**UPS 2 SESSION 2013/2014 (QUESTION)**

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| **Bil.** | **Question** | **Elaboration** |
| 1 (a) | **FIGURE 1** shows the diversity of bacteria based on their shape  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q1ups.jpg  **FIGURE 1** |  |
|  | State the shape of bacteria A and C.  [2 *marks*] |  |
|  | Give **ONE** example of bacteria B.  [1 *marks*] |  |
|  | State another **TWO** ways of bacterial classification.  [2 *marks*] |  |
| 1. (b) | **FIGURE 2** shows **TWO** types of organisms in different kingdom.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q1bups.jpg  **FIGURE 2** |  |
|  | Name the structure labelled **X** and **Y**.  [2 *marks*] |  |
|  | What is the feeding mode of species P and Q.  [2 *marks*] |  |
|  | How fungi help in production of *‘tempe’* and *‘tapai’?*  [1 *mark*] |  |
| **Bil.** | **Question** | **Elaboration** |
| 2. | **FIGURE 3** shows three types of worms.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q2aups.jpg  **FIGURE 3** |  |
| (a) | Name structure **K** and give its function.  [2 *marks*] |  |
| (b) | Identify phyla **D** and **E**  [2 *marks*] |  |
| (c) | Give **TWO** similarities between worm **D** and **E**  [2 *marks*] |  |
| (d) | State the body cavity possessed by **D** and **F**.  [2 *marks*] |  |
| (e) | Elephantiasis is caused by a specific type of worm. Name the worm.  [1 *mark*] |  |
| (f) | Why *Hirudo* sp. is used in cupping treatment?  [1 *mark*] |  |
| **Bil.** | **Question** | **Elaboration** |
| 3 (a) | **FIGURE 4** shows tropical rain forest stratification.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q3aups.jpg  **FIGURE 4** |  |
| i. | Name layers **II** and **IV**.  [2 *marks*] |  |
| ii. | Give **ONE** example of dominant plant and animal at layer **V**.  [2 *marks*] |  |
| iii. | Why this forest is called as tropical rainforest?  [1 *mark*] |  |
| 3 (b) | **FIGURE 5** shows population growth of two species of *Paramecium.*  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q3bups.jpg  **FIGURE 5** |  |
| i. | Name the population growth curve shown by *Paramecium*.  [1 *mark*] |  |
| ii. | State **TWO** density dependent factors in the mixed cultured.  [2 *marks*] |  |
| iii. | Give **TWO** reasons why *P.aurelia* has advantage over *P. caudatum.*  [2 *marks*] |  |
| **Bil.** | **Question** | **Elaboration** |
| 4. | **FIGURE 6** shows a type of speciation within a beetle population over hundreds years.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q4ups.jpg  **FIGURE 6** |  |
| (a) | Define speciation.  [1 *mark*] |  |
| (b)i. | Identify the mode of speciation in **FIGURE 6.**  [1 *mark*] |  |
| (b)ii. | Explain your answer in **4(b)(i).**  [2 *marks*] |  |
| (c) | List **TWO** factors involve in the formation of new species.  [2 *marks*] |  |
| (d) | Briefly describe the bottleneck effect.  [2 *marks*] |  |
| (e) | How founder effect can lead to the formation of new species?  [2 *marks*] |  |

