DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI – 6
HIGHER SECONDRAY SECOND YEAR EXAMINATION- MARCH -2020
BIO - ZOOLOGY KEY ANSWER (NEW SYLLABUS)

Maximum Marks - 35

Section – I

Answer all the Questions **8×1=8**

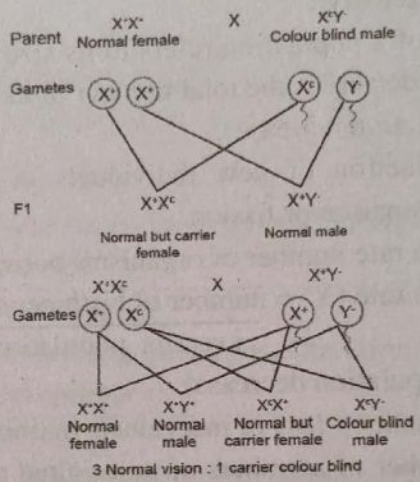
A			B		
1	a)	1-(iv),2-(i),3-(ii),4(iii)	1	c)	E.Coli does not have the machinery for glycosylation of proteins
2	c)	E.Coli does not have the machinery for glycosylation of proteins	2	c)	Detection of pathogens
3	c)	Formation of three germ layer embryo from single layer embryo	3	c)	Both (A) and (R) are worng
4	d)	One sperm is fertilizing one egg	4	d)	Amphibians
5	c)	Detection of pathogens	5	d)	One sperm is fertilizing one egg
6	c)	Both (A) and (R) are worng	6	d)	One oxygen atom less in de-oxyribose sugars
7	d)	Amphibians	7	c)	Formation of three germ layer embryo from single layer embryo
8	d)	One oxygen atom less in de-oxyribose sugars	8	a)	1-(iv),2-(i),3-(ii),4(iii)

Section – 2

Answer any four of the following questions **4×2=8**

9	Ovulation : i) Rupture of the grafian follicle and the release of the ovum (secondary oocyte) from the ovary. ii) About the 14th day	1 1
10	Cause of Down's Syndrome (21- Trisomy): Trisomic condition of chromosome – 21 results in down's syndrome.	2
11	**Operons :** i) The clusters of gene with related functions are called operons ii) 75 different operons	1 1

12	**Active Immunity :** i) Produced actively by host's immune system. ii) It is produced due to contact with pathogen or by its antigen iii) It is durable and effective in protection iv) Immunological memory is present v) Booster effect on subsequent dose is possible vi) Immunity is effective only after a short period **(Any two)** **Passive Immunity** i) Passive immunity is received passively and there is no active host participation. ii) It is produced due to antibiotics obtained from outside. iii) It is transient and less effective. iv) No memory v) Subsequent dose is less effective. vi) Immunity develops immediately.	
13	**Industrial Alcohol :** • Ethanol is referred to as Industrial Alcohol. • It is used for industrial, laboratory and fuel purposes.	1 1
14	**Human Stem Cells :** i) Generation of cells and tissues used for cell based therapies ii) Could be used to test new drugs.	1 1
	Section – 3 **(Note : Answer any three of the following questions. Question number 19 is compulsory)**	**3×3=9**
15	**"Let –Down" Reflex :** Oxytocin causes the "Let-Down" reflex, the actual ejection of milk from the alveoli of the mammary glands.	3
16	**Amniocentesis :** i) Prenatal technique. ii) Detect any chromosomal abnormalities in the foetus. iii) Determine the sex of the foetus. iv) May be a chance of female foeticide. v) A statutory ban on amniocentesis is imposed. **(Any three points)** (or) i) Taking a small sample of the amniotic fluid that surrounds the foetus to diagnose for chromosomal abnormalities. ii) Performed in a pregnant woman between the 15th and 20th weeks of pregnancy. iii) Inserting a long, thin needle through the abdomen into the amniotic sac to withdraw a small sample of amniotic fluid. **iv)** It contains cells shed from the foetus. **(Any three points)**	3

17	**Thymus – Hormone :** i) Thymosin ii) Functions (2 only) a) Stimulates the T Cell to become mature. b) Mature and immuno component c) Most active during the neonatal and pre-adolescent periods	1 2
18	**Gene Banks :** i) A type of biorepository which preserves genetic materials. ii) Commercially important plants can be stored in long periods in seed banks. iii) Gametes of threatened species can be preserved in viable and fertile condition for long periods using cryopreservation techniques.	1 1 1
19	**Flow chart of X- linked inheritance :** Haemophilia flow chart **(or)** **colour blind flowchart**  	3
	Section -4 **Answer any four of the following questions**	**2×5=10**
20	**Human Genome Project methodologies (HGP) :** a) Identifying all the genes that are i) Expressed as RNA or expressed sequence tags ETS ii) Sequence annotation iii) Sequence coding and non-coding sequence iv) Sequence with functions v) DNA – small fragments vi) Amplification of DNA by vector vii) BAC (Bacterial Artificial Chromosomes), YAC (Yeast Artificial Chromosomes) viii) Fragments Sequence – automated DNA sequencers ix) Genetic and physical maps on genome restriction endonucleaus – microsatellites. x) Sequencing longer fragments by shotgun sequencing. **(OR)**	10×½=5

	Evolution of Man : i) 210 million years ago – mammals evolved. ii) Hominids evolution occurred in Asia and Africa. iii) 14 mya ago – Dryopithecus 1)Ramapithecus 2)Sivapithecus iv) 5 mya ago – Australopithecus – Australian ape man v) 2 mya ago – Homohabilis vi) 1.7 mya ago – human in looks – Homo erectus vii) Homo ergaster and Homo erectus – first leave to Africa viii) 34,000 – 1,00,000 years ago – Neanderthal human ix) Cro-Magnon – ancestor of modern Europeans adapted various environmental condition cave paintings 25000 years ago – Home sapiens cultivating crops and domesticating animals.	10× ½ =5
21	**a) Population density :** The density of a population refers to its size in relation to unit of space and time (or) population density is the total number of that species within a natural habitat. **Natality** (Population increase). i) Production of new individuals in the population by birth, hatching, germination or fission. ii) Birth rate number of organisms born per female per unit time. iii) Birth rate (Y) = $\frac{\text{number of birth per unit time}}{\text{average population.}}$ **Mortality :** (Population decrease). i) Mortality – loss of individuals in unit of time or death rate. ii) Number of members of an original population dying after the lapse of a given time. iii) Death rate (d) = number of death per unit time / average population **(OR)** b) **Effects of Agro chemicals :** (any five points)	1 2 2 5