

(FOR THE CANDIDATES ADMITTED

24UZY405

DURING THE ACADEMIC YEAR 2024

ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : MAY 2026

BSC ZOOLOGY

MAXIMUM MARKS: 75

SEMESTER : IV

TIME : 3 HOURS

PART-III
24UZY405 – GENETICS

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

1. Choose the correct phenotypic ratio obtained in Mendel's monohybrid F_2 generation.
a) 1:1 b) 3:1 c) 9:3:3:1 d) 1:2:1
2. Which type of linkage shows no crossing over?
a) Incomplete linkage b) Complete linkage
c) Sex linkage d) Pseudo- linkage
3. Select the correct example of Y- linked inheritance. _____
a) Colour blindness b) Haemophilia
c) Hairy pinna d) Albinism
4. Which chromosome abnormality causes Down's syndrome?
a) Trisomy 21 b) Trisomy 18
c) Monosomy X d) Trisomy 13
5. Who demonstrated bacterial transformation in *Streptococcus pneumoniae*?
a) Hershey and Chase b) Griffith
c) Watson and Crick d) Avery

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

6. Define Epistasis.
7. Explain Homogametic sex.
8. Distinguish inbreeding and outbreeding.
9. Indicate the chromosomal cause of Patau's syndrome.
10. Define bacterial transformation.

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11. a) Describe Mendel's dihybrid cross and show the F_2 phenotypic ratio.
(OR)
b) Classify the ABO Blood grouping in humans.
12. a) Compare Homogametic and Heterogametic sex.
(OR)
b) Assess the hormonal control of sex determination in Free Martin Cattle.

(CONT...2)

Ethical paper

13. a) Describe 'Y'- linked inheritance with a suitable example.
(OR)
b) Explain the inbreeding and its genetic effect.
14. a) Describe the principles of Eugenics and their importance in society.
(OR)
b) Assess the chromosomal anomalies and symptoms of Down's syndrome.
15. a) Interpret the steps involved in Bacterial conjugation.
(OR)
b) Describe the main purpose of genetic counseling.

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

16. a) Examine the inheritance of skin colour in human.
(OR)
b) Discuss Mendel's laws, showing their application in solving genetic problems.
17. a) Explain the sex determination in honey bee and their role.
(OR)
b) Compare complete linkage and incomplete linkage with suitable examples.
18. a) Describe the aneuploidy and list their types with example.
(OR)
b) Summarize monozygotic and dizygotic twins and compare their characteristics.
19. a) Explicate the genetic and biochemical basis of phenylketonuria and alkaptonuria.
(OR)
b) Compare Klinefelter's syndrome and Turner syndrome in terms of chromosome composition and phenotype.
20. a) Justify the RNA as genetic material in TMV with a labelled diagram.
(OR)
b) Outline the mechanism of specialized transduction with a suitable diagram.

Ethical paper