**1st Semester Exam – Study Guide**

1. What is a force that opposes motion between two surfaces that are in contact?

a. friction c. velocity

b. motion d. acceleration

2. Which are the two factors that determine the amount of friction?

a. the force and the roughness of the surfaces

b. hills and valleys and the roughness of the surfaces

c. the force and how much surfaces come in contact

d. the force and the weight exerted on the surfaces

3. Which of these is opposed by sliding (kinetic) friction ?

a. a book sitting on a table c. a box sliding on a floor

b. a cat standing in a yard d. a child leaning on a building

4. Which of these is opposed by static friction?

a. a pencil rolling on a table c. a chair sliding on a floor

b. a dog running in a yard d. a worker pushing on a non-

moving box

5. In which of the following activities is friction helpful?

a. engine parts wearing out c. soil erosion

b. car tires moving a car forward d. holes developing in your socks

6. In which of the following activities is friction harmful?

a. brakes stopping a car c. an eraser erasing

b. a person walking d. car engine parts wearing out

7. Which would NOT be a way to reduce friction?

a. using ball bearings c. pouring sand on ice

b. using sandpaper d. lubricating with oil

8. Which of the following choices best represents force?

a. a push or a pull always causing motion

b. a push or a pull always causing acceleration

c. a push or a pull acting without an object

d. a push or a pull acting on an object

­­\_\_\_\_\_\_ 9. Friction occurs because of

a. the roughness of any object’s surface.

b. only the weights of any two objects.

c. only the masses of any two objects.

d. unbalanced forces.

10. In which situation is a person doing work on an object?

a. A school crossing guard raises a stop sign that weighs 10 N.

b. A student walks while wearing a backpack that weighs 15 N.

c. A man exerts 350 N force on a rope attached to a house.

d. A worker holds a box 1 m off the floor.

11. If a barbell weighs 160 N, what other information do you need to calculate how much work it takes to lift it?

a. the shape of the weights

b. how high the barbell is being lifted

c. the strength of the person doing the lifting

d. the amount of output force

12. Greg applies a force of 100 N to move a box 5 meters. How much work did he do?

a. 100 J

b. 500 J

c. 5 J

d. 500 N

13. An object at rest remains at rest, and an object in motion remains in motion at constant speed unless acted on by an unbalanced force.

a. Newton’s 3rd Law of Motion

b. Hooke’s Law

c. Newtons’s 1st Law of Motion

d. Newton’s 2nd Law of Motion

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| |  |  | | --- | --- | | \_\_\_\_\_\_\_14. | https://www65.studyisland.com/userfiles/FL8smwheelbarrow.jpg  Using a wheelbarrow can make it easier to lift a heavy object by... | |

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|  | |  |  | | --- | --- | | **A.** | increasing the amount of input force needed to lift the object. | |
|  | |  |  | | --- | --- | | **B.** | changing the direction of the input force. | |
|  | |  |  | | --- | --- | | **C.** | reducing the weight of the object. | |
|  | |  |  | | --- | --- | | **D.** | increasing the distance over which the input force is applied. | |

*15. From your study of sliding friction, the amount of surface area an object has which is in contact with a table has what affect on the effort force?*

*a. no affect, the effort force needed to pull an object is the same for all sizes of surface areas*

*b. the more surface area in contact with a table, the more effort force is needed to pull the object*

*16. Sliding friction is measured in what unit?*

*a. Newtons*

*b. Newton-meter*

*c. Joules*

*d. meters*

*17. Which surface has the most friction?*

*a. table top*

*b. wax paper*

*c. coarse sand paper*

*d. paper towel*

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| |  |  | | --- | --- | | \_\_\_\_\_\_ 18**.** | https://www65.studyisland.com/userfiles/FL8smdoorknob.jpg  A doorknob makes it easier to pull the door latch. How does a doorknob do this? | |

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|  | |  |  | | --- | --- | | **A.** | by reducing the distance over which the input force is applied | |
|  | |  |  | | --- | --- | | **B.** | by decreasing the amount of input force needed to pull the latch | |
|  | |  |  | | --- | --- | | **C.** | by changing the direction of the input force | |
|  | |  |  | | --- | --- | | **D.** | by increasing the amount of input force needed to pull the latch | |

*19. Which of the following best describes* subduction*?*

*a. movement of tectonic plates away from each other*

*b. movement of one tectonic plate against another*

*c. movement of one tectonic plate under another*

*d. side-by-side movement of two tectonic plates*

*\_\_\_\_\_ 20. Where are volcanoes most likely to form?*

*a. near the center of continents*

*b. along bodies of water*

c. along plate boundaries

d. in mountainous areas

\_\_\_\_\_ 21. Rock begins to melt when

a. both pressure and temperature decrease.

b. both pressure and temperature increase.

c. temperature increases and pressure decreases.

d. temperature decreases and pressure increases.

