

Q&A List - GCSE Combined Science - Physics Paper 2

Part 5 - Forces

| No. | Question | Answer |
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| 1 | What type of quantity only has magnitude(size)? | Scalar |
| 2 | What type of quantity has magnitude and direction? | Vector |
| 3 | We use arrows to represent vectors. What about the arrow represents the size of the vector? | Length |
| 4 | The force on an object is defines as the _____ or the _____ acting on the object. | Push/pull |
| 5 | Is a force a scalar or a vector quantity? | Vector |
| 6 | What do we call the type of force when two interacting objects TOUCH? | Contact |
| 7 | What do we call the type of force when two interacting objects DO NOT TOUCH? | Non-contact |
| 8 | Examples of contact forces are tension, the normal contact force. Give 2 others. | Air resistance Friction |
| 9 | Give the three examples of non-contact forces. | Gravitational Electrostatic Magnetic |
| 10 | Weight is the force acting on an object which is caused by ... | Gravity |
| 11 | The force of gravity close to the Earth's surface is caused by the _____ around the Earth. | Gravitational field |
| 12 | The weight of an object depends on the gravitational field _____ at the point where the object is. | Strength |
| 13 | What is the equation to calculate the weight of an object? | Weight = mass x gravity $W = mg$ |
| 14 | What are the standard units for Weight? | N (Newtons) |
| 15 | What are the standard units for Mass? | Kg |
| 16 | What units do we use for gravitational field strength? | N/kg |
| 17 | The weight of an object and the mass of an object are directly _____. | Proportional |
| 18 | The weight of an object acts at a single-point, called it's _____ | Centre of mass |
| 19 | We measure the weight of an object using a calibrated spring-balance, also called a _____ | Newtonmeter |

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| 20 | A number of forces acting on an object can be replaced by a single force that has the same effect as all of the original forces. What do we call this single force? | Resultant |
| 21 | What is the equation to calculate the work done on an object? | Work Done = force x distance |
| 22 | When work is done against friction then energy can be transferred to thermal energy stores. This causes a rise in what of the object and the surroundings? | Temperature |
| 23 | At least how many forces need to be applied to an object to stretch, compress or bend it? | Two |
| 24 | If a stretched object returns to its original size and shape once all forces have been removed. What type of deformation did it undergo? | Elastic |
| 25 | If a stretched object does not return to its original size and shape once all forces have been removed. What type of deformation did it undergo? | Inelastic |
| 26 | The force applied to an elastic object is directly _____ to the extension of the object. | Proportional |
| 27 | What is the equation that relates the force applied to a spring, the spring constant, and its extension. | Force = spring constant x extension $F = ke$ |
| 28 | When a force that stretches or compresses a spring, what type of energy is stored in the spring? | Elastic potential |
| 29 | What type of quantities are distance and speed? | Scalar |
| 30 | What type of quantities are velocity and displacement? | Vector |
| 31 | What are typical speeds for a person walking, running and cycling? | 1.5m/s 3m/s 6m/s |
| 32 | What is the speed of sound? | 330 m/s |
| 33 | What is the equation for the distance travelled by an object moving at a constant speed in a specific time? | Distance = speed x time |
| 34 | An object falling through a fluid initially accelerates because of _____. | gravity |
| 35 | For the object in the fluid, eventually the resultant force will be zero and the object will move at its _____ velocity. | Terminal |
| 36 | If the resultant force acting on an object is zero and the object is stationary, then the object... | Remains stationary |
| 37 | Newton's second law says that acceleration is proportional to the _____ acting on the object, and inversely proportional to the _____ of the object. | Force Mass |
| 38 | State the equation linking resultant force, mass and acceleration. | Force = mass x acceleration $F = ma$ |
| 39 | Newton's third law tell us that when two objects interact, the forces they exert on each other are _____ and _____. | Equal and opposite |

