SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2017

FINALIZED SCHEME OF VALUATION

(1)

Subject - Biology - Part A Botany TOTAL SCORE-30 Code No. SY 26

Qn.No	SUB QTN	Scoring Indicators	Split Score	Total Score
1		c. Cut the DNA into pieces	1	1
2		JFM (Joint Forest Management)/ Chipko movement / Vanamahotsava/Afforestation /Reforestation	1	1
3		d. Ozone	1	1
4		Tolerant to abiotic stress Pest resistant Reduced post harvest loss Increased efficiency of mineral usage Enhanced nutritional value Tailor made plants are alternative sources to industries Any two of the above	1+1	2
5		Mutualism - e. Mycorrhizae Predation - c. Biological control Commensalism - a. An orchid growing on a tree trunk Competition - b. Gauss's Exclusion Principle	1/2 1/2 1/2 1/2	2
6	a b c d	Zoozpores Conidia Bud Gemmule	1/2 1/2 1/2 1/2	2
7	a b	PCR for Early detection of diseases, Gene mutation, Cancer and other genetic disorders, Amplification of pathogenic nucleic acid (Any one point - 1 score) ELISA - Antigen Antibody interaction	1 1	2
8	a b	Pyramid of Biomass/ Upright pyramid Reason - Energy flows from a trophic level to next higher trophic level, Only 10% of energy of a TL will be transferred to next higher TL/ 10% Law/ 2nd Law of Thermodynamics, At each TL some energy is lost in the form of heat (Any one such relevant reason)	1 1	2
9		Increase in atmospheric Co2 concentration, Loss of biodiversity, Loss of habitat, Disturb hydrologic cycle, soil erosion, Desertification, Co2 - O2 imbalance in atmosphere, Global warming (Any two similar correct responses)	1+1	2
10	a b	Mortality/D/Death rate Emigration/E Nt+1 = Nt+[(B+I) - (D+E)]	1/2 1/2 1	2

11		**Dicot Embryo** — **Monocot Embryo** Two cotyledons — One cotyledon(Scutellum) Coleoptile absent — Coleoptile present Colerrhiza absent — Coleorrhiza present Epiblast absent — Epiblast present Long embryonal axis — Short embryonal axis Diagram with labelling - full score 2 Any two similar correct differences - full score 2	2	2
12	a	Biomagnification	1	
	b	DDT in birds disturb Ca metabolism Thinning of egg shells Premature breaking of egg shells Decline in bird population. (Any one point - 1 score)	1/2+1/2	2
13	a	Organism which breaks down detritus into smaller particles	1	
	b	Earth worm, Termite or similar organism	1	2
14	a	Syngamy and Triple fusion	1/2+1/2	
	b	PEN (Primary endosperm nucleus)	1	2
15		1. Isolation of DNA 2. Fragmentation of DNA by RE 3. Isolation of desired DNA fragment4 4. Ligation of DNA fragment into vector 5. Transferring the rDNA in to the host 6. Culturing the recombinant host in the medium 8. Down stream processing/ Extraction of desired product Any six steps - 3 score [Sequence not to be considered] rDNA diagrammatic sketch with label - full score 3	6x 1/2	3
16	a	Hind II	1	
	b	First capital letter- Genus name second two letters Species name Next letter - Strain of bacterium from which the RE isisolated Last roman number- order of isolation of enzyme [Using Eco R I explanation with 4 points - 2 scores]	1/2 1/2 1/2 1/2	3
17	a	A - Epidermis	1/2	
		B - Endothecium	1/2	
		C - Middle layers	1/2	
		D -Tapetum	1/2	3
	b	Tapetum/D	1	

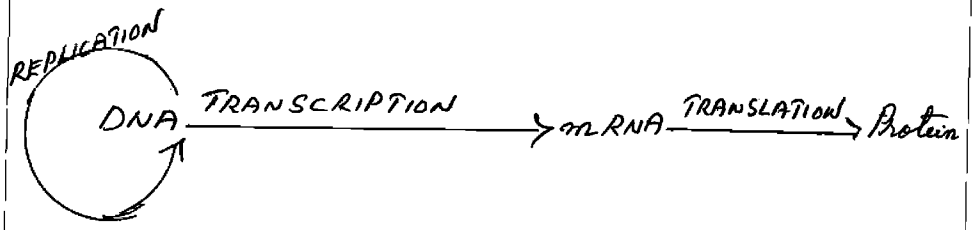
18	a	Mule	1	
	b	**Out crossing**- Cross between individuals of same breed but beyond 4 to 6 generations/ Mating of animals within the same breed but having no common ancestors on either side of their pedigree upto 4-6 generations/ Help to overcome inbreeding depression/ Helps to increase the quality of productivity of breed/ Progeny is out cross	1	3
		Cross breeding- Cross between individuals of two different breeds/ Hizardale = Bikaneri ewes x Marino rams/ Superior males of one breed mated with superior females of another breed / Allows to combine desirable qualities of two different breed/ Used for commercial production of Hybrid animals		
		Any one point each from out crossing and cross breeding give 2 scores	1	
		TOTAL SCORE	37	37

