**INDIAN SCHOOL MUSCAT**

**FIRST PRELIMINARY EXAMINATION**

**JANURARY 2019**

**SET A**

**CLASS XII**

**Marking Scheme – BIOLOGY [THEORY]**

| Q.NO. | Answers | Marks (with split up) |
|---|---|---|
| 1. | male Honey beee develops from unfertilized female gamete / unfertilized egg / Parthenogenesis of female gamete (16 chromosomes), female develops by fertilization / fertilized egg (32 chromosomes) | ½ +½ |
| 2. | The mother.s milk consists of antibodies (Ig A) such antibodies are not available to bottle fed babies | 1 |
| 3. | Linked to ORI of the host genome. | 1 |
| 4. | Antigen-antibody reaction | 1 |
| 5. | Commensalism-egret benefits while the cattle are not affected.<br>OR<br>Resource partitioning,two species adopt to have different razing time to avoid competition. | 1 |
| 6. | Transfer of pollen grains from anther to stigma of another flower of same plant, different palnt /genetically similar , different | ½ x 4 |
| 7. | (a) Convergent evolution. (b) Divergent evolution. (c) Convergent evolution. (d) Divergent evolution. | 2 |
| 8. | Exons and introns<br>no introns | 1+1 |
| 9. | (a) Allergy (b) Allergens (c) Mast Cells. Histamine, Serotonin | 1+1+1=3 |
| 10. | The protein rich food produced by microbes is called as single called protein (SCP) Spirulina is a microorganisms which has more protein. It is a quick method of protein production because the growth rate of microbes is enormous. Hence, it provides a protein rich diet for human beings.<br>OR<br>(i) LAB in human intestine synthesizes Vitamin B12. (ii) LAB in human stomach checks the growth of harmful microbes | 1+1=2 |
| 11. | Made sensitive to chemicals, making them disease models for studying. | 1+1 |
| 12. | There is increase in diversity,species increase and increase in number,increase in biomass | ½+½+½+½ |
| 13. | Wall layers , epidermis , endothecium , middle layers – protection , tapetum- nourishes , sporogenous tissue. | 6 x ½ |
| 14. | PEN –successive nuclear divisions , cell wall formation occurs –endosperm<br>At puberty / embryonic development ,four sperms / one egg ,equal division / unequal division | 1 x 3 |
| 15. | Man with X female with one X and explanation through flow chart.<br>OR<br>Depending on the abundance of aminoacid residues with charged side chains.<br>rich in lysine and arginine. Which carry positive charge in their side chains. | 1+2 |
| 16. | Virus grown in radioactive sulphur contained radioactive protein but not DNA. When bacteria were allowed to infect with bactereophage they didn't show radioactivity because protein did not enter their body. Viruses grown in radioactive phosphorus contained radioactive DNA/ | ½ X 6 |

