of life. | 2 | 2 | |
| (5) | Trem card is Transport Emergency card which is a document used when transporting dangerous goods Trem card contains important safety information about the vehicles load. | 2 | 2 | |

2

## SHEME OF VALUATION
(Scoring Indicators)

| Revision : 15 | Course Code : 3001 | | | |
|---|---|---|---|---|
| Course Title : ESDM. | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| II (1) | a) Timber extraction<br>b) Fodder to cattles<br>c) Climatic amelioration<br>d) Moisture conservation<br>e) Control pollution<br>f) Tourism.<br>g) Conserve wild lilfe | any 6<br>1x6<br>=6 | –<br>6 | 5x6<br>=30 |
| II (2) | a) Consist of rich nutrient and organic matter<br>b) Exist where rainfall is low and uneven.<br>c) Provides largest biomass.<br>d) Exist in moderate climate<br>e) Consist of , seasonal flowering plants<br>f) Scattered trees or savannas are present | any 6<br>1x6<br>=6. | 6 | |
| II (3) | a) Effects on human health<br>- cause stress.<br>- B.P rise<br>- cardiovascular diseases<br>- immune depression fetus developement<br>b) Phychological Effects<br>- affect social interaction<br>- anxiety<br>- aggression<br>- uncontrollable annoyance. | | | |

**SHEME OF VALUATION**
**(Scoring Indicators)**

| Revision: 15 | Course Code: 3001 | | | |
|---|---|---|---|---|
| Course Title: ESDM | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| II (4) | a) Heavy rainfall<br>b) Long periods of rain<br>c) snow melt<br>d) Deforestation<br>e) steep slopes<br>f) Improper land use | any 6<br>1×6<br>=6 | 6 | |
| II (5) | a) Air pollution<br>b) Water pollution<br>c) Soil pollution<br>d) kill bees and decline pollinators<br>e) Eliminate animal's food resource<br>f) Cause eggshell thinning and affect birds | any 6<br>1×6 | 6 | |
| II (6) | Bio magnification is the increasing concentration of a substance s toxic chemicals, in the tissue of tolerent organisms at successively higher levels in food chain.<br>This is because of persistence, food chain energetics, low rate of internal degradation<br>Eg: Over use of DDT | 3<br><br>2<br><br>1 | 6 | |

**SHEME OF VALUATION**
**(Scoring Indicators)**

| Revision : | Course Code : | | | |
|---|---|---|---|---|
| Course Title : | | | | |
| **Qst. No** | **Scoring Indicator** | **Split up Score** | **Sub Total** | **Total** |
| II (7) | a) Introduce sewage treatment plants<br>b) Cleaning oil from surface water<br>c) Use of chemical dispersant<br>d) Crude oil washing<br>e) Use high pressure jet of water. | any 4 | 6 | |
| III (a) | a) Social cost of big dam is widespread displacement of local people<br>b) Narmada project displaced 1.5 million along with 600000 acres of land<br>c) Hirakud dam displaced about 20000 people over 250 villages<br>d) In India over past 50 yrs. people affected directly or indirectly by dams are 20 million. | any 4<br>2.5 x 4 | 8 | |

**SHEME OF VALUATION**
(Scoring Indicators)

| Revision : 15 | Course Code : 3001 | | | |
|---|---|---|---|---|
| Course Title : ESDM | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| III (b) | a) Lower environmental impacts.<br>b) They will not run out<br>c) Unlimited supply<br>d) Provides energy security<br>e) Fits into sustainable development<br>f) Reliable and devices are modular<br>g) Decentralised production | Any 7<br>1×7 | 7 | 8+7<br>15 |
| IV (a) | a) Conserve water<br>b) Conserve energy<br>c) Protect the soil<br>d) Promote sustainable agriculture<br>eg: Rain water harvesting<br>eg: Turn off appliances when not in use<br>eg: don't uproot trees<br>eg: use organic fertilizer | 4<br>4 | 8 | |