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| 40 | The total stopping distance for a vehicle is the sum of which two distances. | Thinking distance Braking distance |
| 41 | Which distance is the distance travelled between the driver noticing a hazard and applying the brakes? | Thinking distance (reaction time) |
| 42 | Which distance is the distance travelled between the brakes being applied and the vehicle coming to a stop? | Braking distance |
| 43 | Name two things, other than speed, that a person's reaction time can depend on. | Tiredness, drugs, alcohol |
| 44 | Name four things other than speed, that braking distance can depend on. | Wet weather, ice on roads, faulty or worn brakes, poor tyre condition |

Part 6 - Waves

| No. | Question | Answer |
|-----|---|--|
| 1 | Give an example of transverse waves | Water Light |
| 2 | Give an example of longitudinal waves. | Sound |
| 3 | For transverse waves, what can we say about the direction of the vibrations and the direction of the energy transfer? | Right angles (perpendicular) |
| 4 | For longitudinal waves, what can we say about the direction of the vibrations and the direction of the energy transfer? | Parallel |
| 5 | Which type of wave shows areas of compression and rarefaction? | Longitudinal |
| 6 | What quantity is the number of waves that pass a point each second? | Frequency |
| 7 | Wavespeed is the speed at which the _____ is transferred through the medium. | Energy |
| 8 | What is the wave equation that links wave speed, frequency and wavelength? | Wave speed = frequency x wavelength |
| 9 | To find the speed of water waves we use a _____ tank. | Ripple |
| 10 | What type of waves are electromagnetic waves? | Transverse |
| 11 | What do they transfer from the source of the waves to an absorber? | Energy |
| 12 | What do we know about all electromagnetic waves travelling through a vacuum? | They travel at the same speed |
| 13 | Name the waves in the electromagnetic spectrum. | Radio Microwaves Infrared Visible Ultraviolet (UV) X-ray Gamma |

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| 14 | Which wave in the EM spectrum has the longest wavelength? | Radio waves |
| 15 | Which wave in the EM spectrum has the shortest wavelength? | Gamma |
| 16 | Which wave in the EM spectrum is the only one detectable with our eyes? | Visible light |
| 17 | Which type of electromagnetic waves do hot objects give out? | Infrared |
| 18 | Which type of electromagnetic wave can be given out by an unstable nucleus of an atom? | Gamma |
| 19 | A Leslie cube can be used to determine the amount of which type of radiation emitted or absorbed by a surface? | Infrared |
| 20 | Which two surface properties does a Leslie cube compare? | Shiny Matt |
| 21 | On a Leslie cube, which surface properties emit the most radiation? | Matt black |
| 22 | On a Leslie cube, which surface properties absorb the most radiation? | Matt black |
| 23 | On a Leslie cube, which surface properties reflect the most radiation? | Shiny White |
| 24 | UV waves, X-rays and gamma rays can have hazardous effects on human body tissue. What two things do the effects on body tissue depend on? | Type of radiation Size of the dose |
| 25 | Name 2 effects that UV waves can have on skin? | Sunburn Skin cancer |
| 26 | What type of radiation are X-rays and gamma rays? | Ionising |
| 27 | What effect do X-rays and gamma rays have on body tissue? | Gene mutations and cancer |
| 28 | Give 2 uses of radiowaves. | TV and Radio signals |
| 29 | Give 2 uses of microwaves. | Cooking Satellite communication |
| 30 | Give 3 uses of infrared radiation. | Cooking Remote controls IR cameras |
| 31 | Give a use of visible light. | Fibre optics communication |
| 32 | Give 2 uses of UV waves. | Sun tan lamps / Sunbeds energy efficient lamps |
| 33 | Give 2 uses of X-rays and gamma rays. | Medical imaging Treatment e.g. kill cancer cells |

