

Sign. Dy. Supdnt.

Fictitious Roll No. (For Office Use)

Sign. Candidate

**BIOLOGY**

22/01

(★★)

(PART - II)

(INTERMEDIATE)

Marks : 17

(Objective Part)

Time : 20 Minutes

Note:- Write your Roll No. in space provided. Over writing, cutting, using of lead pencil will result in loss of marks. All questions are to be attempted.

1- Each question has four possible answers, Tick ( ✓ ) the correct answer. (17)

1	Which of these disorders may be treated using ex-vivo gene therapy?				
A	SCID	B	Cystic fibrosis	C Hemophilia	D Parkinson's disease
2	Which of these factors lessen the proportions of heterozygous individuals?				
A	Non-random mating	B	Genetic drift	C Migration	D Selection
3	In any food chain, first trophic level ( $T_1$ ) is occupied by;				
A	Producers	B	Primary consumers	C Decomposers	D Secondary consumers
4	The soil of this ecosystem is impermeable with an excessive salinity;				
A	Desert	B	Grassland	C Alpine forest	D Deciduous forest
5	Alzheimer is;				
A	Physical disorder	B	Congenital disorder	C Deficiency disease	D Mental illness
6	Aldosterone is secreted from;				
A	Renal cortex	B	Adrenal cortex	C Renal medulla	D Adrenal medulla
7	The second cervical vertebra is called;				
A	Atlas	B	Axis	C Sacral	D Lumbar
8	The region of myofibril between two successive z-lines is called;				
A	Capsomere	B	Telomere	C Monomere	D Sarcomere
9	Transition between sleep and wakefulness in human is controlled by the neurons of;				
A	Pons	B	Hypothalamus	C Thalamus	D Cerebrum
10	The main duct of human male reproductive system is;				
A	Urethra	B	Vas deferens	C Ureter	D Seminiferous tubule
11	The perpetual growth zones found at the tip of root or shoot of plants are called;				
A	Apical Meristems	B	Lateral Meristems	C Intercalary Meristems	D Vascular cambium
12	The yellow cytoplasm of an ascidian egg gives rise to;				
A	Larval epidermis	B	Gut	C Muscle cells	D Neural tube
13	The structural unit of chromosomes is;				
A	Polysome	B	Centrosome	C Nucleoside	D Nucleosome
14	Anaphase of mitosis;				
A	Ensures the condensation of chromosomes	B	Ensures the formation of equatorial plate	C Ensures the equal distribution of chromosomes in daughter cells	D Ensures the formation of contractile ring
15	The difference between cancerous cells and normal cells is that cancerous cells have;				
A	Many meiosis	B	High cytoplasm to nucleus ratio	C Prominent nucleoli	D Very less number of mitotic divisions
16	All the sons of an affected father are normal while all his daughters are affected for a/an;				
A	Y-linked trait	B	Autosomal trait	C x-linked dominant trait	D x-linked recessive trait
17	Biotechnological products of genetically engineered plants appear in their;				
A	Leaves	B	Seeds	C Fruits	D Roots

(The End)

**Note:- Attempt any TWENTY TWO (22) short questions in all selecting eight from Q. 2 and Q. 3 each and six from Q. 4. (22 x 2 = 44)**

**SECTION – I**

**2- Write short answers of any eight questions. *ATR-22* (2 x 8 = 16)**

i	How the xerophytes adapt themselves in dry conditions?	ii	In what way the rectum of cockroach play a role in excretion?
iii	How the counter-current Multiplier Mechanism in Nephrons works?	iv	Differentiate between compact bone and spongy bone?
v	Explain the term All or non-response?	vi	What do you know about jet propulsion movement?
vii	How the tissue culture techniques are used in the propagation of plants?	viii	Differentiate between Sexual reproduction & Asexual reproduction?
ix	Write down the two adaptations of plants for terrestrial Ecosystem?	x	Differentiate between Alpine & Boreal forests.
xi	Differentiate between Renewable & Non-renewable resources.	xii	Define the term Demography & explain it.

**3- Write short answers of any eight questions. (2 x 8 = 16)**

i	How are Galls different from other tumors in plants?	ii	How is Alzheimer's disease related to dementia?
iii	How is Innate behaviour refined?	iv	Differentiate between Genotype and Phenotype.
v	What are Secretors?	vi	Define MODY.
vii	How can we get gene of interest?	viii	Describe Genomic Library.
ix	What do you know about cystic fibrosis?	x	How does a short food chain support community?
xi	Differentiate between primary and secondary succession.	xii	Define Autecology.

**4- Write short answers of any six questions. (2 x 6 = 12)**

i	Compare the role of auxin and cytokinin in apical dominance.	ii	Highlight the changes due to the splitting of lateral plate mesoderm in chick embryo.
iii	Name the first step of central dogma and define it.	iv	Define point mutations. Give one example.
v	What are okazaki fragments?	vi	Differentiate between necrosis and apoptosis.
vii	What happens in Zygotene of meiosis?	viii	What is modern synthesis?
ix	State Hardy-Weinberg Theorem.		

**SECTION – II**

**Note:- Attempt any three questions. (3 x 8 = 24)**

5	a	What are Nephrons? Draw its labelled diagram.	(04)
	b	Explain N <sub>2</sub> -cycle and its various steps with graphic sketch.	(04)
6	a	Compare hydrostatic skeleton with reference to the functions of skeletal system by giving two examples.	(04)
	b	Describe the process of transcription in detail.	(04)
7	a	What are the functions of thyroxine? Give the effects of it under secretion and over secretion?	(04)
	b	Write a detailed note on Eutrophication.	(04)
8	a	Describe human female reproductive system. Support your answer with figure.	(04)
	b	Write a note on MN blood group system. Give its phenotypes, genotypes and antigens involved.	(04)
9	a	Describe the role of Nucleus in development.	(04)
	b	How evidences from comparative anatomy support the evolution.	(04)