Registration No : | | | | | | | | | | |

Total Number of Pages : 01 **B.Tech.**
PEBT5301

6th Semester Back Examination 2017-18
NANOBIOTECHNOLOGY
BRANCH : BIOTECH
Time : 3 Hours
Max Marks : 70
Q.CODE : C278

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1. **Answer the following questions :** **(2 x 10)**

a) What do you mean by nano-science?
b) What is Bucky-Ball?
c) What are the amino acids that add flexibility and turn in protein structures?
d) Give some examples of DNA-Nanostructures.
e) What is chemical vapour deposition?
f) Write down two biological applications of quantum dots?
g) What is the principle of SEM?
h) Give some examples of MTB?
i) What do you mean by bottom-up approach of fabrication with example?
j) What is utility of DNA-chips?

Q2. **a)** Describe briefly various biophysicochemical interactions at the nano–bio interface. Give an account of forces governing these interfacial interactions? **(5)**
b) What are magnetosomes? Explain microbial biosynthesis of magnetosome with some examples. **(5)**

Q3. **a)** Elucidate with schematic diagram, the principles and working method of AFM? **(5)**
b) What do you mean by Information-driven nano-assembly? Explain with example. **(5)**

Q4. **a)** Explain the processes of photo-lithography in nanofabrication? **(5)**
b) What is nanobiosensor ? Explain briefly about the mechanism of nanobiosensors. **(5)**

Q5. **a)** Differentiate between μTAS and LOC? **(5)**
b) Difference between self-assembly and self-organization? **(5)**

Q6. **a)** Define carbon nano-tube? Briefly explain types and various properties of carbon nano-tubes. **(5)**
b) How is nanotechnology useful in destroying tumours of cancer? **(5)**

Q7. Describe briefly about polymeric nano-containers? How polymeric nanomaterials that used in drug delivery system are differs from traditional one. **(10)**

Q8. **Write short answer on any TWO :** **(5 x 2)**

a) Micro-contact Imprinting
b) Nanomedicine
c) Nanowires
d) Bio-MEMs