



## **Education and Sport Development**

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**NORTH WEST PROVINCE**

### **NORTH WEST PROVINCIAL ASSESSMENT**

**GRADE 9**

**TECHNOLOGY  
MEMORANDUM  
2018 NOVEMBER**

**MARKS: 120**

**This question paper consists of 5 pages.**

## Memorandum

| Question 1 |                     |          |
|------------|---------------------|----------|
| 1.1        |                     |          |
| 1.1.1      | B✓                  | 1        |
| 1.1.2      | D✓                  | 1        |
| 1.1.3      | C✓                  | 1        |
| 1.1.4      | B✓                  | 1        |
| 1.1.5      | A✓                  | 1        |
|            |                     | <b>5</b> |
| 1.2        |                     |          |
| 1.2.1      | False ✓             | 1        |
| 1.2.2      | False ✓             | 1        |
| 1.2.3      | True ✓              | 1        |
| 1.2.4      | False ✓             | 1        |
| 1.2.5      | True✓               | 1        |
|            |                     | <b>5</b> |
| Question 2 |                     |          |
| 2.1        |                     |          |
| 2.1.1      | Hydraulic✓          | 1        |
| 2.1.2      | Budget✓             | 1        |
| 2.1.3      | Pascal's Principle✓ | 1        |
| 2.1.4      | Safety measures✓    | 1        |
| 2.1.5      | Ohm's Law✓          | 1        |
|            |                     | <b>5</b> |

| 2.2        |   |          |
|------------|---|----------|
| 2.2.1      | Visible outlines and edges  | 1        |
| 2.2.2      | Dimension lines, projection lines, hatching lines and outlines of adjacent parts. This line is normally drawn to begin to make a drawing.                               | 1        |
| 2.2.3      | Hidden outlines   | 1        |
| 2.2.4      | Centre line. Used to show where the centre of symmetrical object is.  | 1        |
| 2.2.5      | Short break lines and irregular boundary lines.   | 1        |
|            |   | <b>5</b> |
| Question 3 |   |          |
| 3.1        | Mines   | 2        |
| 3.2        | It is used to take the miners underground and back again.   | 2        |
| 3.3        | Steel, steel cable, I-beam, pulley wheel, (any relevant answer).  | 2        |
| 3.4        | Triangulation, cross-bracing  | 2        |
| 3.5        | Full face helmet, goggles, ear plugs, gloves, jackets, pants, boots, etc (any other relevant answer).   | 3        |
| 3.6        | Mine Planning Engineer, Mineral Processing Manager, Chief Safety Officer, Boiler Maker, Electrician, Project Manager, Pipe fitter, Welders (any other relevant answer). | 3        |

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|      |  |   |
|------|--|---|
| 3.7  | <ul style="list-style-type: none"> <li>It must be able to transport miners to and from underground✓✓</li> <li>It must be built with a cage for miners✓✓</li> <li>It must be safe and not put the lives of the miners at risk✓✓</li> <li>It must be built with minimum disruption of people’s lives and with no pollution</li> </ul> (Any other relevant answer). | 6 |
| 3.8  | <ul style="list-style-type: none"> <li>Poor workmanship✓✓</li> <li>Improper materials and design/use of cheap material✓✓</li> <li>High speed overwind✓✓</li> </ul> (Any other relevant answer).  | 6 |
| 3.9  | Always wear safety equipment✓✓   | 6 |
| 3.10 | Community members must be given first priority in terms of employment✓✓<br>Poor learners to benefit from the mine through bursaries or scholarships✓✓<br>Build houses for community members in need (any other relevant answer✓✓   | 6 |

