INDIAN SCHOOL AL WADI AL KABIR
ASSESSMENT I (2025-2026)

CLASS: XII **BIOLOGY (044)**

SET 1-MS

	SECTION A	
1.	c. AUGCCCAACCGUUAUUCAUGCUAG	**1**
2.	b. 4	**1**
3.	c. Mitotic division of nucleus of generative cell	**1**
4.	d.7	1
5.	b. 25%	1
6.	c. 5´ UAUCGG 3´	1
7.	d. 3000	1
8.	b. They share a common ancestor	1
9.	b. They secrete an alkaline fluid rich in fructose that nourishes sperm.	1
10.	d**.** LNG-20	1
11.	b. IgA	1
12.	d. Rapid divergence of traits among populations inhabiting a given geographical area.	1
13.	**A**.	1
14.	**B**	1
15.	**C**.	1
16	**C**	1
	SECTION B	
17	Diagrams globuar + mature Or Fig 1.12 (d)	1+1
18.	a. Condoms - barrier b. oral contraceptive – anyone advantage	1+1
19.	a. ii- continuous replication on strand 3'to 5'& discontinuous on 5'to 3' b. DNA polymerase + DNA ligase	1+1
20	a- opioids b-CNS	½ x4

	c-Papaver somniferum d. Cannabis sativa	
21	a. point mutation- change in single bp b. mutation in the Hb molecule creates low oxygen tension changing the shape of the RBCs from biconcave to sickle shape, due to low oxygen person suffers from severe anemia	1+1
	SECTION C	
22	a. It will prevent inbreeding depression and help in cross pollination in bisexual flowers b. yes, male & female whorls mature at different times in the same flower and different flowers of the same plant can be used. c. pollen pistil interaction- rejection of pollen tube formation.	1 1 1
23	a. hCG is the key indicator used in pregnancy test, produced by the placenta after implantation and its presence in the urine. b. IVF-In vitro fertilisation (test tube baby) -ZIFT +IUT-brief explanation.	1 1+1
24.	Formation+ hormones-hCG + hPL + oestrogen & progesterone passive immunity- prepared antibodies (IgG)	1+1 1
25.	a. cancer cells-metastasis-brief explanation b. viruses – viral oncogenes and genes- proto oncogenes c. any 2 ways of cancer detection OR a. Innate immunity-cellular barriers (WBC)+ later acquired immunity (B lymphocytes & T lymphocytes b. mucus coating-physical barrier and the acids in the stomach- physiological barrier c. anyone difference	1 1 1 1 1 1
26.	a. Explanation on Adaptive Radiation b. Darwin's theory of evolution- Natural Selection +Branching Descent	2 1
27	a. bacteriophage can infect bacteria+ two components-DNA & protein so they could identify whether DNA or Protein is the genetic material. N to detect DNA & S for proteins. b. blender-to remove the viral coats and centrifuge-to separate the virus particles from the bacteria. c. Bacteria which was infected with viruses that had radioactive DNA were radioactive, indicating that DNA was the material that passed from the virus to the bacteria. Bacteria that were infected with viruses that had radioactive proteins were not radioactive. This indicates that proteins did not enter the bacteria from the viruses. DNA is therefore the genetic material that is passed from virus to bacteria	1 1 1
28	a. Explain IPM and organic farming. b. Diagrammatically/ flow chart	1.5 1.5
	SECTION D	
29.	a. causative organism-Plasmodium + vector – Female Anopheles mosquito. b. P.plasmodium/ P.vivax /P.falciparum (any 2)	1 1

	c. P-releases sporozoites in the blood stream + Q- male & female gametocytes are released Due to the rupture of RBCs infected by the plasmodium that releases a toxin called hemozoin, which triggers fever, rigors & sweating in a cycle OR d. Diagrammatically representation of the Life cycle	½+½ 1 2
30	a.frequency of red beetles • Black beetles are **BB**, so: • **p^2 = 0.30 , p=0.56** p+q=1, hence q=0.44, **q^2=0.19** b. sum total of all the allelic frequency in a population is stable. c. percentage of that beetles are heterozygous (Bb Heterozygous frequency = **2pq**: • 2pq = 2 × 0.56× 0.44 ≈ 0.2128 • **Answer: 21.28%** OR D. **Black beetles = 540** • **Red beetles = 1260**	 1 1 2 1 1
	SECTION E	
31	a) Streptokinase b) GM streptococcus (bacteria) c) Pectinases is used in bottled juices- clear bottle juice +textile industry- dissolving protein fibers d) cyclosporine A+ source-Trichoderma polysporum e. To suppress CMI so the organ can be accepted by the patient. f. curds-proteins are partially digested + rich in vitamin B12 & has good bacteria (lactobacillus) OR a. BOD-Biochemical Oxygen Demand+ high BOD high polluting capacity.	½ ½ 1 1 1 1 2

	b. explanation of the secondary treatment process. c. water borne diseases & polluting effect due to high organic content.	2 1
32	i regulation of Lac Operon in the glucose medium—switch off condition ii. regulation of Lac Operon in the lactose medium—switch on condition OR a) DNA fingerprinting/profiling + principle b) suspect-2, Identical bands c) Alex Jeffreys + satellite DNA + high degree of polymorphism + VNTR d) To separate the bands of DNA + Southern blotting e) to identify the victims from the DNA samples taken from their family members	2 3 1 1 1.5 1 0.5
33	a. Linkage + Recombination + significance in genetics. b. inheritance of flower colour in snapdragon-incomplete dominance + the inheritance of flower colour in pea plant- complete dominance-depicting crosses OR a) 2-XX^H and 5- X^HY b) hemophilic boy -50% or a hemophilic girl-50% carrier c) both show Sex linked recessive inheritance + Haemophilia the blood is unable to clot & color blindness- unable to distinguish between red and green colors. d) presence of exons and introns ie coding sequence for proteins followed by noncoding sequence,	1+1+1 1+1 1 1 1 2
	SET-2	
1	b	1
3	c	1
19	a) DNA polymerase enzyme + sigma factor attaches to the promoter and initiates transcription process. b) splicing + capping and tailing	1 1
26	a. convergent evolution- repeated adaptive radiation/ parallel evolution- development of similar traits among unrelated species. b. Natural Selection +Branching Descent c. moths in England- pre-industrialization-light winged + post-industrialization-dark winged.	1 1 1
33	a. Linkage and Recombination- brief explanation +Thomas Morgan b. snap dragon-incomplete dominance & ABO blood grouping-co-dominance.	3 1+1