**SHEME OF VALUATION**
(Scoring Indicators)

| Revision : | Course Code : | | | |
|---|---|---|---|---|
| Course Title : | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| IV (b) | a) Removal of vegetation.<br>b) Destruction of landscape..<br>c) Laage scale of deforestation<br>d) Mining of radioactive elements in Kerala causes destruction of seashore<br>e) eg: Deforestation in Mussorie & Dehradun<br>f eg: Goa forest land<br>g) Black forest in Germany | 1×4 points<br><br>1×3 eg | 7 | 8+7 = 15 |
| V (a) | a) To maintain essential ecological processes and life supporting systems<br>b) To preserve diversity of species<br>c) To make sustainable utilisation of species and ecosystems<br>d) For the good health of for the future generation<br>e) To give maximum benefits to present generation<br>f) For the sustainable utilisation of resource | any 6 | 8. | 8(4) 15 |

## SHEME OF VALUATION
(Scoring Indicators)

| Revision: 15 | Course Code: 3001 | | | |
|---|---|---|---|---|
| **Course Title:** ESDM | | | | |
| **Qst. No** | **Scoring Indicator** | **Split up Score** | **Sub Total** | **Total** |
| V (b) | a) Abiotic Components :- High temperature, low rainfall dry climate<br>b) Biotic components<br>Producer :- shrubs, bushes, grasses,<br>Consumer :- insects, reptiles, camels<br>Decomposers: Fungi, bacteria | 4 | 7 | |
| | Note: Explain functions | 3 | | |
| VI (a) | Producer \| Prim. Consumer \| Sec Consum \| Ta Consu<br>Grass → Grass hopper → Toad → Snake | 4 | | 8+7<br>15 |
| | The pattern of eating and being eaten forms a linear chain called food chain which can be always tracked back to producers | 4 | 8 | |

## SHEME OF VALUATION
(Scoring Indicators)

| Revision : 15 | Course Code : 3001 | | | |
|---|---|---|---|---|
| Course Title : ESPM | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| VI (b) | a) Impact on atmosphere and climate | | | |
| | • Heat island | a×4 | | |
| | • changes in air quantity | 1×4 | | |
| | • changes in patterns of precipitation | 7 | 7 | |
| | b) Impact on lithosphere & land resources | | | |
| | c) Impact on hydrosphere & water resoures | | | |
| | d) Impact on biosphere | | | |
| VII (a) | a) Effect on water bodies | | | |
| | b) Effect on aquatic organism | 4. | | |
| | c) Effect on human health | | | |
| | eg: Dissolved oxygen | | 8 | |
| | : Biological oxygen demand | | | |
| | Eutrophication | 4 | | |
| | Contamination by pathogen | | | |

**SHEME OF VALUATION**
(Scoring Indicators)

| Revision : 15 | Course Code : 3001 | | | |
|---|---|---|---|---|
| Course Title : ESDM | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| VII (b) | Methods,<br>1) Gravity settling chamber<br>2) Cyclone separator<br>3) Electrostatic precipitator<br>4.) Wet scrubber.<br>5) Fabric Filter<br>any one with Fig | Exp 4<br>Fig 3 | 7 | 8(7) of 8 |
| VIII (a) | Causes are:<br>a) Industries<br>b) Urban runoff<br>c) Domestic sewage.<br>d: Coal fired power plants<br>e Nuclear power plant<br>, effluents from. textile, paper, industry | 4<br><br>4 | 8 | |

**SHEME OF VALUATION**
(Scoring Indicators)

| Revision : 15 | Course Code : 3001 | | | |
|---|---|---|---|---|
| Course Title : ESDM | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| VIII (b) | a) Exposure of nervous system to radiation causes dealth within hours<br>b) Cells in the eye die due to radiation<br>c) Acute radiation causes vomiting<br>d) Mouth ulcers<br>e) Infection in intestine<br>f) Unborn babies are vulnerable to brain damage | any 6<br>~~7~~ | 7 | |
| IX (a) | Emergency phase include the following.<br>a) Training for search & rescue<br>b) Immediate relief operations<br>c) Search & rescue<br>d) Assesment survey.<br>Explain each — | 2×4<br>8 | 8 | |

SHEME OF VALUATION
(Scoring Indicators)

