CoSpace Theatre and Dance Interview

Team Name: ___________________________________________  Judge Initial: __________________________
Country: ______________________________________________

SECTION 1: ROBOT DESIGN, CONSTRUCTION AND PROGRAMMING  (19 MARKS)  POINTS

1.1 Real robot(s) design, construction

- Robots are designed and constructed by the students (opposed to standard kits)
  + Pre-constructed robot = 0;
  + Robot with a set of building instructions = 1;
  + Commercial kit or Lego with creative construction = 1 - 2;
  + Own design and hand-built = 2;

- Mechanical construction and robot reliability:
  + Reward design for complexity if it aids robot movement, such as gearing, linkages, pivots, motors are used in design and drive mechanisms

Points: /2

1.2 Electronic hardware, sensors and other technologies

- Electronic hardware
  + Use of commercial kit, such as Lego NXT, and understanding of its operation (eg. Input, output, power, memory, processor, etc)
  + Home built circuitry and able to describe their operation (eg. Functions of each board, voltage regulatory, motor speed adjustment, etc)

Points: /2

- Effective use of sensors
  + Able to install sensors on the robot and understand their function and operation (eg. Type of sensors used, Working principal, etc.)
  + Able to use sensors creatively and effectively or in different ways (e.g. line tracking = 1, more creative use of sensors = 2-3)

Points: /3

1.3 Programming

- Complex, innovative or original programming used appropriate to age and level of expertise, and can explain and understand their program thoroughly
  + Using loops, interrupt, etc…
  + Able to describe what this section of program tells the robot to do and modify it as per request

Points: /5

1.4 Innovation

- Reward any innovation in real robot design that aids the performance

Points: /4

Sub-total /19

Mentor involvement: the score can be reduced by up to 20% if we believe there has been significant mentor involvement.
### Section 2: Virtual Robot Design and Programming (8 marks)

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1 Virtual robot(s) design</strong></td>
</tr>
</tbody>
</table>

- **Type of virtual robot**
  - Use of original and innovatively designed robots. Do they add to the performance?  
  
- **Program each robot to fit in the theatre performance.**
  - How do you program each robot according to its role in the Theatre performance? How do you solve the problems encountered?  
  
- **Complex, innovative or original programming used appropriate to age group**
  - Create innovative movement of both wheeled and humanoid robots.  
  - Address the robot balancing, especially humanoid robot dancing.  
  
- **Students can explain, describe and understand their program thoroughly**
  - Able to describe what this section of program tells the robot to do and modify it as per request.  

Sub-total /8

### Section 3: Virtual Environment Design (9 marks)

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1 3D virtual environment design</strong></td>
</tr>
</tbody>
</table>

- The 3D props are original and creative (e.g., Teams developed 3D models instead of taking from library)  
- The 3D environment includes 3D models, audio, video. They are creatively embedded into the virtual world.  
- The virtual environment matches the theme of the performance. The overall layout presents a piece of artwork  

Sub-total /9

### Section 4: Communication (5 marks)

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1 Understand and able to configure the communication</strong></td>
</tr>
</tbody>
</table>
- Able to establish the communicate between virtual robots/real robots/virtual objects  

Sub-total /5

### Section 5: Evidence of Authenticity (4 marks)

<table>
<thead>
<tr>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.1 Photographs of different stages of development; Logbook: journal; photographic record or similar documents</strong></td>
</tr>
</tbody>
</table>
- Students successfully address problems they have faced (e.g., How did you stop x from becoming loose during the performance? What have you done to prevent your robot(s) from falling over, or breaking if they fall?, how did you design the virtual robot, etc.)  

Sub-total /4

Total Score: /45