**NANYANG TECHNOLOGICAL**

**UNIVERSITY**

**CZ2003**

**COMPUTER GRAPHICS**

**AND**

**VISUALIZATION**

**Labs Assessment**

**Lab 5: Morphing**

**Report**

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**Note:** Attendance Number: 11, Group Name: 5. Hence,

Formula\_number\_1 = **11**

Formula\_number\_2 = **16**

**Task 1: Display surface defined by Formula\_number\_11**

|  |  |
| --- | --- |
| **File Name:** Formula\_number\_11 | |
| **C:\Users\mock_\Desktop\Yr 3 Sem 1 Modules\CZ2003 Computer Graphics & Visualisation\Labs\Lab 5\Diagrams\Formula_number_1_I.PNG**  *\*Shape in “Smooth” view* | **C:\Users\mock_\Desktop\Yr 3 Sem 1 Modules\CZ2003 Computer Graphics & Visualisation\Labs\Lab 5\Diagrams\Formula_number_1_II.PNG**  *\*Shape in “Wireframe” view* |
| To obtain the **shape number 11** that is defined in Table 1, the following definition is used:  function parametric\_x(u,v,w,t)  {  x1=2.5\*(u\*2\*pi)/(1+(u\*2\*pi)^3);  return x1; }  function parametric\_y(u,v,w,t)  {  y1= 2.5\*cos(v\*2\*pi)\*(u\*2\*pi)^2/(1+(u\*2\*pi)^3);  return y1; }  function parametric\_z(u,v,w,t)  {  z1= 2.5\*sin(v\*2\*pi)\*(u\*2\*pi)^2/(1+(u\*2\*pi)^3);  return z1; }    Resolution value of **[50 50]** and Parameter value of **[0 1 0 1]** is used. | |

**Task 2: Display surface defined by Formula\_number\_16**

|  |  |
| --- | --- |
| **File Name:** Formula\_number\_16 | |
| *\*Shape in “Smooth” view* | *\*Shape in “Wireframe” view* |
| **Shape number 16** can be defined by:  function parametric\_x(u,v,w,t)  {  x2= cos(2\*pi\*sin(u\*pi));  return x2; }  function parametric\_y(u,v,w,t)  {  y2=cos(4\*pi\*(v\*0.5))\*sin(u\*pi);  return y2; }  function parametric\_z(u,v,w,t)  {  z2= sin(4\*pi\*(v\*0.5))\*sin(u\*pi);  return z2; }  Resolution value of **[50 50]** and Parameter value of **[0 1 0 1]** is used. | |

**Task 2: Define an animated shape with linear morphing function and include the 2 given surfaces on the 2 sides of the animated surface.**

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| --- |
| **File Name:** morphing |
| **Morphing Process 1:**  **C:\Users\mock_\Desktop\Yr 3 Sem 1 Modules\CZ2003 Computer Graphics & Visualisation\Labs\Lab 5\Diagrams\Morphing I.PNG** |
| **Morphing Process 2:**  **C:\Users\mock_\Desktop\Yr 3 Sem 1 Modules\CZ2003 Computer Graphics & Visualisation\Labs\Lab 5\Diagrams\Morphing II.PNG** |
| **Morphing Process 3:**  **C:\Users\mock_\Desktop\Yr 3 Sem 1 Modules\CZ2003 Computer Graphics & Visualisation\Labs\Lab 5\Diagrams\Morphing III.PNG** |
| The animated shape is defined by the following definition:  function parametric\_x(u,v,w,t)  {  x1= cos(pi\*v)\*sin(pi\*v);  x2= cos(pi\*v);  return x1+(x2-x1)\*t; }  function parametric\_y(u,v,w,t)  {  y1= 1.4\*(cos(v\*2\*pi)\*sin(u\*pi))^3;  y2= sin(u\*2\*pi)\*sin(v\*pi);  return y1+(y2-y1)\*t; }  function parametric\_z(u,v,w,t)  {  z1= sin(u\*pi/2);  z2= 0.6\*(sin(u\*pi/2))^5;  return z1+(z2-z1)\*t; }"    Resolution value of **[75 75]** and Parameter value of **[-1 1 -1 1]** is used. |

**---End of Report---**