Part 7 - Magnetism

| No. | Question | Answer |
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| 1 | The region in which other magnets, magnetic materials and wires carrying a current experience a force is called a _____. | Magnetic field |
| 2 | Where is the magnetic field strongest? | At the poles |
| 3 | All magnets have two poles called, _____ and _____. | North and south |
| 4 | The strength of a magnetic field _____ with distance from the magnet. | Decreases |
| 5 | Which pole do magnetic field lines point away from? | North |
| 6 | Which pole do magnetic field lines point towards? | South |
| 7 | Like poles _____ and unlike poles _____. | Repel, attract |
| 8 | Induced magnets are magnetic materials that turn into magnets when they are in a _____. | Magnetic field |
| 9 | The force between permanent magnets and induced magnets is always _____. | Attractive |
| 10 | A _____ flowing through a conductor generates a magnetic field. | Current |
| 11 | The _____ hand thumb rule can show the direction of the field around a wire. | Right |
| 12 | The strength of the magnetic field generated by a current increases with the size of the _____ and decreases with _____ from the wire. | Current, distance |
| 13 | Bending a current carrying wire into a coil (solenoid) _____ the magnetic field strength. | Increases |
| 14 | Name three ways to increase the strength of the magnetic field of a solenoid. | More turns on coil More current Iron core |
| 15 | An electromagnet is a solenoid with an _____ core. | Iron |

TEST YOURSELF - Q&A List - GCSE Combined Science - Physics Paper 2

TEST YOURSELF - Part 5 - Forces

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| 4 | The force on an object is defines as the _____ or the _____ acting on the object. | |
| 5 | Is a force a scalar or a vector quantity? | |
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| 8 | Examples of contact forces are tension, the normal contact force. Give 2 others. | |
| 9 | Give the three examples of non-contact forces. | |
| 10 | Weight is the force acting on an object which is caused by ... | |
| 11 | The force of gravity close to the Earth's surface is caused by the _____ around the Earth. | |
| 12 | The weight of an object depends on the gravitational field _____ at the point where the object is. | |
| 13 | What is the equation to calculate the weight of an object? | |
| 14 | What are the standard units for Weight? | |
| 15 | What are the standard units for Mass? | |
| 16 | What units do we use for gravitational field strength? | |
| 17 | The weight of an object and the mass of an object are directly _____. | |
| 18 | The weight of an object acts at a single-point, called it's _____ | |
| 19 | We measure the weight of an object using a calibrated spring-balance, also called a _____ | |

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| 20 | A number of forces acting on an object can be replaced by a single force that has the same effect as all of the original forces. What do we call this single force? | |
| 21 | What is the equation to calculate the work done on an object? | |
| 22 | When work is done against friction then energy can be transferred to thermal energy stores. This causes a rise in what of the object and the surroundings? | |
| 23 | At least how many forces need to be applied to an object to stretch, compress or bend it? | |
| 24 | If a stretched object returns to its original size and shape once all forces have been removed. What type of deformation did it undergo? | |
| 25 | If a stretched object does not return to its original size and shape once all forces have been removed. What type of deformation did it undergo? | |
| 26 | The force applied to an elastic object is directly _____ to the extension of the object. | |
| 27 | What is the equation that relates the force applied to a spring, the spring constant, and its extension. | |
| 28 | When a force that stretches or compresses a spring, what type of energy is stored in the spring? | |
| 29 | What type of quantities are distance and speed? | |
| 30 | What type of quantities are velocity and displacement? | |
| 31 | What are typical speeds for a person walking, running and cycling? | |
| 32 | What is the speed of sound? | |
| 33 | What is the equation for the distance travelled by an object moving at a constant speed in a specific time? | |
| 34 | An object falling through a fluid initially accelerates because of _____. | |
| 35 | For the object in the fluid, eventually the resultant force will be zero and the object will move at its _____ velocity. | |
| 36 | If the resultant force acting on an object is zero and the object is stationary, then the object... | |
| 37 | Newton's second law says that acceleration is proportional to the _____ acting on the object, and inversely proportional to the _____ of the object. | |
| 38 | State the equation linking resultant force, mass and acceleration. | |
| 39 | Newton's third law tell us that when two objects interact, the forces they exert on each other are _____ and _____. | |

