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5 SEM TDC ANTH M 2

2017

(November)

ANTHROPOLOGY

(Major)

Course : 502

(**Human Genetics**)

Full Marks : 80

Pass Marks : 32/24

Time : 3 hours

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

1. In each of the following statements, one is correct. Choose the correct one : 1×8=8

(a) The diameter of the human egg is

(i) $\frac{1}{16}$ of a millimeter

(ii) $\frac{1}{17}$ of a millimeter

(iii) $\frac{1}{20}$ of a millimeter

(iv) $\frac{1}{7}$ of a millimeter

(Turn Over)

(b) The correct sequence of a prophase I in meiosis is

- (i) Leptotene – pachytene – zygotene – diplotene – diakinesis
- (ii) Leptotene – zygotene – diplotene – pachytene – diakinesis
- (iii) Leptotene – zygotene – pachytene – diplotene – diakinesis
- (iv) Leptotene – diplotene – zygotene – pachytene – diakinesis

(c) Correct sequence of stages in cell cycle is

- (i) G_1 , S, G_2 , M
- (ii) G_1 , G_2 , S, M
- (iii) M, S, G_1 , G_2
- (iv) G_1 , G_2 , M, S

(d) Each chromosome carries a distinct region which plays a fundamental role in chromosome movement during mitosis. This region is

- (i) chromatid
- (ii) centriole
- (iii) telomere
- (iv) centromere or kinetochore

(e) Albinism is a good example of inheritance of a trait dependent on a

- (i) rare recessive gene
- (ii) rare dominant gene
- (iii) lethal gene
- (iv) sublethal gene

(f) The major chemical components of the chromosome are

- (i) DNA, RNA and proteins
- (ii) DNA and RNA
- (iii) DNA and proteins
- (iv) DNA, RNA and carbohydrates

(g) Who coined the term gene?

- (i) Wilhelm Johannsen in 1909
- (ii) William Bateson in 1905
- (iii) Wilhelm Roux in 1883
- (iv) T. H. Morgan in 1900

(h) When the position of the centromere is at the truly terminal end of the chromosome, it is called

- (i) metacentric
- (ii) submetacentric
- (iii) telocentric
- (iv) acrocentric

(4)

2. Write short notes on any four of the following : $4 \times 4 = 16$

- (a) Holandric inheritance in man
- (b) Sex-influenced trait
- (c) Watson and Crick model of DNA
- (d) Erythroblastosis fetalis
- (e) Hardy-Weinberg law

3. Define human genetics. What are the different methods of studying human genetics? Discuss any one method of studying human genetics. $2+2+10=14$

Or

What is a cell? Describe the functions of the different components of a cell with suitable diagrams. $3+11=14$

4. What is sex-linked inheritance? Discuss X-linked recessive inheritance with examples. $3+11=14$

Or

What is multiple allelism? Describe the hereditary mechanism of ABO blood group. $7+7=14$

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(Continued)

(5)

5. What do you mean by consanguineous marriage? Discuss the genetic aspect of consanguinity with suitable diagrams. $3+11=14$

Or

What do you mean by inbreeding? How can inbreeding be measured? Discuss the genetic consequence of inbreeding. $3+3+8=14$

6. Discuss the relative role of heredity and environment on head form and stature among human population. 14

Or

Discuss the importance of twin studies to assess the role of heredity and environment in man. 14

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