

(65) Seat No.: _____

No. of Printed Pages : 2

Sardar Patel University,

M.Sc: Environmental Science and Technology

III Semester

Course: Advances in Environmental Science and Technology

Course no: PS3CEST01

Date: 22nd October, 2016, Saturday

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. (8X1)

- i. RNA is differ from DNA mainly based on the following
a. Ribose sugar ring b. presence of deoxyribose c. Fourth carbon with deoxy ribose d. None.
- ii. The 0.01-10 kb segment of DNA can be inserted in the following vector
a. cosmids, b. YACs c. Bacteriophages d. None.
- iii. The role of electron acceptors during anaerobic remediation is
a. nitrate(NO_3^-), b. vitriol(SO_4^{2-}), c. iron(Fe^{3+}) d. all.
- iv. Who demonstrated first time that cohesive/ blunt end termini of cleaved DNA molecules?
a. Mertz and Davis b. Watson and Cricks b. Roselyn Franklin and Chargaff d. None
- v. Name the requirements for entering plasmid containing foreign DNA fragment into a bacterial cell
a. CaCl_2 b. CaClO_3 c. Calcium phosphate d. DEAE
- vi. Biosparging is:
a. Altering environmental factors for microbial growth b. supplying nutrients for growth
c. Addition of organisms d. none
- vii. Name the phytoremediation which 'degrades the contaminants'
a. Phytotransformation b. Phytostimulation c. phytoagumentation d. none
- viii. Mass-transduser convert the physical changes by the following device
a. Electroactive b. Thermo c. Colorimeter d. None

Q2. Answer any SEVEN of the following

(7X2)

- a) B form of DNA,
- b) Silver nanoparticles
- c) Palandromes
- d) Satellites
- e) Detectors of Biosensors.
- f) Advantages of Bioremediation.
- g) Modules and components of GIS.
- h) Phosphodiester bond
- i) Epicenter and Focus

(P.T.O.)

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- Q3. A. Explain the different anatomy and hazards of Valcano [6]
B.i. Discuss the various waves produced due to Earthquakes [3]
(ii) Explain principle of remote sensing and write 5 parameters in the RS data interpretation ? [3]

OR

- B. (i) Describe application of radar for weather forecasting. [3]
(ii) Define GIS. Explain about the 4“Ms”of GIS and different applications of GIS. [3]

4.A. Describe the methods to separate Recombinant cells from Non-Recombinant cells in rDNA technology [6]

- Bi. Describe types of nitrogen bases, nucleosides, nucleotides of DNA and RNA (3)
Bii. Discuss PCR applications (3)

OR

- Bi Explain plasmids as cloning vector (3)
Bi. What are Molecular markers and explain RAPD molecular marker (3)

Q5. A. Define Biosensor and Explain types and functions of Bioreceptors of Biosensors (6)

- Bi. Discuss *Exsitu* bioremediation techniques in brief [3]
B.ii. Explain process involved in Chimeric mouse [3]

OR

- Bi. Enumerate the Callus culture and its applications [3]
Bii. Define biodegradation and explain slow biodegradation process with suitable examples of organic compound biodegradation . [3]

6.A. Define nanoparticles and explain properties and applications of organic nanoparticles (6)

- B.i. Enumerate nanoparticles in aquatic and terrestrial Environment [3]
B.(i) Explain synthesis, properties, and uses of Silica nanoparticles [3]

OR

- B. (i). Explain applications of nanoparticles in Medicine [3]
(ii) Describe the various instruments used to study the structure of nanoparticles [3]

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