

Model Exam - Answer Key

Total marks - 30

Category	Question No:	Answer key / Value points	Split score	Total score
Part I A		Answer any 3 questions from 1 - 4. Each carries 1 mark		
	1.	DNA Ligase / Ligase	1	1
	2	Scutellum	1	1
	3	Mycorrhiza	1	1
	4	(d) $GPP - R = NPP$	1	1
Part I B		Answer all questions from 5 - 6. Each carries 1 mark		
	5	Transgenic animals	1	1
	6	Pericarp	1	1
Part II A		Answer any 2 questions from 7 - 9. Each carries 2 mark		
	7	(a) Proinsulin composed of Chain A & Chain B polypeptides are connected with an extra stretch called the C peptide. (b) C peptide is removed during maturation .	1 1	2
	8	Zoospores - Chlamydomonas Buds - Hydra Conidia - Penicillium Gemmules – Sponges	$\frac{1}{2} * 4$	2
	9	Multiple Ovulation Embryo Transfer Technology. FSH (Follicle stimulating hormone)	1+1	2
Part II B		Answer any 2 questions from 10 – 13. Each carries 2 marks		
	10	Euryhaline organisms :- Can tolerate wide range of salinity Stenohaline organisms :- can tolerate narrow range of salinity.	1+1	2
	11	Polyembryony . Example :- Seeds of orange, citrus, mango (any 1 example)	1 1	2

	12	Selection of good breeds (high yielding and disease resistant), They have to be housed well ,Provide proper food & water, Keep proper records etc. (Any 2 responses)	1+1	2
	13	Pioneer species -Phytoplankton. Climax community – Forest. Phytoplankton → Submerged plant stage →Submerged free-floating plant stage→ Reed- swamp → Marsh- Meadow → Scrub → Forest stage	$\frac{1}{2} * 2$ 1	2
Part III A		Answer any 3 questions from 14 – 17. Each carries 3 marks		
	14	(a) D – Mortality. E- Emigration (b) Natality & Immigration	$\frac{3}{4} * 2$ $\frac{3}{4} * 2$	3
	15	(a) Global warming (b) Affects weather & climate (El Nino effect) , Melting of polar ice caps & Himalayan snow caps over many years leads to rise in sea level , Affect crop productivity, Risks for human health (cause various diseases), Wildlife extinction, More acidic oceans , floods, drought etc (Any 2 responses)	1 1+1	3
	16	Pyramid of biomass Here biomass of primary producers (phytoplanktons) is much less than primary consumers (zooplanktons)	1 2	3
	17	cry gene When an insect ingest the inactive toxin, it is converted into an active toxin due to the alkaline pH of the gut which solubilise the crystals. The activated toxin binds to the surface of midgut epithelial cells and create pores that cause cell swelling and lysis and eventually leads to death of the insect.	1 2	3
Part III B		Answer the following questions. carries 3 marks		
	18	(a) Proper maintenance of vehicles , Use of low-sulphur petrol & diesel , Use of catalytic converter , Implement	$\frac{1}{2} * 4$	3

		new auto fuel policy , Use of CNG ,Use of unleaded petrol etc. (Any 4 points) (b) Compressed Natural Gas	1	
Part Iv A		Answer any 1 question from 19 - 20 . carries 5 marks		
	19	(a) Gel electrophoresis (b) Separated DNA fragments can be visualised after staining with Ethidium bomide followed by exposure to UV light (c) Separated bands of DNA are cut out from the agarose gel and extracted from gel piece.	1 2 2	5
	20	a- Synergids b- Secondary nucleus / Polar nucleus c- Antipodals d- Filiform apparatus Syngamy & Triple fusion together known as Double fertilization Or One male gamete fused with egg to form zygote & another male gamete fused with secondary nucleus or polar nucleus to form primary endosperm nucleus Zygote – Diploid (2n) , PEN – Triploid (3n) (Equation of syngamy & triple fusion with ploidy give 3 score) Syngamy :- Male gamete (n) + female gamete/egg cell (n) →Zygote (2n) Triple fusion :- Male gamete (n) + Secondary nucleus(2n) → PEN (3n) → Endosperm (3n)	½* 4 2 ½* 2	5