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| 40 | The total stopping distance for a vehicle is the sum of which two distances. | |
| 41 | Which distance is the distance travelled between the driver noticing a hazard and applying the brakes? | |
| 42 | Which distance is the distance travelled between the brakes being applied and the vehicle coming to a stop? | |
| 43 | Name two things, other than speed, that a person's reaction time can depend on. | |
| 44 | Name four things other than speed, that braking distance can depend on. | |

TEST YOURSELF - Part 6 - Waves

| No. | Question | Answer |
|-----|---|--------|
| 1 | Give an example of transverse waves | |
| 2 | Give an example of longitudinal waves. | |
| 3 | For transverse waves, what can we say about the direction of the vibrations and the direction of the energy transfer? | |
| 4 | For longitudinal waves, what can we say about the direction of the vibrations and the direction of the energy transfer? | |
| 5 | Which type of wave shows areas of compression and rarefaction? | |
| 6 | What quantity is the number of waves that pass a point each second? | |
| 7 | Wavespeed is the speed at which the _____ is transferred through the medium. | |
| 8 | What is the wave equation that links wave speed, frequency and wavelength? | |
| 9 | To find the speed of water waves we use a _____ tank. | |
| 10 | What type of waves are electromagnetic waves? | |
| 11 | What do they transfer from the source of the waves to an absorber? | |
| 12 | What do we know about all electromagnetic waves travelling through a vacuum? | |
| 13 | Name the waves in the electromagnetic spectrum. | |
| 14 | Which wave in the EM spectrum has the longest wavelength? | |

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| 15 | Which wave in the EM spectrum has the shortest wavelength? | |
| 16 | Which wave in the EM spectrum is the only one detectable with our eyes? | |
| 17 | Which type of electromagnetic waves do hot objects give out? | |
| 18 | Which type of electromagnetic wave can be given out by an unstable nucleus of an atom? | |
| 19 | A Leslie cube can be used to determine the amount of which type of radiation emitted or absorbed by a surface? | |
| 20 | Which two surface properties does a Leslie cube compare? | |
| 21 | On a Leslie cube, which surface properties emit the most radiation? | |
| 22 | On a Leslie cube, which surface properties absorb the most radiation? | |
| 23 | On a Leslie cube, which surface properties reflect the most radiation? | |
| 24 | UV waves, X-rays and gamma rays can have hazardous effects on human body tissue. What two things do the effects on body tissue depend on? | |
| 25 | Name 2 effects that UV waves can have on skin? | |
| 26 | What type of radiation are X-rays and gamma rays? | |
| 27 | What effect do X-rays and gamma rays have on body tissue? | |
| 28 | Give 2 uses of radiowaves. | |
| 29 | Give 2 uses of microwaves. | |
| 30 | Give 3 uses of infrared radiation. | |
| 31 | Give a use of visible light. | |
| 32 | Give 2 uses of UV waves. | |
| 33 | Give 2 uses of X-rays and gamma rays. | |

TEST YOURSELF - Part 7 - Magnetism

| No. | Question | Answer |
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| 1 | The region in which other magnets, magnetic materials and wires carrying a current experience a force is called a _____. | |
| 2 | Where is the magnetic field strongest? | |
| 3 | All magnets have two poles called, _____ and _____. | |
| 4 | The strength of a magnetic field _____ with distance from the magnet. | |
| 5 | Which pole do magnetic field lines point away from? | |
| 6 | Which pole do magnetic field lines point towards? | |
| 7 | Like poles _____ and unlike poles _____. | |
| 8 | Induced magnets are magnetic materials that turn into magnets when they are in a _____. | |
| 9 | The force between permanent magnets and induced magnets is always _____. | |
| 10 | A _____ flowing through a conductor generates a magnetic field. | |
| 11 | The _____ hand thumb rule can show the direction of the field around a wire. | |
| 12 | The strength of the magnetic field generated by a current increases with the size of the _____ and decreases with _____ from the wire. | |
| 13 | Bending a current carrying wire into a coil (solenoid) _____ the magnetic field strength. | |
| 14 | Name three ways to increase the strength of the magnetic field of a solenoid. | |
| 15 | An electromagnet is a solenoid with an _____ core. | |