

[50]

SARDAR PATEL UNIVERSITY
M.Sc. (EST) (Third Semester) Examination
Thursday, 2 November, 2017
Time: 2:00 pm to 5:00 pm

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PS03CEST02: Environmental Impact Assessment & Legislation

Max. Marks: 70
[08]

Q.1. Multiple Choice Questions (Choose Correct Answer)

- (1) The common core of social and economic components of EIA is
 (a) Bearable (b) Viable (c) Equitable (d) None
- (2) In EIA, final public participation is held during
 (a) Screening (b) Scoping (c) Review (d) None
- (3) Small-scale activities require
 (a) IAA (b) SEA (c) EIA (d) EIS
- (4) FIFRA was enacted in
 (a) 2008 (b) 2007 (c) 2006 (d) 2005
- (5) In EIA, air quality data should be collected within _____ km radius.
 (a) 5 (b) 10 (c) 15 (d) 20
- (6) EIA Method is
 (a) Decision Making Tool (b) Decision Making Instrument
 (c) Decision Making Device (d) Decision Making Process
- (7) EIA Process is
 (a) Objective Analysis Method (b) Objective Analysis Tool
 (c) Objective Analysis Procedure (d) Objective Analysis Programme
- (8) Leopold Matrix was devised in
 (a) 1969 (b) 1970 (c) 1971 (d) 1972

Q.2. Attempt followings (Any Seven).

[14]

- (1) Areas to be avoided while siting industries
- (2) Enlist essential components required during EIA of sugar factory
- (3) Enlist organizations referring EIA
- (4) Expand: PIL, PLI
- (5) Expand: RCRA, IDRA
- (6) Facets of EIA (Venn Diagram)
- (7) Flowchart of generalized EIA process
- (8) Impact Network Analysis (INA)
- (9) Specific regulations covered in EHS audit

Q.3. (a) Explain Phase-I of EIA in detail including its flowchart.

[06]

(b) Write a note on DMI and OAT with suitable examples.

[06]

OR

(b) Enlist with Examples: ESA (Ecologically Sensitive Areas)

[06]

Q.4. (a) Discuss methodology, prediction of changes, and mitigation measures of biological settings, cultural scenario, and socio-economic aspects in EIA.

[06]

(b) Write a note on purposes, benefits, and vision of GBD (Green Belt Development).

[06]

OR

(b) Describe full EIA study in detail.

[06]

- Q.5. (a) Explain methodology, prediction of changes, and mitigation measures of air, water, soil, and noise quality during EIA. [06]
(b) What changes can EIA bring? Explain in detail with on-ground example. [06]
- OR**
- (b) Write a detailed note on purposes and key elements of EIA. [06]
- Q.6. (a) What is EMP? Explain siting criteria for liquid components, air pollutants, and solid wastes in detail. [06]
(b) Write a detailed note on EHS audit and waste audit in your own words. [06]
- OR**
- (b) Discuss financial budget in EIA project proposal in detail. [06]

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Q.1. Multiple Choice Questions (Choose Correct Answer)

[08]

- (1) Lye () is a strongly alkaline solution used for washing and cleaning.
 (a) KOH (b) NaOH (c) AlOH (d) CaOH
- (2) As per OSHA, explosives are indicated by _____ color.
 (a) Orange (b) Red (c) Yellow (d) None
- (3) The purpose of _____ is to identify the potential hazards.
 (a) FMEA (b) CHA (c) HAZOP (d) "What if analysis"
- (4) Loading & unloading of materials are regulated as per _____ act.
 (a) HMR (b) HRM (c) HRA (d) None
- (5) Under hazardous materials warning labels, white colour indicates _____.
 (a) Explosive (b) Poison (c) Corrosive (d) Oxidizer
- (6) Under chemical hazard labels, special hazards are indicated by following color.
 (a) Red (b) Blue (c) White (d) Green
- (7) Industrial establishments are made under _____.
 (a) EHS (b) OSHA (c) OHSA (d) None
- (8) Coupling is type of _____ on load.
 (a) Grip (b) Tip (c) Pit (d) None

Q.2. Write a Short Note on followings (Any Seven).