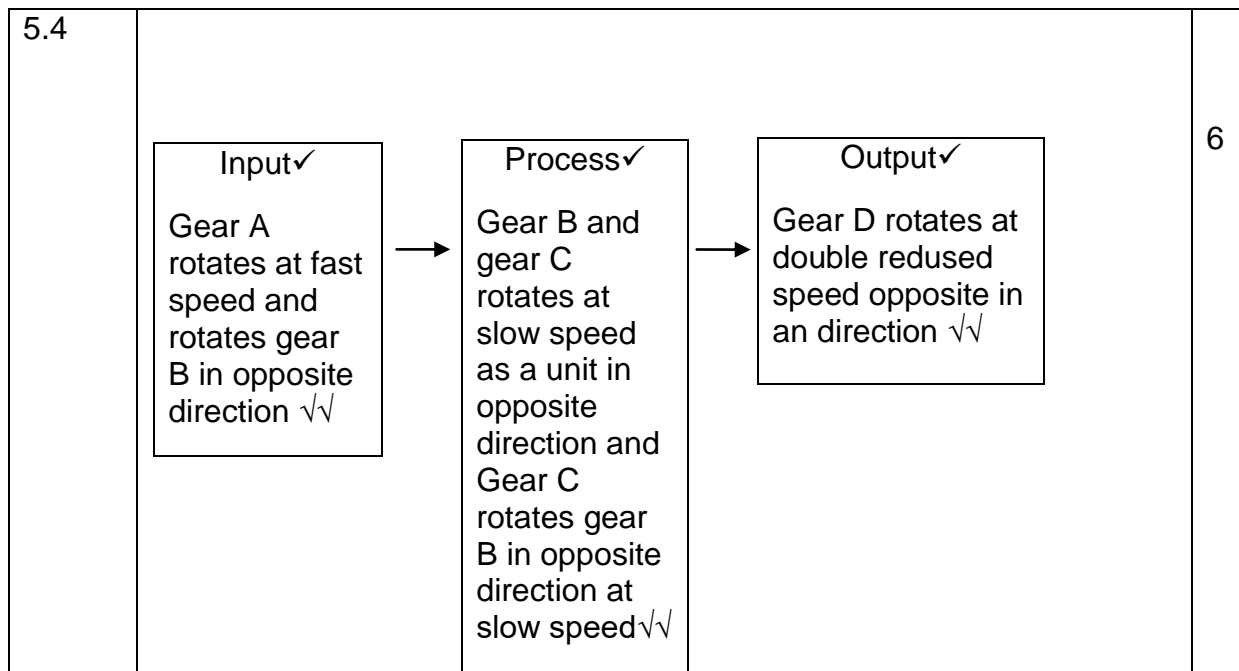
Question 4

| 4   |  |        |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
|-----|--|--------|---|--------|---|---|----|---|---|----|---|---|----|---|---|----|---|
| 4.1 |  | 4      |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 4.2 | OR logic gate✓✓  | 2      |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 4.3 | <table border="1"> <thead> <tr> <th>A</th> <th>B</th> <th>OUTPUT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0✓</td> </tr> <tr> <td>0</td> <td>1</td> <td>0✓</td> </tr> <tr> <td>0</td> <td>0</td> <td>0✓</td> </tr> <tr> <td>1</td> <td>1</td> <td>1✓</td> </tr> </tbody> </table> | A      | B | OUTPUT | 1 | 0 | 0✓ | 0 | 1 | 0✓ | 0 | 0 | 0✓ | 1 | 1 | 1✓ | 4 |
| A   | B  | OUTPUT |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 1   | 0  | 0✓     |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 0   | 1  | 0✓     |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 0   | 0  | 0✓     |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |
| 1   | 1  | 1✓     |   |        |   |   |    |   |   |    |   |   |    |   |   |    |   |

Question 5

|     |   |   |
|-----|---|---|
| 5.1 | Anti-clockwise✓✓  | 2 |
| 5.2 | Anti-clockwise ✓✓   | 2 |
| 5.3 | $\text{Gear ratio} = \frac{\text{number of teeth of the driven gear}}{\text{number of teeth of the driver gear}} \checkmark \checkmark$<br>$\text{Gear Ratio} = \frac{50}{10} \checkmark \checkmark$<br>$\text{Gear ratio} = 5 : 1 \checkmark \checkmark$ | 6 |

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| Question 6 |  |   |
|------------|--|---|
| 6.1        | The metaterials contaminate the environment and it is filthy. ✓✓   | 2 |
| 6.2        | I am going to collect, sort, grade and process recyclable materials into usable materials again . ✓✓   | 2 |
| 6.3        | Papers, platics, metals, glass, alluminium (any other relevant answer).  | 3 |
| 6.4        | Air pollution, water pollution, land pollution, can cause the community to suffer from different illnesses, some materials contain explosives that are dangerous to the community (any other relevant answer). | 6 |
| 6.5        | Recycling: turning an item into raw materials which can be used again, usually for a completely new product. ✓✓<br>Re-use: usage of the same product unchanged in form. ✓✓                                     | 4 |
| 6.6        | Conserves and protects the environment<br>Reduces the consumption of energy<br>Reduces air and water pollution<br>Makes and saves money (any other relevant answer).   | 4 |
| 6.7        | May cause biological hazards<br>Some materials may pose health risks<br>May release dangerous gases in the atmosphere that may be harmful to the community members (any other relevant answer).                | 4 |

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

**Question 7**

Rubric for Question 7

| Criteria                   | Total | Mark allocation |
|----------------------------|-------|-----------------|
| Correct placement of views | 2     |                 |
| Correctness of Front view  | 2     |                 |
| Correctness of Side view   | 2     |                 |
| Correctness of Top view    | 2     |                 |
| Neatness                   | 2     |                 |