

2020

Time : 3 hours

Full Marks : 60

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer any **four** questions in which

Q. No. 1 is compulsory.

1. Select the correct answer from the options given below :

1½ × 10 = 15

(a) 'Centromere' of the chromosome is made of:

- (i) Euchromatin
- (ii) Heterochromatin

(iii) Both (i) and (ii)

(iv) Protein

(b) Replication of DNA is :

(i) Conservative

(ii) Semi-conservative

(iii) Dispersive

(iv) Zig-Zag

(c) Histone occupies the major groove of a DNA at an angle of :

(i) 90°

(ii) 60°

(iii) 45°

(iv) 30°

(d) The enzyme which can cut molecules of DNA into segment is known as :

(i) DNA polymerase

(ii) DNA ligase

(iii) DNA gyrase

✓(iv) Restriction enzyme

(e) Substance common in DNA and RNA

is :

(i) Histamine

(ii) Hexose sugar

✓(iii) Thymine

(iv) Phosphate group

✓(f) Which codon gives the signal for the start of polypeptide synthesis ?

(i) GUA

(ii) AUG

✓(iii) UGA

(iv) UAG

(g) Lac-Operon is :

(i) Inducible operon

✓(ii) Repressible operons

(iii) Negative operon

(iv) Silent operon

(h) Double-helix model of DNA was proposed by : <https://www.bbmkuonline.com>

(i) Singer and Nicolson

(ii) Khorberg and Khurana

✓(iii) Watson and Crick

(iv) Schleiden and Schwann

(i) The functions of non-sense codon is :

✓(i) To form an unspecified amino acid

(ii) To determine the message of a gene-controlled protein

(iii) To convert a sense DNA into a non-sense DNA

(iv) To release polypeptide chain from the site

(j) "Nucleosome model" for organization of chromatin was proposed by :

- (i) T. Kornberg
- (ii) F. Griffith
- (iii) Hershey and Chase
- (iv) None of them

2. Describe the process of DNA replication in Prokaryotes. 15
3. Describe the structures of polytene and lampbrush chromosome. 15
4. What is Central Dogma ? Describe the properties of genetic code. 15
5. Describe the process of Transcription in prokaryotes and differentiate with eukaryotes. 15
6. Describe the process of Protein synthesis in Eukaryotes. 15

7. What is Operon ? Describe Lac-operon. 15
8. Describe the different experiments which proved DNA is a genetic material. 15



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52/2 (300) (6) UG — Bot (C — 408)

CK — 52/2

(5)

(Turn over)