\_\_\_\_\_ 22. Most active volcanoes form

a. far from bodies of water.

b. where tectonic plates collide.

c. where tectonic plates separate.

d. where tectonic plates move back and forth.

\_\_\_\_\_ 23. When an oceanic plate collides with a continental plate, the oceanic plate is usually subducted because

a. continental plates move more quickly than oceanic plates.

b. oceanic crust is denser and thinner than continental crust.

c. oceanic crust is denser and thicker than continental crust.

d. continental crust is denser and thinner than oceanic crust.

\_\_\_\_\_ 24. The volcanoes of Hawaii and other places far from tectonic plate boundaries are known as

1. Calderas
2. hot spots
3. mid-ocean ridges.
4. viscous volcanoes.

25. What kind of deformation leads to earthquakes?

a. plastic deformation

b. elastic deformation

c. convergent deformation

d. shear deformation

26. Which of the following is NOT a fault that leads to an earthquake?

a. abnormal fault

b. normal fault

c. reverse fault

d. strike-slip fault

27. The waves of energy from earthquakes that travel through Earth are called

a. earthquake waves.

b. transform waves.

c. gap waves.

d. seismic waves.

28. The epicenter of an earthquake is the point on Earth’s surface

a. directly below the focus.

b. directly above the earthquake’s focus.

c. above the seismic gap.

d. where the damage is lightest.

29. Strike-slip faults are created by

a. convergent motion.

b. transform motion.

c. transcontinental motion.

d. divergent motion

30. What causes the ground to move during an earthquake?

a. elastic rebound

b. deformation

c. stress

d. plastic rebound

31. Primary seismic waves

a. are slower than secondary waves.

b. are the result of shearing forces in rock.

c. can travel through solids, liquids, and gases.

d. cause Earth’s surface to roll up and down.

32. Which seismic waves do the greatest damage?

a. surface waves

b. S waves

c. P waves

d. body waves

36. The difference between speed and velocity is that

a. velocity involves time, while speed does not.

b. speed involves time, while velocity does not.

c. velocity has direction, while speed does not.

d. speed has direction, while velocity does not.

37. To produce change in motion, a force must be a(n)

a. balanced force.

b. unbalanced force.

c. frictional force.

d. gravitational force.

\_\_\_\_\_ 38. A car travels 200 meters in 20 seconds. What is the car’s speed?

a. 100 m/s b. 400 m/s c.10 m/s d. 40 m/s

\_\_\_\_ 39. A jogger runs 100 meters in 50 seconds. What is the jogger’s speed?

a. 500 m/s b. 2 m/s c. .5 m/s d. 50 m/s

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| |  |  | | --- | --- | | **40.** | 69733Lever  Dean needs to lift the rock shown in the picture above. He wants to use the lever to lift the rock while using the least amount of effort force.   At which position should Dean push on the lever? | |

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| bubble | elect answer  A**A.** | position Z |
| bubble | elect answer B**B.** | position X |
| bubble | elect answer C**C.** | position W |
| bubble | elect answer D**D.** | position Y |

41. When a mover puts furniture on wheels, which type of friction is the mover using to make the job easier?

a. static friction

b. sliding kinetic friction

c. rolling kinetic friction

d. gravitational friction

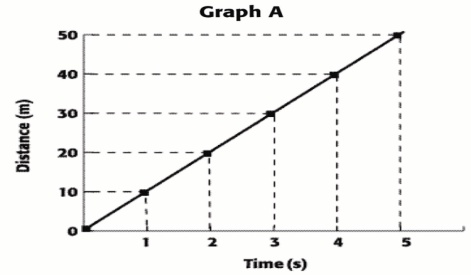
42. How does a ramp make lifting a heavy object easier?

a. The object is moved over a shorter distance.

b. The ramp increases the amount of work you do.

c. Less force is needed to move the object over a longer distance.

d. More force is needed to move the object over a longer distance.