[14]

- (1) Classify HAZOP guidewords
- (2) Define TLV
- (3) Define: Flammable, Explosive
- (4) Define: Toxic/Poison, Corrosive
- (5) Differentiate: Accident & Tragedy
- (6) Differentiate: Hazard & Disaster
- (7) Differentiate: Security & Safety
- (8) Enlist objectives of ventilation
- (9) Section 45 of material handling

Q.3. (a) Describe physical and health hazards in detail with suitable examples.

[06]

(b) When the load may be hazardous? Discuss.

[06]

OR

(b) Write a detailed note on SDS (Safety Devices System).

[06]

Q.4. (a) Describe chemical hazards in detail with suitable examples.

[06]

(b) Write a detailed note on MSDS (Material Safety Data Sheet).

[06]

OR

(b) Write a detailed note on HIT (Hazard Identification Techniques).

[06]

Q.5. (a) Justify: Housekeeping = Cleanliness + Orderliness = Safety.

[06]

(b) Define and classify Explosion.

[06]

OR

(b) What are the special provisions on Hazardous Processes under Factories Act, 1948? Explain.

[06]

Q.6. (a) Sketch Heinrich's Dominos with nomenclature.

[06]

(b) Define Safety Audit. Add a note on its salient features.

[06]

OR

(b) Expand terms: ALARP, ACGIH, IDLH, EAC, OHSAS, NFPA

[06]

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SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY,
Vallabh Vidyanagar, Gujarat
M.Sc. Environmental Science and Technology (EST)
III Semester **Max. Marks: 70**
Friday, 10th November, 2017 **2.00 to 5.00 p.m.**
PS03EEST01: Industrial Pollution and Control Technology

Q.1. Multiple Choice Questions (Choose Correct Answer) [8 X 1]

- 1) The pipe carrying Sullage from Kitchen, washbasin is called as
 a) Sewage b) Soil pipe c) Waste pipe d) Plumbing pipe
- 2) Aerobic Bacteria
 a) Oxidise Organic matter in sewage b) Consume Organic matter as their food
 c) Flourish in the presence of free oxygen d) all
- 3) Normal conversion intensity of sound is db
 a) 60 b) 70 c) d) 90
- 4) In the dairy industry, by Waste stabilization treatment BOD reduction can be achieved.
 a) 95 to 98% b) 52 to 74% c) 75 to 95% d) 25 to 60%
- 5) In the slushing Process, the substances is added in place of starch, to reduce the BOD.
 a) Caustic soda b) talc c) Hydrogen peroxide d) Carboxyl methyl cellulose d) Detergent
- 6)electromagnetic radiation has high frequency
 a) Alpha b) Beta c) Gamma d) Power transmission
- 7) the frequency sensitivity of the human ear at very high noise levels.
 a) A Weighting b) B Weighting c) C Weighting d) D Weighting
- 8) One 'rad' is equal to the absorption of ergs of energy per grams of absorption tissue.
 a) 100 b) 200 c) 300 d) 400

Q.2. Write a Short Note on followings (Any Seven). [7 X 2]

1. Concepts of CETP
2. NIHL
3. Manufacturing process of Nylon-6
4. Define Retention Time, sullage, manhole
5. Chemicals used in Kraft Process
6. Separation and Standardization Of milk
7. Causes of Thermal pollution
8. SLM
9. Dying process in textile mill

(1)

(P.T.O)

Q. 3.a) Explain the Principle of House Drainage system. Discuss the component of House Drainage System [06]

b) Write different methods of dewatering process for the sludge. [06]

OR

b) Discuss the different secondary treatment process in detail. Discuss the factors affecting on ASP Process [06]

Q.4. a) Explain the different feasibility assessment steps of CETP [06]

b.1.) Write a note on Financial Assistance pattern of CETP [03]

b.2.) Calculate the Detention Time for a clarifier with a volume of 75,600 gallons that receives a flow of 425,000 gal/day. [03]

OR

b.1.) Write a note on Private Ownership of CETP [03]

b.2.) Explain the different methods of Grit removal [03]

Q.5. a) Enumerate manufacturing process of Synthetic textile Mill with flow diagram. [06]

b) Enumerate the different treatment wet operations of Cotton textile mill [06]

