



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – NOVEMBER 2017

BT 3824 - NANOTECHNOLOGY & MEDICAL BIOTECHNOLOGY

Date: 07-11-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- The term Nanotechnology was coined by whom?
a) Richard Feynman b) Watson c) Crick d) Punnet
- What is the size of double stranded DNA in mm?
a) 3 b) 2 c) 1 d) 4
- What percentage of the population has Type I diabetes?
a) 10 b) 50 c) 20 d) 30
- Amniocentesis can be performed at which trimester of pregnancy?
a) 1st b) 2nd c) 3rd d) 2nd /3rd
- Find out the negative regulator of P53 gene?
a) Mdm2 b) Mdm3 c) Mdm4 d) Mdm1

II. State whether the following are true or false.

(5x1=5 Marks)

- Ag Nanoparticles are less toxic, when compared to gold Nanoparticles.
- TEM is used for measuring the size of nanoparticle.
- 90% of the world population has type 2 diabetes.
- ICM is obtained from blastocyst.
- In situ* hybridization is used for mapping gene on a chromosome.

III. Complete the following

(5 x 1= 5 Marks)

- Functional group in Nanoparticle can be measured by _____
- _____ Nanowires are used in Nanomedicine
- Queen Victoria family is suffering from _____ X linked recessive disorder.
- _____ % of mother's blood has fetal DNA.
- _____ is a less severe form of DMD.

IV. Answer the following within 50 words

(5 x 1 = 5 Marks)

- What is the use of TEM?
- What is the contribution of Richard Feynman to Nanotechnology?

18. What is criss cross inheritance? Cite an example.

19. Define Amniocentesis

20. What is “ Knudsun hypothesis ” gene?

PART B

Answer the following each within 500 words.

(5 x 8 = 40 marks)

Draw diagrams wherever necessary

21. (a) Discuss the use of DNA Nanomachine.

OR

(b) Explain fullerenes in Nanotechnology.

22. (a) Discuss the use of Nanotechnology in pollution control.

OR

(b) Explain SEM.

23. (a) How do you perform Multiplex PCR. Cite an example.

OR

(b) Write an account on *CFTR* gene.

24. (a) Explain DNA Fingerprinting.

OR

(b) Explain Chorionic Villus Sampling (CVS).

25. (a) Discuss the use of FACS.

OR

(b) Explain *In situ* hybridization.

PART – C

Answer any TWO of the following, each within 1500 words.

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Describe Carbon nanostructures.

27. Discuss type 2 diabetes, complication and its management.

28. Explain stem cell therapy.

29. Describe *P53* gene and its role in cancer.

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