



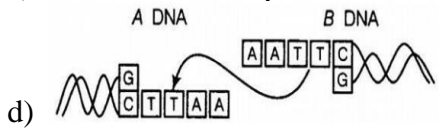
Indian School Al Wadi Al Kabir

Second Rehearsal Examination (2024-2025)

Class: XII
Date: 25/01/2025

Subject: Biology (044)
SET I

Max. marks: 70
Time: 3 Hours

S. No	Questions	Mks.
SECTION A		
1.	b) Cannot produce a functional ovum, but can produce suitable environment for fertilisation and embryo development	1
2.	b) It lowers the sperm motility.	1
3.	c) AaBb x aabb	1
4.	b) The population growth curve of the insect is J shaped.	1
5.	c) Declining population	1
6.	b) 250 tall plants, 500 intermediate plants, and 250 small plants	
7.	c) Salmonella typhimurium	1
8.	B. Not present in the medium and the repressor binds to the operator.	1
9.	b) primary settling tank	1
10.	b) R-S-Q-P	1
11.	b) Oparin and Haldane	1
12.	d) Bacterium producing large quantities of carbon dioxide	1
13.	c) A is true but R is false.	
14.	a) Both A and R are true and R is the correct explanation of A.	1
15.	b) Both A and R are true and R is not the correct explanation of A.	1
16.	a) Both A and R are true and R is the correct explanation of A.	1
SECTION B		
17.	<p><i>Attempt either option A or B.</i></p> <p>A.i) deposition of pollen grain on the stigma till entry into the embryo sac. ii) Syngamy + triple fusion.</p> <p style="text-align: center;">OR</p> <p>B.i) presence of sporopollenin-resistant to all organic compounds. ii) flowers cleistogamous-autogamy</p>	1 + 1
18.	<p>a) rDNA technology b) EcoRI c) Between G & C -palindrome sequence</p> <p style="text-align: center;">A DNA B DNA</p>  <p>d)</p>	1/2x4
19.	i) Cocaine + Erythroxylum coca	1+1

	ii) Atropa belladonna & Datura	
20.	a) autosomal b) recessive c) Aa -parents I + third-aa + and fourth child-Aa	1/2 1/2 1
21.	A. i) Resource partitioning- different foraging time or foraging habit. ii) Gause 's exclusion principle + warblers' example OR B. Insitu & Exsitu-any two difference	1 + 1 1+1
	SECTION C	
22.	a) megaspore mother cells -240 and microspore mother cells -60 b) male gametes – 240 and the number of meiotic divisions-60 c) any 2 advantage	1/2+1/2 1/2+1/2 1/2+1/2
23.	Diagram. i) Spermatogonia ii) Primary spermatocytes iii) Secondary spermatocytes iv) Sertoli cells	1 1/2X4
24.	a) bacteriophage- 2 component-DNA & Protein + culture media -radioactive sulphur & radioactive phosphorus. b) blender-to remove the viral coats from the bacteria+ centrifuge- to separate the viral coats from the bacteria by spinning them c) observation-culture I - radioactive sulphur detected in the supernatant	3
25.	a) plasmids & bacteriophage any one reason for each. b) insertional inactivation -white & blue colonies -differentiate between transforms & non-transforms.	1+1 1
26.	a) any three defense mechanisms b) any three ways of measuring population density of a habitat.	1.5 1.5
27.	a) T A C G T A C G T A T C A T T T A A A T G C A T G C A T A G T A A A T T ← marked promoter, structural gene & terminator b) 5 'AUGCAUGCAUAGUAAAUU 3 '	2 1
28.	a) co-evolution- too closely interacting species evolve together + mutualism & Parasitism b) any one example + explanation	1.5 1.5
	SECTION D	
29.	a) Charles Darwin + mechanism through which living organisms in a population adapt and change. b) stabilising, directional & disruption (any 2) <i>Attempt either subpart c or d.</i> c) pre & post industrialization OR d) any one eg of herbicides/pesticides/antibiotics- human interference that cause evolution	1/2+1/2 1/2+1/2 1+1
30.	a) contact inhibition + contact with other cells inhibits uncontrolled growth. b) agents causing cancer + any two carcinogens. <i>Attempt either subpart c or d.</i>	1 1

	c) Benign & malignant tumours-any 2 difference. OR d) tumour cells reaching distant sites through blood + spreads tumour cells to all parts of the body causing death.	2
	SECTION E	
31.	i) a + thalamus ii) c + endocarp & mesocarp iii) apple-false fruit + fruit of banana- parthenocarp iv) Explain the significance of each of the following features present in plants given below: a) genetic self-incompatibility mechanism of inbreeding device. b) Dioecious plant- to prevent autogamy & geitonogamy OR B) i) primary oocytes -primary follicle + development of secondary follicle-tertiary-Graafian follicle-ovulation ii) 'Y- fimbriae + function- collection of ova after ovulation. iii) 'Z' – ampullary isthmic junction/ isthmus + event - fertilization	1X5 3 1 1
32.	<i>Attempt either option A or B.</i> A) i. gene therapy- allows correction of a gene defect that has been diagnosed in a child/embryo + explain ADA deficiency. ii. bone marrow transplantation, enzyme replacement therapy OR B) i. bioreactors-a vessel in which raw materials are biologically converted into specific products + diagram ii. plants-Ti plasmid + cancer-retroviruses.	1+3 1/2+1/2 1+ 2 1+1
33.	<i>Attempt either option A or B.</i> A i) soybeans + raising beef cattle ii) any two examples iii) chemical composition of the detritus & climatic factors OR B i) commensalism – brief explanation ii) any 2 Difference iii) pyramid of Biomass in the sea-inverted + a pyramid of number - inverted	1+1 1/2+1/2 1+1 1 2 2
	SET-II	
1	c) Can produce a functional ovum, but cannot produce site for fertilization.	1
7	a) Escherichia coli	1
21	i) wasp & fig species ii) commensalism	1 1
26	any three-special adaption of a parasite	1+1+1
32	B) i. bioreactors-a vessel in which raw materials are biologically converted into specific products + diagram ii. biological products - α -1-antitrypsin to treat emphysema + Rosie cow	1+2 1+1
	SET -III	
1	b) Low sperm count in the ejaculates	1
2	c) Can produce a functional ovum, but cannot produce site for fertilization.	1
8	a) Present in the medium and it binds to the repressor.	1

9	a) aeration tank	1
19	i) opioids, cannabinoids, coca alkaloids (any 2) ii) source- Flowering plants + Fungi	$\frac{1}{2}+\frac{1}{2}$ $\frac{1}{2}+\frac{1}{2}$
21	- tropical latitudes have remained undisturbed for millions of years hence long evolutionary time - less seasonal and more predictable -more solar energy, higher productivity (any 2 pts)	1+1
25	a) Briefly description of gel electrophoresis. b) selectable marker- genes of antibiotic resistance + cloning sites -recognition site to link the alien DNA	2 1