43. Graph A shows distance traveled during a bicycle race. Because the upward slope on Graph A is straight and objects do not normally travel at a constant rate, what does it MOST likely represent?

a. average acceleration c. average speed

b. actual acceleration d. actual speed

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| |  |  | | --- | --- | | **44.** | Tom needs to load a tire into a moving truck using an inclined plane. He has two boards—one that is 6 feet long and another that is 12 feet long. Tom wants to use the board that will allow him to push the tire into the truck with less effort force..   Which of the following pictures shows the board that he should use?  69733plane | |  |  | |

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| bubble | elect answer A**A.** | Both boards will require Tom to use the same amount of effort force. |
| bubble | elect answer  B**B.** | Image Y shows the board that Tom should use. |
| bubble | elect answer C**C.** | Image X shows the board that Tom should use. |
| bubble | elect answer D**D.** | Neither board requires that Tom use effort force to push the tire. |

\_\_\_\_\_\_45. The amount of matter an object has is its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. weight b. force c. mass d. gram

\_\_\_\_\_\_\_ 46. \_\_\_\_\_\_\_\_ is the measure of the gravitational force on an object.

1. weight b. force c. mass d. grams

\_\_\_\_\_\_\_ 47. Units of measure that are used by scientists all over the world.

a. the English System b. Queen Elizabeth’s System

c. International System of Units

\_\_\_\_\_\_\_ 48. The law which states that for every action there is an equal and opposite reaction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Hooke’s Law b. Newton’s Second Law of Motion

c. Newton’s Third Law of Motion

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| |  |  | | --- | --- | | \_\_\_\_\_\_\_\_49**.** | A longitudinal sound wave is traveling through the air. The particles of the air move parallel to the wave itself.  The air is an example of \_\_\_\_\_\_\_, through which the sound wave travels. | |

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|  | |  |  | | --- | --- | | **A.** | a solid | |
|  | |  |  | | --- | --- | | **B.** | a surface | |
|  | |  |  | | --- | --- | | **C.** | a medium | |
|  | |  |  | | --- | --- | | **D.** | a barrier | |
| |  |  | | --- | --- | | \_\_\_\_\_\_50**.** | Most tectonic plates move at rates of | | |

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|  | |  |  | | --- | --- | | **A.** | centimeters per second. | |
|  | |  |  | | --- | --- | | **B.** | meters per year. | |
|  | |  |  | | --- | --- | | **C.** | centimeters per year. | |
|  | |  |  | | --- | --- | | **D.** | meters per second. | |

\_\_\_\_\_\_\_51. Hitting a baseball is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. Hooke’s Law b. Newton’s Second Law of Motion

c.Newton’s Third Law of Motion

52. A wave can make a leaf bob up and down on the water, but it cannot move the leaf toward the shore. This is because waves only transfer

a. matter.

b. energy.

c. media.

d. crests.

53. Which of these waves does NOT require a medium?

a. ocean waves

b. seismic waves

c. sound waves

d. radio waves

54. Which of the following is NOT a property of a wave?

a. refraction

b. amplitude

c. frequency

d. wavelength

55. How do waves transfer energy?

a. through ocean waves

b. by the vibration of particles in a medium

c. through compression

d. by a combination of waves

56. A section of a longitudinal wave where the particles are crowded together is called a

a. rarefaction.

b. compression.

c. vibration

d. surface wave.

57. As the wavelength increases, the frequency

a. decreases. c. remains the same.

b. increases. d. increases and then decreases.

58. Waves transfer

a. matter. c. particles.

b. energy. d. water.

