## LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.Sc. DEGREE EXAMINATION - BIOTECHNOLOGY

SECOND SEMESTER – APRIL 2022

## **PBT 2601 – HUMAN GENETICS**

Da	ate: 24-06-2022 Dept. No.	Max. : 100 Marks		
Tir	me: 09:00 AM - 12:00 NOON			
	PART – A			
	Answer ALL the Questio	ons (7 1 5 M L )		
I. Cho	ose the correct answer	(5 x 1 = 5 Marks)		
1.	A man marries a woman, and both do not show any apparent traits	of inherited disease. Five sons and		
	two daughters are born, and three of their sons suffer from a disease. None of the daughters are			
	affected. The following mode of inheritance for the disease is			
	a) sex-linked recessive b) sex-linked dominant c) autosomal dominant d) none of the above			
2.	The therapeutic gene takes over the function of a gene			
	a) correct b) right c) non-functional	d) functional		
3.	The common gene delivery system for in vivo gene therapy is			
	a) Micro injection b) Lipotection c) Adeno viral vectors d) Electroporation			
4.	Between two chromosomes the exchange of gene is called	1) D		
5	a) Interaction b) Mutation c) Recombination	d) Point mutation		
э.	The main aim of numan genome project is	~ <b>d</b> ••		
	a) to identify and sequence of an the genes present in the numan of	bdy		
	b) to introduce new genes to numan beings			
	d) to improve techniques of finger printing			
TT C	d) to improve teeningues of imger printing.			
1 II. Sta	ite whether the following are true or false.	(5x1=5 Marks)		
11. Sta 6.	A genetic codon is said to be degenerate or redundant.	(5x1=5 Marks)		
<b>II. St</b> a 6. 7.	A genetic codon is said to be degenerate or redundant. Mutations that occur in somatic cells are inherited.	(5x1=5 Marks)		
11. Sta 6. 7. 8.	A genetic codon is said to be degenerate or redundant. Mutations that occur in somatic cells are inherited. Spinal muscular atrophy is inherited in an autosomal recessive patt	(5x1=5 Marks)		
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PART – B Answer the following each within 500 words. Draw diagrams wherever necessary	(5 x 8 = 40 Marks)		
<ul> <li>21. (a). Discuss on the types of gene mutations.</li> <li>OR</li> <li>(b) Write a note on repetitive sequences in human genome.</li> </ul>			
<ul> <li>22. (a) Explain the genetic basis of Duchenne muscular dystrophy.</li> <li>OR</li> <li>(b) Discuss on Alzheimer's disease and its syndromes.</li> </ul>			
<ul> <li>23. (a) Elaborate on how organ transplants and stem cell therapy help treat diseases OR</li> <li>(b) Explain the role of nucleic acids in combating disease.</li> </ul>	3		
<ul> <li>24. (a) List the advantages and disadvantages of using DNA vaccines.</li> <li>OR</li> <li>(b) Briefly outline the key biochemical and molecular tests that are used in gene</li> </ul>	tic testing.		
<ul> <li>25. (a) Explain the importance of X chromosome short tandem repeats.</li> <li>OR</li> <li>(b) Enumerate the advantages and limitations of Y chromosomal markers.</li> </ul>			
PART – C			
Answer any TWO of the following, each within 1500 words. (A Draw diagrams wherever necessary.	2 x 20 = 40 Marks)		
26. Classify and explain the types of structural chromosomal abnormalities.			
27. Explain the pattern of inheritance of genetic disorders.			
28. Explain in detail prenatal screening for Down syndrome.			

29. Write an essay on the identification of male lineages in forensics.

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