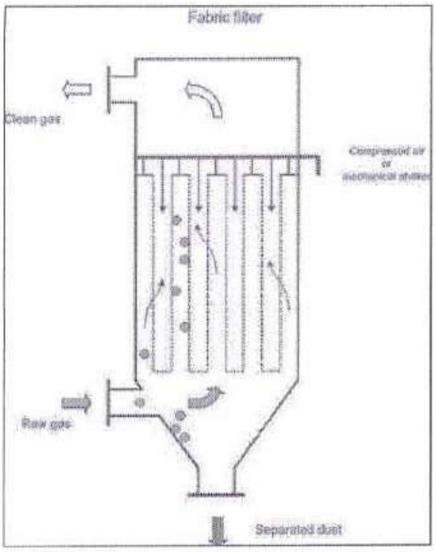
| Revision : | Course Code : | | | |
|---|---|---|---|---|
| Course Title : | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| IX (b) | Sources are:<br>a) Industrial emission<br>b) Motor vehicle emission<br>c) Chemical fertilizer from land<br>d) Heavy metals from industries<br>e) Persistent organic pollutants<br>f) PVC release toxic chemicals when get old | any 6<br>(1×6) | 7 | |
| X (a) | a) Physical damage<br>b) Casualties and public health<br>c) Water supplies contamination<br>d) Destruction of crops & food supply<br>e) Desruption of communication lines | any 4<br>2×4 | 8 | 8(1)<br>of |

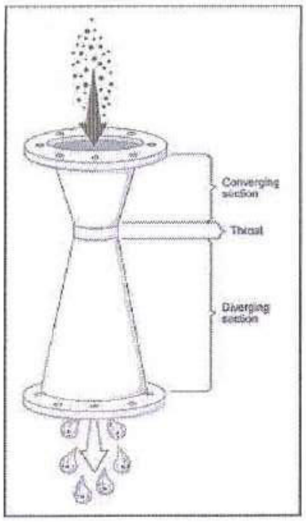
**SHEME OF VALUATION**
(Scoring Indicators)

| Revision : | Course Code : | | | |
|---|---|---|---|---|
| Course Title : | | | | |
| Qst. No | Scoring Indicator | Split up Score | Sub Total | Total |
| X (b) | • Preparedness through Information, edutcation & communication IEC<br>• GIS & Remote sensing can be used on drought, earth quake, flood, landslide for search & rescue<br>• Internet can be used for warning and forecasting system<br>• Cyclone tracking using cyclone detection radar (CDR) | any 4 | 7 | 8(1) on |

VII (b)

Wet



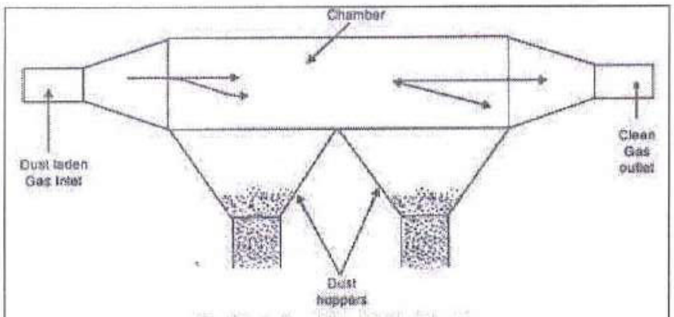
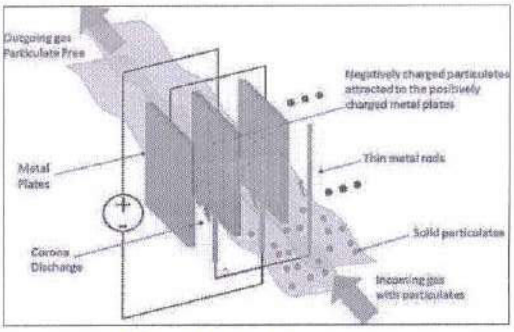
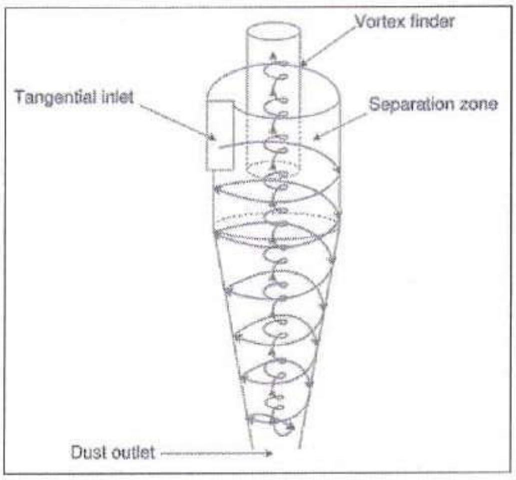




Fig. 6.4. Horizontal Flow Settling Chamber




Electrostatic




~~Gravity~~ cyclone