

INDIAN SCHOOL MUSCAT
SECOND PRELIMINARY EXAMINATION
FEBRUARY 2019

SET A

CLASS XII

Marking Scheme – BIOLOGY [THEORY]

Q.NO.	Answers	Marks (with split up)
1.	Inflated green pods OR Dryopithecus, Ramapithecus	1
2.	Due to blockage of lymph vessels lymph accumulates in the lower limbs in patients suffering from filariasis.	1
3.	By treating with lysozyme.	1
4.	Insertional inactivation, lose resistance to tetra cycline. OR <i>Thermus aquaticus</i>	1
5.	Birds, Eurythermal	1
6.	.In 60% of the flowering plants including peas pollen grains are shed at 2 celled stage. The 2 cells are generative and vegetative cell. In 40% of the flowering plants including wheat this occur at 3 celled stage where generative cell divides mitotically to form 2 male gametes. germ pores are present on the exine.	2
7.	1)The first form of life originated from pre existing non-living organic molecule like RNA protein etc. 2) Origin of life was succeeded by chemical evolution. i.e. formation of divers organic molecules from inorganic molecules.	2
8	a) Catalyses the transcription of precursor of mRNA called heterogenous nuclear RNA b) The genetic code is degenerate as one aminoacid is coded by more than one codon. c) The genetic code is unambiguous as one codon codes for only one particular aminoacid.	2
9	colostrums provides passive immunity to the new born baby. Passive immunity should be provided,i.e passive immunization should be done for a person who require urgent immune response so as to prevent fatality. Eg: Tetanus infection. OR Meristem culture. Meristem is virus free.	2
10	Glomus, Staphylococcus, Methanobacterium, Penicillium notatum	2
11	a) ADA deficiency is caused by the deletion of the gene coding for the enzyme, adenosine deaminase. The immune system of the body gets affected, as this enzyme is crucial for the functions of the immune system. b) A retroviral vector is used for transferring the ADA gene. Lymphocytes are the recipient cells.	2

12	<p>JFM is a program initialed by Govt. of India in 1980 under which Govt. works closely with local communities for protecting and managing forests. Forests are conserved by locals in a sustainable manner as locals are also benefitted with forest products like fruits, gum, rubber, medicine etc.</p> <p style="text-align: center;">OR</p> <p>Evil quartet</p>	2						
13	<p>Cleistogamous flowers never opens which prevents the pollens from other plants to land on its stigma, so cross pollination cannot happen. But self pollination can occur in closed flower, thus ensuring autogamy.</p>	3						
14	<p>Diagram+ withstand high temperature and strong acids and alkali. NO enzyme can degrade</p> <p style="text-align: center;">OR</p> <p>Spermiogenesis is the transformation of spermatids to spermatozoa</p> <table border="1"><tr><td>Sertoli cells</td><td>Leydig cells</td></tr><tr><td>seminiferous tubules</td><td>Interstitial cells of testis</td></tr><tr><td>provide nutrition</td><td>Secrete androgen</td></tr></table>	Sertoli cells	Leydig cells	seminiferous tubules	Interstitial cells of testis	provide nutrition	Secrete androgen	3
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15	<p>Phenylketonuria Down’s syndrome mental retardation short stature, small head Gynaecomastia</p> <p style="text-align: center;">OR</p> <p>ATCGTACTA The basepairs are held together by hydrogen bonds between A and T by double bond and C and G by triple bond. given by Watson and Crick. Chargaff stated $A+G= C+T=1$</p>	3						
16	<p>When lactose is added to the medium, it enters cell due to the activity of permease enzyme. Lactose acts as an inducer. It inactivates repressor and allows RNA polymerase to access promoter.</p> <p style="text-align: center;">OR</p> <p>father should be haemophilic mother should be carrier. Extremely rare.</p>	3						
17	<p>Branching descent means that all species have common ancestor and got adapted in different habitats. example: Darwin finches- all varieties arose from com on seed eating finch and adapted to eat fruits, cactus and insects. Natural selection means any variation to survive and reproduce in a given environmental condition. Example: During pre industrial era white moths camouflaged against light tree trunk, but after industrialization trees became black and white moths were picked up.</p>	3						
18	<p>i) Selection of high yielding and disease resistant breeds</p> <p>ii) Good housekeeping</p> <p>iii) Adequate water supply</p> <p>iv) Disease free animals</p> <p>v) Providing nutritious feed in a scientific manner</p> <p>vi) Regular visits by veterinary doctors.</p> <p>vii)Regular inspection and record keeping</p>	3						