\_\_\_\_\_ 59. What is the outermost layer of the Earth called?

a. core

b. lithosphere

c. asthenosphere

d. mesosphere

\_\_\_\_\_ 60. What is the liquid layer of the Earth’s core called?

a. lithosphere

b. mesosphere

c. inner core

d. outer core

\_\_\_\_\_ 61. What type of fault usually occurs because of tension?

a. folded

b. normal

c. strike-slip

d. reverse

\_\_\_\_\_ 62. What type of fault usually occurs because of compression?

a. folded

b. normal

c. strike-slip

d. reverse

\_\_\_\_\_ 63. In a reverse fault, where does the hanging wall move relative to the

footwall?

a. upward

b. downward

c. horizontally

d. stays the same

\_\_\_\_\_ 64. In a normal fault, where does the hanging wall move relative to the

footwall?

a. upward

b. downward

c. horizontally

d. stays the same

\_\_\_\_\_ 65. What kind of force can lead to mountains with sharp, jagged peaks?

a. tension

b. compression

c. stress

d. rebound

\_\_\_\_\_ 66. What is the area where two tectonic plates meet called?

a. collision

b. a mid-ocean ridge

c. a boundary

d. a rift zone

\_\_\_\_\_ 67. What type of boundary is formed when plates collide?

a. convergent

b. horizontal

c. divergent

d. transform

\_\_\_\_\_ 68. What type of boundary is formed when plates separate?

a. convergent

b. horizontal

c. divergent

d. transform

\_\_\_\_\_ 69. What type of boundary is formed when plates slide past each other?

a. convergent

b. horizontal

c. divergent

d. transform

\_\_\_\_\_ 70. Which of these did NOT provide evidence for continental drift?

a. sea-floor spreading

b. oceanic plate theory

c. the fossil record

d. magnetic reversals

\_\_\_\_\_ 71. According to the continental drift theory, a single, huge continent once

existed called

a. Pangaea.

b. Wegener.

c. Panthalassa.

d. Eurasia.

\_\_\_\_\_ 72. Where does sea-floor spreading take place?

a. convergent boundaries

b. transform boundaries

c. oceanic volcanoes

d. mid-ocean ridges

73. The wave property that is related to the height of a wave is the

a. wavelength. c. frequency.

b. amplitude. d. wave speed.

\_\_\_\_\_\_\_ 74. The mantle is denser than the crust because it contains more

a. iron. c. silicon.

b. magnesium. d. oxygen.

\_\_\_\_\_ 75. The core consists mainly of

a. iron. c. silicon.

b. magnesium. d. oxygen

\_\_\_\_\_ 76. Seismic waves travel through Earth’s layers at different speeds

depending on the

a. density. c. area.

b. mass. d. shape.

\_\_\_\_\_ 77. Mountains formed by magma that reach the Earth’s surface are

a. slip-strike.

b. folded.

c. fault-block.

d. volcanic.

\_\_\_\_\_ 78. The fact that similar fossils are found on both sides of the ocean is

evidence of

a. global positioning.

b. magnetic reversal.

c. continental drift.

d. oceanic drifts.

\_\_\_\_\_ 79. Sets of deep cracks that form between two tectonic plates that are

pulling away from each other are known as

a. mid-ocean ridges.

b. troughs.

c. clefts.

d. rift zones.

\_\_\_\_\_ 80 . Most earthquakes happen at the edges of

a. tectonic plates. c. earthquake zones.

b. elastic deformations. d. shear waves.

\_\_\_\_\_ 81. Which of the following is NOT a type of plate motion?

a. transform motion c. divergent motion

b. convergent motion d. rebound motion

\_\_\_\_\_ 82. A break in Earth’s crust along which blocks of crust slide relative to

one another is

a. a plate. c. a fault.

b. a deformation. d. an earthquake.

\_\_\_\_\_ 83. Which of the following is a type of body wave?

a. shear wave c. reverse wave

b. surface wave d. transform wave

\_\_\_\_\_ 85. Volcanic activity is common along the Mid-Atlantic Ridge. This

activity occurs at a

a. mantle plume.

b. subducted plane.

c. divergent boundary.

d. break in the continental crust.

\_\_\_\_\_ 86. Magma forms within the mantle most often as a result of

a. high temperature and high pressure.

b. high temperature and low pressure.

c. low temperature and high pressure.

d. low temperature and low pressure.

\_\_\_\_\_ 87. At divergent plate boundaries,

a. heat from Earth’s core causes mantle plumes.

b. oceanic plates sink, which causes magma to form.

c. tectonic plates move apart.

d. hot spots cause volcanoes.

\_\_\_\_\_88. A theory that helps explain the causes of both earthquakes and

volcanoes is the theory of

a. pyroclastics. c. climactic fluctuation.

b. plate tectonics. d. mantle plumes.

