**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 shapeC:\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 shapeC:\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.** |  |