**UPS 2 SESSION 2013/2014 (ANSWER SCHEME)**

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| **Bil.** | **Question** | **Elaboration** |
| 1 (a) | **FIGURE 1** shows the diversity of bacteria based on their shape  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q1ups.jpg  **FIGURE 1** |  |
|  | State the shape of bacteria A and C.  [2 *marks*]  **A : Rod/ bacillus/ streptobacillus**  **C : Spiral/ spirillum/ spirillium** |  |
|  | Give **ONE** example of bacteria B.  [1 *marks*]  ***Staphylococcus* sp. / *Streptococcus* sp./ *Nostoc* sp./ *Sulfolobus* sp.** |  |
|  | State another **TWO** ways of bacterial classification.  [2 *marks*]   1. **Gram Stain** 2. **Position of flagella** |  |
| 1. (b) | **FIGURE 2** shows **TWO** types of organisms in different kingdom.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q1bups.jpg  **FIGURE 2** |  |
|  | Name the structure labelled **X** and **Y**.  [2 *marks*]  **X : Mycelium**  **Y : Cilia/ cillium** |  |
|  | What is the feeding mode of species P and Q.  [2 *marks*]  **P : Saprophytic**  **Q : Heterotroph** |  |
|  | How fungi help in production of *‘tempe’* and *‘tapai’?*  [1 *mark*]  **Undergo alcohol fermentation/ anaerobic respiration** |  |
| **Bil.** | **Question** | **Elaboration** |
| 2. | **FIGURE 3** shows three types of worms.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q2aups.jpg  **FIGURE 3** |  |
| (a) | Name structure **K** and give its function.  [2 *marks*]  **K : Hook**  **Function : Enables the parasite to attach to the** |  |
| (b) | Identify phyla **D** and **E**  [2 *marks*]  **D : Platyhelminthes**  **E : Nematoda** |  |
| (c) | Give **TWO** similarities between worm **D** and **E**  [2 *marks*]   1. **Both have unsegmented body** 2. **Both are parasite** 3. **Both are triploblastic** 4. **Bilateral symmetry** 5. **Have cephalisation** 6. **Have true tissue/ eumetazoa.** |  |
| (d) | State the body cavity possessed by **D** and **F**.  [2 *marks*]  **D : Acoelomate/ acoelom**  **F : Coelomate/ coelom** |  |
| (e) | Elephantiasis is caused by a specific type of worm. Name the worm.  [1 *mark*]  ***Brugia malayi*/ *Nematia* sp./ *Wuchererichia bancrofti*** |  |
| (f) | Why *Hirudo* sp. Is used in cupping treatment?  [1 *mark*]  **It has anti-coagulant characteristics/ prevents blood clotting.** |  |
| **Bil.** | **Question** | **Elaboration** |
| 3 (a) | **FIGURE 4** shows tropical rain forest stratification.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q3aups.jpg  **FIGURE 4** |  |
| i. | Name layers **II** and **IV**.  [2 *marks*]  **II : Shrub layer**  **IV : Canopy layer** |  |
| ii. | Give **ONE** example of dominant plant and animal at layer **V**.  [2 *marks*]  **Plant : Dipterocarp/ Tualang/ Jati/ Cengal/ Meranti**  **Anima : (Harpy) eagle/ Hawk/ ‘Lebah Tualang’** |  |
| iii. | Why this forest is called as tropical rainforest?  [1 *mark*]   1. **Located at tropical region** 2. **Received large amount of rain throughout the year** 3. **High humidity// Mineral poor soil** 4. **Evergreen** 5. **High temperature** |  |
| 3 (b) | **FIGURE 5** shows population growth of two species of *Paramecium.*  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q3bups.jpg  **FIGURE 5** |  |
| i. | Name the population growth curve shown by *Paramecium*.  [1 *mark*]  **Logistic/ Sigmoid growth curve** |  |
| **Bil.** | **Question** | **Elaboration** |
| ii. | State **TWO** density dependent factors in the mixed cultured.  [2 *marks*]   1. **Food** 2. **Space** 3. **Niche/habitat** 4. **Interspecific competition** |  |
| iii. | Give **TWO** reasons why *P.aurelia* has advantage over *P. caudatum.*  [2 *marks*]   1. **Faster reproductive rate.** 2. **More efficient in feeding** 3. **Greater resistance to toxic waste product.** |  |
| 4. | **FIGURE 6** shows a type of speciation within a bettle population over hundreds years.  C:\Users\Balqis\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\Q4ups.jpg  **FIGURE 6** |  |
| (a) | Define speciation.  [1 *mark*]  **Formation of new species (from pre-existing species)** |  |
| (b)i. | Identify the mode of speciation in **FIGURE 6.**  [1 *mark*]  **Allopatric speciation.** |  |
| (b)ii. | Explain your answer in **4(b)(i).**  [2 *marks*]   1. **Formation of new species occurs within a population that are separated geographically to two subpopulations.** 2. **Caused by geographical barrier.** 3. **Reproductive isolation occurs.** |  |
| (c) | List **TWO** factors involve in the formation of new species.  [2 *marks*]   1. **Reproductive isolating mechanism/ Isolation** 2. **Genetic drift** 3. **Hybridization** 4. **Adaptive radiation.** |  |
| **Bil.** | **Question** | **Elaboration** |
| (d) | Briefly describe the bottleneck effect.  [2 *marks*]  **Bottleneck effect occurs when there is a sudden decrease in the original population size due to natural disasters.**  **The small surviving population will have different gene pool/ allele frequencies from the original (large) population.**  **There will be a change/ loss of genetic variability.** |  |
| (e) | How founder effect can lead to the formation of new species?  [2 *marks*]  **Founder effect occurs when a small population is isolated/ migrated from a larger population/ colonizes new area.**  **The new, smaller population become pioneer individuals which may have a different gene pool from the original population.**  **After a few generations, the gene pool/ allele frequencies of the new population will differ from the original population**  **Change or loss of genetic variability.** |  |