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## SARDAR PATEL UNIVERSITY

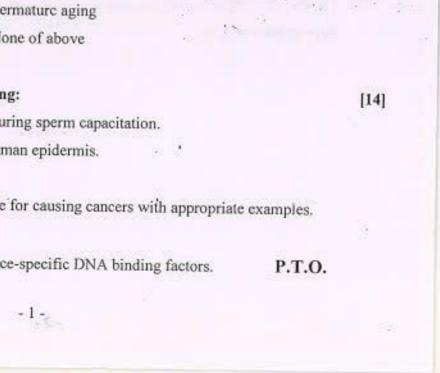
M. Sc. (Genetics) – Third Semester Examination (CBCS)

Thursday, 6<sup>th</sup> December 2012

2:30 p.m. to 5:30 p.m.
PS03EGEN01: Genetics of Mammalian Development

Total Market 70

No.	ote: (1) Figures to the right indicate marks. (2) Draw a neat and labeled diagram, wherever necessary.	ana an
Q. 1	Choose the most appropriate answer from the four alternatives given:	[08]
I.	Brain is a derivative of	
	(a) Ectoderm (b) Mesoderm (c) Endoderm (d) From all the germ layers	
H.	Which of the following genes are essential for sex determination in male?	
	(a) DAX1, WNT4 (b) SRY, SOX9 (c) HOX, DAX1 (d) SRY, WNT4	
III.	The first mitosis in fertilized ova is caused by activation of	
	(a) ETS (b) FGS (c) MPF (d) MTF	
IV.	Which of the following is an example of tumor suppressor gene ?	
	(a) P53 (b) SRY (c) SOX (d) FGF	
. V.	Which of the following is a DNA sequence?	
	(a) Co-activator (b) Co-repressor (c) Enhancer (d) Trans-activator	
VI.	One of the major enzyme involved in gene expression is	
	(a) Ligase (b) Amino-acyl transferase	
	(c) RNA polymerase (d) Reverse transcriptase	
VII.	Trisomy of human chromosome 21 is associated with	
	(a) Down's syndrome (b) Klinefelter's syndrome	
	(c) Philadelphia syndrome (d) All of the above	
VIII.	Progeria syndrome is caused due to	
	(a) Mutation in Lamins (b) Permature aging	9 TO 18 1
	(c) Both (a) and (b) (d) None of above	
.2	Answer any SEVEN from the following:	[14]
i.	Enlist biochemical changes occurring during sperm capacitation.	
ii.	Give diagrammatic representation of human epidermis.	
iii.	Enlist the factors responsible for aging.	
iv.	Name major groups of genes responsible for causing cancers with appropriate examples.	
v.	What is DDRT? Explain.	3
vi.	Define the terms: Longevity and sequence-specific DNA binding factors. P.T.O.	



- vii	<ul> <li>Write any four genetic errors of human development involving various systems.</li> </ul>	7
viii		
ix		
Q.3(a)	Give an account of stem cells and their functions.	[6]
(b)	Describe the process of cleavage in mammalian embryo.	[6]
	OR	1.7
(b)	Explain formation of cutaneous appendages.	[6]
Q.4(a)	Explain conversion of proto-oncogenes to oncogenes.	[6]
(b)	Write a detailed note on teratogens and teratogenesis.	[6]
	OR	
(b)	Describe different genes controlling cell cycle.	[6]
Q.5(a)	Enlist various techniques for RNA localization. Explain any one of them in details.	
(b)	Write a detail note on SAGE.	[6]
687253		[6]
(b)	Combain automotive of the transfer of	
(b)	Explain subtractive hybridization technique.	[6]
Q.6(a)	What is infertility? Briefly discuss the causes and management of infertility.	[6]
. (b)	Write short notes on the following: (i) Pleiotropy (ii) Mechanisms of dominance	[6]
	OR	141
(b)	Explain the role of change in gene expression on disease development in human with any appropriate example.	[6]

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