OR

b.1.) Describe Black liquor process of Pulp and Paper mill [03]

b.2.) Discuss Carbonizing and Scouring of wool [03]

Q.6. a) Explain the Ionization Radiation. Describe the different biological effects of radiation on human being. [06]

b.1) What is Noise? Describe health effects of noise pollution. [03]

b.2) Discuss the working of Inner ear function. [03]

OR

b.1) Explain the different control methods of thermal pollution [03]

b.2) Enumerate the units of radiation. [03]

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SEAT No. _____

No. of Printed Pages : 2

Sardar Patel University, Vallabh Vidyanagar, Gujarat

M.Sc: Environmental Science and Technology III Semester

Course: Environmental Biotechnology Course no: PS3CEST07

Date: 8th November, 2017

Time: 2.00 – 5.00 pm.

Max.Marks: 70

- N.B: i. Draw neat and labelled diagrams wherever necessary to score full marks.
ii. All questions compulsory and carries equal marks.

I. Answer the following multiple choice questions (8X1)

- i. Phospholipid layer is the characteristic of the following membranes
a. intercellular organelles b. Plasma membrane c. Nucleus d. All.
- ii. Name the enzyme which is used to amplify genomic DNA in PCR
a. Vent polymerase b. Taq polymerase c. Both d. DNA polymerase
- iii. The 0.01-10 kb segment of DNA can be inserted in the following vector
a. cosmids b. YACs c. Bacteriophages d. None.
- iv. Who demonstrated first time that cohesive/ blunt end termini of cleaved DNA molecules?
a. Mertz and Davis b. Watson and Cricks c. Roselynn Franklin and Chargaff d. None
- v. Which one is the electron acceptors in anaerobic degradation
a. SO_4^{2-} b. NO_3^- c. S d. all
- vi. Castings are formed by
a. Porifera b. Echinoderms c. Coelenterates d. None.
- vii. Who is the father of the Biosensor
a. Grustein and Hogness b. Leland C Clark c. Benton and Davis d. Carry and Mullar
- viii. The nobel prize in Physiology and medicine for the year 2017 is awarded for the contribution in the following :
(a) Control of Superbugs (b) Biological Clock (c) Anticancerous substances (d) all

Q. II. Answer any SEVEN of the following (7X2)

- a) India's vulnerability to natural disasters.
b) Flowchart of Avalanch .
c) Microbial enzymes are good source for enzyme extraction .Justify
d) Palindromes
- e) Ligase enzyme
f) Ectophloic Mycorrhizal fungi
g) Nutrient composition and importance of Mushrooms
h) SSRs
i) Transducers of Biosensors

(1)

(P.F.O.)

III.A. Describe isolation, structure, characterization, masscultivation and applications of Rhizobium biofertilizers from root nodules (6)

III.B.i. Explain single cell protein production of Spirulina in brief (3)

III.B.ii. Write structure and isolation of VAM (3)

OR

III.B.i. What is spawn? and write a note on stages in Mushroom cultivation (3)

III.B.ii. What is vermiculture? Describe the process of Vermicompost in large scale. (3)

IV. A. What are enzymes? Describe isolation methods and purification of enzymes (6)

IV.B.i.B. Explain Cyclone and Landslide (3)

IV.B. ii. Discuss on Earthquake (3)

OR

IV.B.i. Describe principles of disaster management in detail (3)

IV.B.ii. Write a note on Volcano eruption (3)

V.A. What are molecular scissors and explain Type II restricted enzymes used in the rDNA technology. (6)

V.B. Describe the structure of plasmids as vector and write a note on Ti-Plasmid (6)

OR

V.B.i. Narrate mapping of DNA markers of RAPD (3)

V.B. ii. Explain PCR and its application (3)

VI.A. Define Bioremediation and explain *exsitu* bioremediation methods in brief. (6)

VI.B.i. What is the purpose of building constructed wetlands and explain mechanism of removal of contaminants by this method. (3)

VI.B.ii. Explain structure of Bioreceptors used in Biosensors (3)

OR

VI.B.i. Discuss slow degradation process of organic compounds (3)

VI.B.ii. Write a note on Protoplast and Embryo culture (3)

— X —
(2)