ANSWER KEY

Q. No.	Value Points	Marks	Total
SECTION – A (1 x 8 = 8)			
1.	2n = 24, n = 12 Endosperm = 3 n 3 x 12 = 36	1	1
2.	These genes are linked genes	1	1
3.	Nicotine stimulates adrenal gland to release adrenaline and non adrenaline into blood circulation	½ ½	1
4.	To periodically withdraw small volumes of the culture	1	1
5.	Histones are rich in basic amino acid residues eg: lysine which carry positive charge in their side chains	½ ½	1
6.	Plasmid is a circular DNA molecule capable of undergoing replication independent of DNA in the nucleoid region	½ ½	1
7.	Faecal matter and Bacteria	½ + ½	1
8.	Dry weight is total amount of living (or) organic matter in a tropic level / organism after water is removed. Hence it is more accurate	1	1
SECTION – B (2 x 10 = 20)			
9.	Placenta produces hCG , hPL, estrogens and progestogens	½ x 4	2
10.	Incomplete dominance explanation cross RR x rr Rr Rr x Rr – F_2 ratio 1:2:I	1 1	2

11.	Lobe-fins evolved into first amphibians that lived on both land and water. 1938, a fish caught in South Africa was a coelacanth. Which was thought to be extinct these animals are called lobefins	1 1	 2
12.	a. Hydrogen bonds b. Purines c. Pentose sugar d. 5^1 - end	 ½ x 4	 2
13.	Recombinant DNA technology, Polymerase chain Reaction (PCR) Enzyme Linked immune sorbent Assay (EUSA) Helps in early diagnosis (ie) detects disease even when the concentration of pathogen is very low, even when the symptoms of the disease are not visible	½ ½ ½ ½	 2
14.	DETRITUVORE | DECOMPOSER Break down | Enzymes Detritus into | degrade Smaller particles | detritus into Called fragmentation | Simple inorganic Substances (Catabolish) Eg: Earthworn | Bacteria, Fungi	 ½ + ½ = 1 ½ + ½ = 1	 2
15.	Tumor Inducing Plasmid of the soil – bacterium Agrobacterium tumefaciens. Modified T_2 Plasmid – (disarmed) used as cloning vectors to deliver gene of interest into a variety of plants	1 1	 2
16.	O_2 concentration declines. Sharply – large amount of O_2 is consumed by aerobic microorganisms in river to decompose organic matter. Organic matter reduces, the amount of DO again increases	1 1 1	 3

17.	a. Penicillium notatum b. Acetic acid c. A fungus d. Saccharmyces cerevisiae	½ ½ ½ ½	2
18.	Animals – mobile – move away from predators and unfavourable events. Plants are fixed require fewer adaptations – show lesser diversity. Animalst well developed rervous system – receive stimuli and respond plants do not have any such mechanism. Or Plants – roots hold Soil Particles - explain litter and humus – retains water - explain	1½ 1½ 1½ 1½	3 3
SECTION – C (3 x 9 = 27)			
19.	a. Primary oocyte gets surrounded by a layer of granulosa cells – now called Primary follicle. b. Primary follicle gets surrounded by more layers of granulosa cells and a new theca called secondary follicle. c. Tertiary follicle – fluid filled cavity antrum – inner theca interna and outer theca externa. Or A develops into embryo B develops into endosperm Endosperm = development and example (any one)	1 1 1 1 1 2	3 3
20.	a. Transmission from unaffected carrier female to some of the male progeny. b. Heterozygous (carrier) female transmit the disease to the sons. c. Female becomes haemophilic – if mother (carrier), father (haemophilic)	1 1 1	3
21.	Totipotency - explanation Meristem culture - explanation NCERT: Text page - 177, para 9-.4	1½ 1½	3

22.	NCERT: Text page – 272. Catalytic comerters – expensive Metals – platinum, palladium, Rhodium – catalyst to reduce emission - Unburnt HC's converted into CO_2, H_2O, CO, Nitric oxide N_2 and CO_2 Unleaded Petrol …… lead in Petrol inactivates the catalyst.	2 1	3
23.	NCERT – Page 198 – Para: 11.2.2 Cloning Vectors – features – Origin of replication - explanation Selectable marker - explanation Cloning Sites - Explanation	 1 1 1	3
24.	a. Reduction in Primary Productivity and biomass of producers. No biomass available for transfer to next higher tropic levels. b. Increase in Primary productivity and biomass of producers. Carnivore population will dwindle. c. Overgrazing leading to desertification	1 1 1	3
25.	Amino centesis – explanation NCERT – Text Page No: 58 To determine sex of the foetus – female foeticide Or a. Out breading devices. (Page - 31) any 4 methods b. Apomicts (Page - 38)	 2 1 ½ x 4 = 2 1	3 3
26.	Ribosome consists of structured RNAS and 80 different proteins. Site for amino acid birding and acts as an enzyme for the formation of peptide for the formation of peptide bond (Page - 115). Coding sequences – exons. Intervening Sequences found in hn RNA does not applar in processed RNA, removed by splicing	2 1	3

27.	a. Increased RBC production Decreasing binding capacity of haemoglobin Increasing breathing rate b. Heat loss or heat gain is a function of surface area Small animals – large surface area relative to volume Lose body heat fast – have to expend more energy through metabolism	½ ½ ½ ½ ½ ½	3
SECTION – D (5 x 3 = 15)			
28.	Figure: 3.8, Page: 49 Primary From one spermatocyte - 4 spermatids - explanation From one Primary oocyte – 1 ova, polarbody formation … Spermatids are transformed into spermatozoa Or a. Figure – 2.3 (b), Page – 22 b. Dense cytoplasm, more than one nucleus, nourishes developing pollen – grains Exine – Sporollenin – no enzyme can degrade it Rich in nutrients increase performance of athletes	2 2 1 2 1 1 1	5 5
29.	Page – 118, 119. Expressed Sequence tags sequence annotation (Explanation) Sequence of Chromosome – 1 Was completed by My 2006 Bacteria – Yeast Carenortabditis elegans Drosophila Plants (rice, Arabidopsis) any 4	 2 1 ½ x 4 = 2	5

	Or a. Nitrogen got incorporated into newly synthesized DNA. b. DNA, Proteins, nucleic acid c. Based on centrifugation in cesium chloride….. d. To study the cells as they multiplied and extracted DNA that remained as helices e. Page – 105, Point (iii) – DNA replication is seniconservative	1 1 1 1 1	5
30.	Value based. Questions. Refer to Page – 162, Para: 8.5.4 – Prevention and control 5 Points	5	5