Sem-IV

ACHOLA - IV (CBCS): WINTER – 2015

SUBJECT: BIOMEDICAL WASTE & ENVIRONMENT

Day: Friday
Date: 9-10-2015

Time: 2.00 P.M. To 5.00 P.M.
Max. Marks: 60

N.B.:

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Answer any **TWO** from questions No. **2**, **3**, and 4 and from **6**, **7**, and **8.**
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION - I

Q.1 Answer any **FIVE** of the following questions in brief. **(10)**

a) Explain the categories of environment.
b) State the effects of Environment Pollution on human health.
c) What are the sources of Environmental Pollution?
d) Explain heat as stress.
e) What are direct and indirect hazards?
f) Write the control of radioactive waste.

Q.2 Answer the following questions: **(10)**

a) Write the classification of Biomedical waste.
b) Define incineration and its impacts on human health.

Q.3 Explain the following: **(10)**

a) Common treatment facilities in – site and off – site.
b) Mesophilic organisms.

Q.4 Write short notes on any **TWO** of the following: **(10)**

a) Liquid waste treatment
b) On site pre-treatment of waste
c) Explain cold as stress

SECTION - II

Q.5 Answer the following: **(10)**

a) Write modern technology for handling biomedical waste.
b) Describe the legislation and policies on health care waste management.

Q.6 Answer any **TWO** of the following: **(10)**

a) Write the store and off- site transportation.
b) Explain the basic steps in waste management.
c) Describe the process of composting biodegradable waste.

Q.7 Write short notes on the following: **(10)**

a) Secured land fill
b) Disinfection of water

Q.8 Answer the following: **(10)**

a) Discuss mechanical treatment and chemical disinfection of waste.
b) Mention traditional methods for treatment of biomedical waste.

SUBJECT : NANOTECHNOLOGY IN MEDICINE

Day : Tuesday
Date : 13-10-2015

Time : 2·00 P.M To 5·00 P.M.
Max. Marks : 60

N.B.:

1) **Q.No.1** and **Q.No.5** are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 Answer **ANY FIVE** of the following: **[10]**

a) Define nanotechnology.
b) Explain the method to perform particle size analysis.
c) What are core-shell nanoparticles?
d) Explain the use of XRD in nanotechnology.
e) What is FTIR spectroscopy?
f) What are fullerens?

Q.2 Answer the following questions: **[10]**

a) Write different approached used in nanotechnology to improve human health.
b) What is active targeting? With the help of one example explain the use of nano-carrier in active targeting.

Q.3 Explain the following: **[10]**

a) With the help of a diagram explain the working of SEM and add a note on its applications in nanomaterial characterization.
b) With the help of a diagram explain the principle and characterization of nanoparticle using UV – Vis spectroscopy.

Q.4 Write short notes on **ANY TWO** of the following: **[10]**

a) Use of liposomes in nano-medicine
b) Use of magnetic nanoparticles in nanomedicine
c) Use of dendrimers in nanomedicine

SECTION – II

Q.5 Answer the following questions: **[10]**

a) Explain the importance of gene therapy. What are the different nanotechnological approaches for gene therapy?
b) What is nano biosensors? Explain its parts and applications in nanomedicines.

Q.6 Answer **ANY TWO** of the following: **[10]**

a) What are carbon nanotubes? Explain their use in biosensor.
b) What is piezoelectric device? Explain its use in biodetection.
c) What is microarray? Explain its use with suitable illustration.

Q.7 Write short notes on: **[10]**

a) DNA based biosensor. Explain its applications in nanomedicine.
b) PEG in nanotechnology

Q.8 Write **ANY ONE** of the following: **[10]**

a) Explain two different methods to functionalize a nanoparticle for drug targeting. Draw suitable diagrams.
b) Explain different modifications for converting an adenovirus to use it as a nano carrier.

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