<table>
<tr><td></td><td>when these viruses infected bacteria turned radioactive indicating that DNA is the genetic material which passed from the virus to bacteria.<br>OR<br>Haplo-Diploid-unfertillised eggs become males, fertilized eggs become females.</td><td></td></tr>
<tr><td>17.</td><td>As the environment changes the organism which are better adapted to the changed environment could survive better and reproduce. - When DDT was used, initially most of the mosquitoes died, but a few survived. -These few mosquitoes reproduce and their off springs were also resistant to DDT. - Today, the population of mosquitoes mostly contains DDT resistance mosquitoes. - The DDT resistant mosquitoes have evolved in a time scale of years or months and not centuries. - So, evolution is a direct process but stochastic process based on chance events. - According to Hugo de Varies, evolution occurs due to mutations. Large differences arising suddenly in a population. - According to him large, single-step mutation, called saltation, must have been the cause of DDT- resistance in mosquitoes.</td><td>3</td></tr>
<tr><td>18.</td><td>If Bee keeping is practiced in any area the commercial flowers are cultivated, it will be beneficial in the following ways. (i) Bees are pollinators of many crop species including flowering crops such as sunflower. (ii) It improves the honey yield, because honeybees collect the nectar from flowers formaking honey. Apis indica is the msot common species whch is reared in India.<br>OR<br>Primary sludge is all solids like soil, small pebbles that settle down in settling tank during primary treatment of sewage. Activated sluge is the sediment of bacterial .flocs. in settling tank during biological treatment. Flocs are masses of bacteria held together by slime and fungal filaments. A part of activated sluge is used asinoculum in aeration tank and remaining is passed into a large tank called anaerobic sluge digester. Biogas that produced in Sewage treatment plant is a mixture of metnane,hydrogen and Carbon dioxide</td><td>1+2=3</td></tr>
<tr><td>19.</td><td>Statins are cholesterol reducing agents. They are produced by Monascus purpureus (Yeast) They act by Competitively inhibiting the enzymes responsible for synthesis of cholesterol and are used as blood cholesterol lowering agents.</td><td>1/2+1/2+1+1 +=3</td></tr>
<tr><td>20.</td><td>Mycorrhiza are fungi associated with the roots of plants. Many members of genus Glomus form mycorrhiza. These fungal symbiont absorbs water and minerals like phosphorus from the soil and provide them to the plant. Anabena/Nostoc</td><td>4x1/2=2+1</td></tr>
<tr><td>21.</td><td>Toxins of Bacillus introduced into cotton using r DNA,the toxin was activated therefore became reisistant to Bollworms.</td><td>1+1+1</td></tr>
<tr><td>22.</td><td>Used as vector ,by modifying tumour inducing Ti plasmid,it is not pathogenic,transforms the host plant cell.</td><td>1+1+1</td></tr>
<tr><td>23.</td><td>(a) habitat loss and fragmentation - It is the primary cause for extinction. - The tropical rain forests initially covered 14% of the landsurface of the earth, but now they cover only 6% of land area. - Total loss of a habitat deprives many animals and plant of their homes and they face extinction. -When a large habitat becomes fragmented, animals requiring large territories and those with certain migratory habits start decreasing.
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<tr><th>IN SITU</th><th>EXSITU</th></tr>
<tr><td>It is the method of protecting endangered species of plants and animals by removing them from the unsafe or threatened habitat and placing under the care or humans.<br>It helps in recovering populations or preventing their extinction under simulated conditions that closely resemble their</td><td>It is the method of protecting the endange of the plants or animals in the natural hab protecting or cleaning up the habitat itself defending species from predators.<br>It helps in recovering populations in the s where they have developed their distinct</td></tr>
</table></td><td>1+1+1</td></tr>
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| | | |
|---|---|---|
| | natural habitats. | |
| 24. | a)Polyblend ,a fine powder of recycled modified plastic is mixed with bitumen & used to lay roads. This increases bitumen water repellent properties & increase road life by a factor of three b) Integrated organic farming is a cyclical, zero waste procedure, where waste from process are cycled in as nutrients for other process. He included bee keeping, dairy management, water harvesting composting and agriculture in s chain of processes. | 2+1=3 |
| 25. | MMC- meiosis – microspore tetrad , pollen grains exine , sporopollenin , intine , germ pore , vegetative cell , generative cell, two male gametes.<br><br>Structural and functional unit between foetus and mother , supply of nutrients and oxygen removal of wastes, hCG, hPL ,estrogens, progestogens. | 10 x ½<br><br>1 + 1+3 |
| 26. | (i) Amrita Devi Bishnoi Wildlife Protection Award. (ii) Chipko movement (iii) Joint Forest Management (JFM).<br>The Nile perch introduced into Lake Victoria in East Africa caused extinction of more 3 than 200 species of cichlid fish in that lake. - Parthenium, ¬Lantna and Eichhornia caused environmental damage and posed threat to many species in our country. Illegal introduction of African catfish, Clariasgariepinus for aquaculture purposes is posing a threat to the indigenous catfishes in our rivers.<br>Lichens-algae and fungi,bird and cattle,wasp and fig tree, | 1+1+1=3m |
| 27. | Change of a single nitrogen base, Eg. Sickle cell amaemia. HbA HbS<br><br>RNA polymerase catalyses the formation of m-RNA, t-RNA and r-RNA.<br>Catalyses only the elongation step of transcription.<br>transiently binds to the sigma factor at the promoter site and initiates the process.<br>Facilitates the opening of the helix and helps in elongation.<br>On reaching the terminator, binds with the rho factor and terminates the process. | 1+2+2 |