LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

P.G. DEGREE EXAMINATION –**CROSS DISCIPLINARY**

SECOND SEMESTER – **APRIL 2023**

PBT2CD01 – BIOTECHNOLOGY AND HEALTH

Date: 12-05-2023 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A – K1 (CO1)

	Answer ALL the questions	**(5 x 1 = 5)**
1.	**Choose the best option**	
a)	Vitamin A is stored in _____ i) Heart ii) Kidney iii) Liver iv) Spleen	
b)	A class of proteins functions as antibodies present in cells and serum of the immune system called i) Passive immunity ii) Active immunity iii) Resistance iv) Immunity	
c)	_____ rays are used for ionization of food i) Gamma and delta ii) Beta and alpha iii) Alpha and gamma iv) Beta and gamma	
d)	How are prebiotics digested? i) They are a non-digestible food ingredient ii) They are fermented by probiotics in the colon to produce metabolites play an important role in health (SCFA) iii) They lower the stomach pH so they can be digested iv) They bind to fibre which is excreted through the anus	
e)	A single strand of nucleic acid tagged with a radioactive molecule is called i) Plasmid ii) Selectable marker iii) Probe iv) Vector	

SECTION A – K2 (CO1)

	Answer ALL the questions	**(5 x 1 = 5)**
2.	**Answer in one or two sentences**	
a)	Two examples of communicable disease causative agents.	
b)	Differentiate recombinant DNA and vector.	
c)	Give two disadvantages of genetically modified food.	
d)	What are the benefits of antioxidants?	
e)	Explain the basic criteria of a scaffold used for tissue reconstruction	

SECTION B – K3 (CO2)

	Answer any THREE of the following	**(3 x 10 = 30)**
3.	Illustrate the intervention strategies for the control and prevention of micronutrient deficiencies.	
4.	Distinguish between the reverse vaccinology and conventional vaccinology.	
5.	Enumerate different techniques involved in microbiological examination of foods.	
6.	Complete the mechanism of action of probiotics in the gut for non-digested macromolecules.	
7.	Describe how to resent advantages in gene therapy and stem cell isolates may improve the development of Tissue-Engineered constructs.	

	SECTION C – K4 (CO3)
	Answer any TWO of the following **(2 x 12.5 = 25)**
8.	Explain measles as a communicable disease, its symptoms, and prevention techniques.
9.	a) Illustrate the peptide vaccine and how to produce a peptide vaccine; give details. b) Summarise recombinant enzyme technology in food fermentations and their genetic manipulation.
10.	Discuss the importance of prebiotics and probiotics.
11.	Explain the source of therapeutic proteins and its medical applications.
	SECTION D – K5 (CO4)
	Answer any ONE of the following **(1 x 15 = 15)**
12.	Summarize the symptoms and diagnosis techniques of malaria. How does plasmodium affect the immune system?
13.	Conclude the main purpose of recombinant DNA using in vaccine development.
	SECTION E – K6 (CO5)
	Answer any ONE of the following **(1 x 20 = 20)**
14.	Generalize the potential risks of GM foods to human health and explain three examples of GM foods' complexities.
15.	Write about the different types of gene therapy and the risks associated with gene and cell therapy.

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