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3 TDC (Special) ANTH M 6

2016

(July)

ANTHROPOLOGY

(Major)

Paper : 30600

(Human Genetics)

Full Marks : 67

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer Question Nos. 3 to 6

within 400 words each

1. Choose the correct answer : $1 \times 7 = 7$

(a) What is the difference between a plant cell and animal cell ?

(i) Plant cell has a single-large central vacuole, whereas animal cell contains many small vacuoles

Contd.

- (ii) Plant cell lacks chloroplast which are present in animal cells
- (iii) Animal cell has a thin wall and plant cell has a thick wall
- (iv) All of the above
- (b) Assign the child of group O, Rh⁺ to the right set of the following parents
- (i) AB, Rh⁺ × O, Rh⁻
- (ii) AB, Rh⁻ × O, Rh⁺
- (iii) A, Rh⁺ × A, Rh⁻
- (iv) O, Rh⁺ × AB, Rh⁺
- (c) Development of monozygotic twins due to fertilization of
- (i) one sperm and one egg
- (ii) one sperm and two eggs
- (iii) two sperms and two eggs
- (iv) two sperms and one egg

- (d) A colour-blind father and a normal mother will have
- (i) 50% daughters as carriers
- (ii) all normal sons
- (iii) no colour-blind daughters
- (iv) All of the above
- (e) Which of the following characters is sex-linked ?
- (i) Hydrocephaly
- (ii) Xg blood group
- (iii) PTC taste sensitivity
- (iv) All of the above
- (f) Polygenic traits show
- (i) continuous variation
- (ii) discontinuous variation

- (iii) Both of the above
- (iv) None of the above
- (g) The creation of mutation is called
- (i) mutagenesis
- (ii) evolution
- (iii) saltatory changes
- (iv) radiations

2. Write briefly on **any three** of the following
(within **100 words** each) :

5×3=15

- (a) Gene and chromosome
- (b) MNS blood group system
- (c) Twin study
- (d) Population genetics
- (e) Consanguinity
- (f) Mutation

3. Give a brief account of the history and development of human genetics and its modern trends. Mention the limitations of 'Man' as an object of genetic study. 12

Or

What is meant by pedigree ? Discuss its use, importance and limitations in studying human heredity.

4. What is monohybrid ratio? Describe Mendel's laws of inheritance with suitable examples. 11

Or

What is meant by polygenic inheritance ? How does it differ from multiple allelism ? Elaborate your answer with suitable examples.

5. Define Hardy-Weinberg law. State clearly under what conditions the Hardy-Weinberg law is applicable. How does it help in the study of population genetics ? 11

Or

What is a Mendelian population ? What effect miscegenation have on human population ? Explain.

6. Write an essay on the influence of heredity and environment on morphological and genetic variations of human population.

Or

Discuss the biological processes that cause variation in the existing human population
