

Name of the Student: \_\_\_\_\_

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

| Question Number | Answer                                                                                                                                                                                                                                                                                                                                                                                                    | Mark   |        |        |                          |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------------------------|
|                 | <table border="1"> <tr> <td>D</td><td>vector</td><td>vector</td></tr> </table> <p>The only correct answer is D</p> <p><b>A</b> 'scalar scalar' is incorrect, both force and velocity are vectors</p> <p><b>B</b> 'scalar vector' is incorrect, with force being described incorrectly as a scalar</p> <p><b>C</b> 'vector scalar' is incorrect, with velocity being described incorrectly as a scalar</p> | D      | vector | vector | <p>(1)</p> <p>AO 1 1</p> |
| D               | vector                                                                                                                                                                                                                                                                                                                                                                                                    | vector |        |        |                          |

Q2.

| Question Number | Answer                          | Additional guidance                                    | Mark          |
|-----------------|---------------------------------|--------------------------------------------------------|---------------|
| (i)             | gravitational / centripetal (1) | accept gravity / weight / gravitational field strength | (1)<br>AO 2 1 |

| Question Number | Answer                                                            | Additional guidance     | Mark          |
|-----------------|-------------------------------------------------------------------|-------------------------|---------------|
| (ii)            | arrow from the satellite towards the centre of Earth – by eye (1) | direction must be clear | (1)<br>AO 2 1 |

Q3.

|       | Answer                                                                                                                                                                                                                                                                                                                          | Acceptable answers                    | Mark |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------|
| (i)   | D                                                                                                                                                                                                                                                                                                                               |                                       | (1)  |
| (ii)  | moons (1)<br>heliocentric (1)                                                                                                                                                                                                                                                                                                   | must be in correct order              | (2)  |
| (iii) | A description including two of the following points<br>Reflecting telescope has mirror(s) (1)<br>Galilean telescope has only lenses (1)<br>Reflecting telescope can gather more light / can have a larger objective (1) Image viewed from the side of reflecting telescope (1) Image viewed from end of Galilean telescope. (1) | refracting telescope reverse argument | (2)  |

Q4.

|      | Answer                                                                                                                                                                                                                                                                                                                                                                                                                      | Acceptable answers                                                                                                                                                | Mark |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| (i)  | <p>An explanation linking <b>three</b> of the following:</p> <ul style="list-style-type: none"> <li>the (objective) lens (1)</li> <li>collects light (from Jupiter) (1)</li> <li>focuses/conv erges/refracts the light (1)</li> <li>(objective) produces a real image (1)</li> <li>(at the) focal point (1)</li> <li>(Image is viewed by the) eyepiece lens (1)</li> <li>(Eyepiece) produces a virtual image (1)</li> </ul> | Marks can be awarded for a labelled diagram                                                                                                                       | (3)  |
| (ii) | <p>An explanation linking the following: (the geocentric model)</p> <ul style="list-style-type: none"> <li>has the Earth at the centre of the Universe/solar system / everything orbits the Earth (1)(but Galileo observed)</li> <li>moons of Jupiter (1)</li> <li>(so) not all things orbit the Earth/ geocentric model is wrong (1)</li> </ul>                                                                            | <p><b>Accept alternative argument:</b>Galileo observed moons/stars/objects Orbiting/going round Jupiter (this) suggested that not everything orbits the Earth</p> | (3)  |

| Question Number |   | Indicative Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Mark       |
|-----------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| <b>QWC</b>      | * | <p>A description including some of the following points</p> <p>evidence for</p> <ul style="list-style-type: none"> <li>• idea of Sun, Moon, stars or planets moving across the sky (not just orbiting)</li> <li>• in the same direction</li> <li>• pattern is repeated</li> <li>• appear to be going around the Earth</li> <li>• same every day</li> </ul> <p>evidence against</p> <ul style="list-style-type: none"> <li>• moons of {Jupiter/ other planet (with moons)}</li> <li>• appear to {orbit/ go around} {Jupiter/ other planet}</li> <li>• movement of Sun etc. not quite the same each day</li> <li>• planets do not move in a simple path</li> <li>• retrograde (west-east) motion of planets</li> </ul> <p>If no other marks scored</p> <ul style="list-style-type: none"> <li>• heliocentric model = Level 1</li> </ul> | <b>(6)</b> |

| Level    | 0            | No rewardable content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>1 - 2</b> | <ul style="list-style-type: none"> <li>• a limited description stating one fact for or against e.g. for – the Sun / stars move across the sky OR against - Jupiter has moons OR against - (Galileo) produced the {heliocentric / sun-centred} model</li> <li>• the answer communicates ideas using simple language and uses limited scientific terminology e.g. some correct names for the moving objects</li> <li>• spelling, punctuation and grammar are used with limited accuracy</li> </ul>                                                                           |
| <b>2</b> | <b>3 - 4</b> | <ul style="list-style-type: none"> <li>• a simple description involving (linked) facts e.g. the Sun and stars move across the sky <b>AND</b> do the same thing each day OR moons orbit Jupiter OR one fact for <b>AND</b> one against e.g. the sun moves across the sky but changes from day to day</li> <li>• the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately e.g. correct names for the moving objects</li> <li>• spelling, punctuation and grammar are used with some accuracy</li> </ul> |
| <b>3</b> | <b>5 - 6</b> | <ul style="list-style-type: none"> <li>• a detailed description of arguments for <b>AND</b> against, including at least one link.<br/>e.g. the Sun and stars move across the sky. Galileo observed moons, which orbit Jupiter.</li> <li>• the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately</li> <li>• spelling, punctuation and grammar are used with few errors</li> </ul>                                                                                                                                          |