\_\_\_\_\_ 89. When rock is \_\_\_\_\_, energy builds up in it. Seismic waves occur as this

energy is \_\_\_\_\_.

a. plastically deformed, increased

b. elastically deformed, released

c. plastically deformed, released

d. elastically deformed, increased

\_\_\_\_\_ 90. Reverse faults are created

a. by divergent plate motion. c. by transform plate motion.

b. by convergent plate motion. d. All of the above

\_\_\_\_\_ 91. The last seismic waves to arrive are

a. P waves. c. S waves.

b. body waves. d. surface waves.

\_\_\_\_\_ 92. The strong, lower part of the mantle is a physical layer called the

a. lithosphere.

b. mesosphere.

c. asthenosphere.

d. outer core.

\_\_\_\_\_ 93. The type of tectonic plate boundary that forms from a collision between

two tectonic plates is a

a. divergent plate boundary.

b. transform plate boundary.

c. convergent plate boundary.

d. normal plate boundary.

\_\_\_\_\_ 94. The bending of rock layers due to stress in the Earth’s crust is known as

a. uplift. c. faulting.

b. folding. d. subsidence.

\_\_\_\_\_ 95. The type of mountain that forms when rock layers are squeezed

together and pushed upward is a

a. folded mountain. c. volcanic mountain.

b. fault-block mountain. d. strike-slip mountain.

\_\_\_\_\_ 96. Scientists’ knowledge of the Earth’s interior has come primarily from

a. studying magnetic reversals in oceanic crust.

b. using a system of satellites called the *global positioning system.*

c. studying seismic waves generated by earthquakes.

d. studying the pattern of fossils on different continents.

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **\_\_\_\_\_\_\_97.** | Which of the pulley systems shown below will lift the weight using the least amount of effort force?   |  |  | | --- | --- | | https://www65.studyisland.com/pics/69733ca.gif **W.** | https://www65.studyisland.com/pics/69733FixedPulley.gif **X.** | | https://www65.studyisland.com/pics/69733threefixed2.gif **Y.** | https://www65.studyisland.com/pics/69733FixedPulley2.gif **Z.** | | |

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|  | |  |  | | --- | --- | | **A.** | X | | |
|  | |  |  | | --- | --- | | **B.** | Y | | |
|  | |  |  | | --- | --- | | **C.** | Z | | |
|  | |  |  | | --- | --- | | **D.** | W | | |
| |  |  | | --- | --- | | **\_\_\_\_\_\_\_98.** | https://www65.studyisland.com/pics/69733lever2000.gif  Which of the following correctly explains why one of the above levers can lift the object with less effort force? | | |

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|  | | |  |  | | --- | --- | | **A.** | Lever X is a third-class lever and will require less effort force than lever Y, which is a second-class lever. | | |
|  | | |  |  | | --- | --- | | **B.** | Lever Y will require less effort force because its fulcrum is closer to the input force than lever X's fulcrum. | | |
|  | | |  |  | | --- | --- | | **C.** | Lever Y is a third-class lever and will require less effort force than lever X, which is a second-class lever. | | |
|  | | |  |  | | --- | --- | | **D.** | Lever X will require less effort force because its fulcrum is closer to the object than lever Y's fulcrum. | | |
| |  |  | | --- | --- | | \_\_\_\_\_\_\_99. | https://www65.studyisland.com/userfiles/TX7smlever1.gif  In the drawing above, the hammer is acting as what type of simple machine? | | |

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|  | |  |  | | --- | --- | | **A.** | screw | |
|  | |  |  | | --- | --- | | **B.** | pulley | |
|  | |  |  | | --- | --- | | **C.** | wheel and axle | |
|  | |  |  | | --- | --- | | **D.** | lever | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **\_\_\_\_\_\_\_100.** | Which of the screws below requires the least amount of effort force to turn?   |  |  | | --- | --- | | https://www65.studyisland.com/pics/69733Screw2.png **W.** | https://www65.studyisland.com/pics/69733Screw4.png **X.** | | https://www65.studyisland.com/pics/69733Screw3.png **Y.** | https://www65.studyisland.com/pics/69733Screw1.png **Z.** | | | |

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|  | |  |  | | --- | --- | | **A.** | Z | |
|  | |  |  | | --- | --- | | **B.** | Y | |