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Tuesday, 11 April, 2017

2.00 pm to 5.00 pm

PS04CEST05: Waste Management and Control Technology

Max. Marks: 70

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

[08]

- (1) HW-MH rule was again amended in _____.
(a) 2000 (b) 2001 (c) 2002 (d) 2003
- (2) Form-9 covers _____ documents concerned with illegal traffic of HW.
(a) Import (b) Legal (c) Export (d) Movement
- (3) SPCB regulates the import of HW under Schedule _____.
(a) IV (b) I (c) II (d) III
- (4) _____ regulates the chemicals that represent a security threat.
(a) EPA (b) DoT (c) UNEP (d) DHS
- (5) Following color is used for tubings, catheters and IV sets in color-coding for BMW segregation.
(a) Yellow (b) Red (c) Blue (d) Black
- (6) The unit of calorific value of solid waste is _____.
(a) gm/cc (b) kcal/kg (c) kcal/mg (d) gm/cal
- (7) Schedule - II of MSW Rules (2000) includes
(a) Implementation (b) Landfill sites (c) MSW Management (d) All
- (8) Following is one type of stationary container system.
(a) Self loading system (b) Trash trailer (c) Tilt frame (d) None

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

[14]

- (1) Active gas collection system
- (2) BDAT
- (3) Chemical characteristics of SW
- (4) Composting
- (5) MIC
- (6) MSEG
- (7) Pyrolysis
- (8) UTS
- (9) Wasting resources and Waste disposal methods (Graphical Representation)

Q.3. (a) Define hazardous waste. Briefly describe Characteristic HW and Listed HW.

[06]

(b) Discuss: Zonation System, Flammability Unit, Flash Point, and T Code.

[06]

OR**(b) Explain with Examples: Biodegradation, Chemical reduction, Combustion, Deactivation, Macroencapsulation, Neutralization, Precipitation, Recovery of metals, Recovery of organics, Stabilization**

[06]

Q.4. (a) Write a detailed note on storage, transport, and disposal of HW.

[06]

(b) Tabulate advantages and disadvantages of sanitary landfills, deep-well disposal, and surface impoundments.

[06]

OR**(b) Draw Flowcharts and Explain: Dealing with material use and wastes, Industrial ecosystem, and Benefits of recycling.**

[06]

- Q.5.** (a) Define terms: 1) Off route 2) SCS pickup 3) At site [06]
(b) Write a detailed note on transfer stations involved in SW. Discuss on-site storage, handling, and processing of SW. [06]
- OR**
- (b) Explain different components involved in collection of functional elements of SW. [06]
- Q.6.** (a) What do you mean by cell and geomembrane? Explain various landfill methods with diagrams in detail. [06]
(b) Explain responsibilities of state government, union territory, and municipality authority as per MSW (2000). [06]
- OR**
- (b) Write a detailed note on classification and color coding for BMW. [06]

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SEAT No. _____

No. of Printed Pages : 02

[117] Sardar Patel University, Vallabh Vidya Nagar

M.Sc: Environmental Science and Technology

Max. Marks: 70

IV Semester

Course: Environmental Resources and Conservation Course no: PS04CEST06

Date: 13th April, 2017

Time: 2.00 to 5.00 pm

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

Q1. Answer the following multiple choice questions

(8 X 1)

1. The egg plant appears in different colours due to

- i. Climate change ii. Soil nature iii. Genetic diversity iv. Temperature

2. One of the methods of Ex-situ conservation is

- i. Seed bank ii. Pollen bank iii. Sacred grove iv. All

3. Silviculture is growing, establishment, composition, health, and quality of

- i. Warm trees ii. Fruit plants iii. Ornamental Plants iv. None

4. One of the plants below is a good example for dye yielding plant

- i. *Lawsonia inermis* ii. *Indigofera tinctoria* iii. *Butea monosperma* iv. all

5. Wind energy is the _____ energy of the large mass of air over the earth surface.

- (i) Kinetic (ii) Potential (iii) Mechanical (iv) Electrical

6. _____ days of sunshine striking the earth have the energy equivalent to the total amount of fossil fuels.

- (i) 30 (ii) 29 (iii) 28 (iv) None

7. Natural gas is the example of.....

- i. Nonrenewable energy ii) Renewable energy iii) Non conventional iv) All of the above

8. A single solar cell produces a voltage of about

- i. 0.5 to 1 V ii) 1 to 2 V iii) 2 to 3 V iv) 5 to 10

Q2. Describe any SEVEN of the following

(2 X 7)

- i. Biodiversity relationship with Biotechnology
- ii. Essential oil yielding plants
- iii. Biodiversity of Western Ghats
- iv. Methods of Conservation of Biodiversity
- v. Essential oil yielding plants
- vi. Enlist technical requirements of biogas digester
- vii. Disadvantages of solar energy
- viii. Tidal energy
- ix. Different impacts on environment by using fossil fuels

Q.3. A) Explain the working of Photovoltaic cell ? Describe the different application related to Solar energy. (6)

B) What do you mean by the Nuclear fission and Nuclear fusion reaction? Explain the advantages and disadvantages of Nuclear Energy. (6)

OR

Bi.) How the energy is produced by geothermal techniques? (3)

B.ii) Explain the parts of wind mill in detail with diagram. (3)

Q4.A. Briefly describe the construction, mode of operation, and different models of Biogas digesters used in China and India. (6)

B.i.. Write a brief note types of renewable and non-renewable energy with suitable examples. (6)

OR

B.i.Discuss the most suitable method of wind energy conversion. Highlight the advantages and disadvantages of wind energy. (3+3)

ii.Define solar energy and summarize the pros and cons of solar energy.

Q5.A. Define biodiversity and explain types, importance ,strategies, and conservation of biodiversity (6)

B.Explain various antropogenic pressures of Nalsarovar bird sanctuary for its placement in Ramsar sites (6)

OR

B.Enumerate types, importance and monitoring of Aquatic macrophyte Biodiversity. (6)

Q6.A. Discuss various environmental and floristic composition of tropical forests of India (6)

B.i.Explain the advantages of Agro-forestry over forestry and agri-culture (3+3)

ii. Describe Alpine scrub forests

OR

B.i.Describe various phytoresources used for Medicinal , Tans and Dye yielding plants by local tribes (3+3)

ii. EnumerateMontane Temperate forests of India in brief.

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