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Sardar Patel University**M. Sc. Genetics, Fourth Semester Examination****Wednesday, 11th April, 2018****10:00 a.m. - 01:00 p.m.****PS04CGEN02: Gene Therapy & Genetic Counseling**

Note:

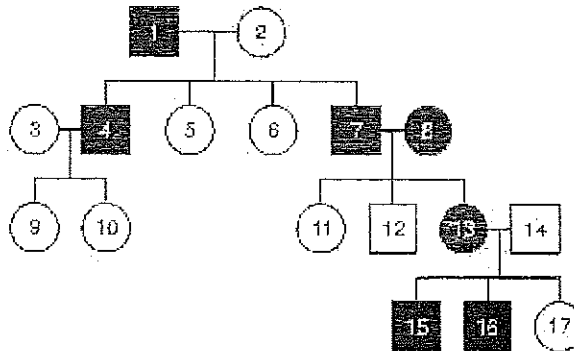
Max. Marks 70

- Figures to the right indicate marks.
- Draw neat and labeled diagram, wherever necessary.

Q-1 Attempt the followings

[01 X 08 = 08]

- Ribozyme binds to target ____ moiety.
a) DNA b) RNA c) Protein d) All
- Transcriptional gene silencing causes gene silencing by _____.
a) Programmed DNA elimination b) DNA methylation
c) Heterochromatin formation d) All
- Gene therapy in humans was first practiced by Blease and Andresco to cure
a) Severe combined immunodeficiency disease b) Cystic fibrosis
c) Hemophilia c) Thalassemia
- If the remedial gene does the function of defective gene, the approach is called _____.
a) Gene replacement therapy b) Gene augmentation therapy
c) Corrective gene therapy d) Only a & b
- What are the types of stem cells in mammals?
a) 2 b) 3 c) 4 d) 5
- Embryonic stems cells are generally collected after ____ from blastocyst?
a) 1 - 2 days b) 4 - 5 days c) 7 - 8 days d) 14 - 15 days
-



What is the mode of inheritance of the trait represented by shaded shapes?

- X linked
 - Autosomal recessive
 - Autosomal dominant
 - Only b & c
- If both parents have group A, what blood type/s can their children inherit?
a) A b) B c) O d) A and O

[P.T.O.]

①

- Q-2 Answer the following questions (**Any seven**) [02 X 07 = 14]
- i. What are the risk associated with gene therapy?
 - ii. Define multi-locus DNA fingerprinting.
 - iii. What is alfa-feto protein?
 - iv. Explain the single gene pathway.
 - v. How do you know whether a disorder is a good candidate for gene therapy?
 - vi. What is adenoleukodystrophy?
 - vii. Explain biochemical vs molecular methods for genetic tests.
 - viii. What is the significance of pedigree analysis.?
 - ix. Discuss the noninvasive methods for sample collection.

- Q-3 A) Write applications of PCR in diagnosis of genetic disorders. [06]
B) Discuss the tissue specific tumor marker in detail. [06]

OR

- B) Discuss the mechanism of resistance development in microorganisms [06]
- Q-4 A) Discuss the gene transfer techniques used in gene therapy. [06]
B) Write a short note on:
(i) ADA (ii) Neoplasm [06]

OR

- B) Explain the role of antisense technology with suitable example. [06]
- Q5 A) Discuss the role of stem cell transplantation in treatment of lysosomal storage disorder. [06]
B) How hematopoietic stem cells can be used in controlling the blood cancer (leukemia). [06]

OR

- B) Discuss the role of embryonic stem cells for the treatment of Parkinson's disease. [06]
- Q6 A) How pedigree analysis helps in Genetic counseling and risk assessment? Explain with suitable example. [06]
B) Explain the Mendelian disorders with suitable example. [06]

OR

- B) Write short note on legal and ethical consideration of gene therapy. [06]