	<p>viii) Cleanliness and hygiene while milking and transport</p> <p>OR</p> <p>a) Bio control agents</p> <p>b) Bread and brewing industry</p> <p>c) Cholesterol lowering agent</p> <p>d) Produces Cyclosporin-A which is an immune-suppressant agent</p> <p>e) Produces antibiotic penicillin.</p> <p>f) Swiss cheese production</p>	
19	<p>a) Use of chemicals to kill pests kill both useful organism and pest organisms. They re toxic for soil flora and humans and pollute soil and water.</p> <p>b) Bacteria- <i>Bacillus thuringiensis</i> Fungus – <i>Trichoderma</i> Insect – Ladybird beetle</p>	3
20	HIV attacks macrophage when it gains entry into human body. virus enters macrophage- it uses reverse transcriptase enzyme to produce viral DNA in the cell. The viral DNA gets incorporated into host genome and replicates to produce viral DNA. New virus are produced within cells thus macrophage acts as a virus factory. Virus enters helper T lymphocytes and produces its progeny after destroying the lymphocyte. The cycle continues and T lymphocytes number decreases.	
21	The DNA fragments are separated by gel electrophoresis can be visualized by staining them with ethidium bromide and then placing them under UV radiations. For isolation the agarose gel with desired band is cut and then purified DNA is extracted from the gel by a process called elution.	3
22	Meloidegyne incognitia. RNA interference takes place in all eukaryotic organisms as a method of cellular defense. It involves silencing of a specific m-RNA due to a complementary ds-RNA molecule that binds to and prevents translation of the m-RNA. Using Agrobacterium vector nematode specific genes were introduced in the host plant. This produces both sense and anti sense RNA in host cells/. Being complementary these two strands form dsRNA initiates RNAi and silences Mrna of nematode and dies.	3
23	<p>i) Temperate regions faced frequent glaciations in the past.</p> <p>ii) No seasonal variations in tropics.</p> <p>iii) Solar input is more in tropics</p>	3
24	<p>i) Using CNG unleaded petrol and low sulphur content petrol or diesel.</p> <p>ii) Making use of catalytic convertors in vehicles mandatory</p> <p>iii) Phasing out of old vehicles with low emission standards.</p>	3
25	<p>Narrowly utilitarian, Broadly utilitarian and ethical reasons with explanation.</p> <p>Hot spots maintain number and distribution of various species.</p> <p>keeps a check on introduction of exotic species by humans</p> <p>maintain genetic diversity</p> <p>carries out resilience in species for environmental adaptation. (any two)</p> <p>OR</p> <p>If a succession takes place in an area where no organism existed ever, it is called primary succession</p>	5

	<p>and if it was inhabited by some living organisms but was destroyed due to any natural calamity it is called secondary succession.</p> <p>Bare rock-Lichens- bryophytes-herbs-shrubs-bigger plants-forest.</p>	
26	<p>A cell within ovule differentiates and becomes a megaspore mother cell.. It divides by meiosis and tetrad is formed. Three cells degenerate and one remains functional. The nucleus of the functional cell divides by mitosis without cell wall formation up to eight nuclei and get rearranged.</p> <p>Diagram</p> <p style="text-align: center;">OR</p> <p>Fertilisation and implantation explanation</p>	5
27	<p>Griffith's experiment</p> <p>They worked to determine the transforming principle. Purified proteins, DNA and RNA from heat killed S cells to see which out of three could transform R cells into S cells they established that DNA transformed the non virulent strain to virulent.</p> <p style="text-align: center;">OR</p> <p>Correct cross with ratio</p>	5