(3)

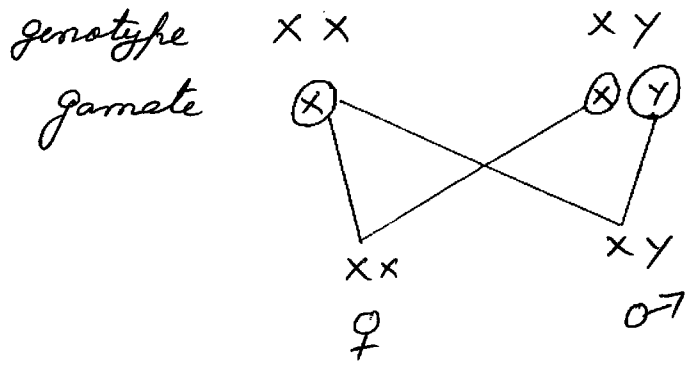
SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2019

SUBJECT : BIOLOGY- ZOOLOGY

CODE. NO: SY 26 B

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
1		Zoological Park	1	1
2		Colostrum	1	1
3			½ + ½	1
4		Dryopithecus → Ramapithecus → Australopithecines → Homo habilis → Homo erectus → Neanderthal man → Homo Sapiens (Any four continous correct order give full marks)	4 × ½	2
5	a	Nucleosome	½	
	b	8	½	
	c	Euchromatin — Region of loosely packed chromatin / lightly stained area / Transcriptionally active (any one correct response)	½	

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
		Heterochromatin – Region of densely packed chromatin / darkly stained area / Transcriptionally inactive (any one correct response)	½	2
6.		Homologous Organs (a) Fore limb of man, cheetah, whale, bat (2) Thorns and tendrils of Bougainvillea and cucurbita (3) Vertebrate hearts or Brains	1	2
		Analogous Organs. (a) Wings of Butterfly, bird (b) Eyes of octopus and mammals (c) Flippers of penguins, and dolphins	1	
		Proper headings give ½ marks each Any one correct point in <u>each</u> heading give ½ marks		
7		Yes the sex chromosome pattern in human female is XX and in male it is XY / Human male is heterogametic and female is homogametic	½ 1/2	

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
		or  (Only correct illustration give 1½ marks)		2
8		Phenyl Ketonuria Phenyl ketonuria is a mendelian disorder/ metabolic disorder/ alteration or mutation in a single base and the remaining all are chromosomal disorders.	1 1	2
9		(a) Endometrium/ myometrium/ uterus (b) Ovary (c) Isthmus (d) Ampulla	½ ½ ½ ½	2
10	a	Saccharomyces cerevisiae/ Saccharomyces	½	
	b	Lacto baeillus / LAB	½	

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
	c	Trichoderma polysporum / Trichoderma	½	2
	d	Rhizobium	½	
11	a	Acquired Immunity	½	2
	b	Physiological Barrier	½	
	c	Cytokine barrier	½	
	d	Cell mediated immunity / T cells	½	
12	a	Natural method / Periodic abstinence / withdrawal or Coitus interruptus / Laetational amenorrhea.	½	2
	b	Tubectomy	½	
	c	Nausea, abdominal pain, breakthrough bleeding / irregular menstrual bleeding / breast cancer.	½+½	
		Any two correct response from 'c' give full mark (1 mark)		

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
13	a	Habitat loss and fragmentation	½	2
	b	Over exploitation	½	
	c	Alien species invasions	½	
	d	Co-extinctions	½	
		or		
		relevant explanations only		
14		Bacteria: Typhoid, Pneumonia; Fungus: ring worms; Virus: Common cold; Protozoan: Amoebiasis, Malaria	½+½+½+½	2
		(Reading with one example give ½ mark each)		
15	(a)	B	½	
	(b)	Sickle cell anaemia	½	
	(c)	Substitution of glutamic acid (Glu) by Valine (Val) / GAG to GUG / single base substitution.	1	
	(d)	the mutant haemoglobin molecules undergoes polymerisation under low oxygen tension causing the change in the		

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
		shape of the RBC from biconcave disc to elongated sickle like structure/anaemia	1	3
16	a	The DNA finger print of the suspect II matches with DNA from the crime scene. So suspect II is identified as the culprit / any relevant explanation/ c	1	3
	b	Variable number of Tandem repeats/ relevant explanation.	1	
	c	Alec Jeffreys	1	
17	a	Sexually transmitted disease	1	
	b	Gonorrhoea, Syphilis, Genital Herpes, chlamydiasis, Genital warts, Trichomoniasis, Hepatitis - B, AIDS (any two of the above)	½+½	
	c	(i) Avoid sex with unknown partners/ multiple partners/ (ii) Always use condoms during coitus. (iii) In case of doubt consult a qualified doctor (any two of the above points)	½+½	3

Qn No	Sub Qns	Answer Key/Value Points	Score	Total
18	a	Transcription	½	3
	b	DNA- dependent RNA polymerase / RNA polymerase	½	
	c	Initiation	½	
		Elongation	½	
		Termination	½	
		explanation of any one process	½	