The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
PHYSICS

Thursday, January 24, 2008 — 1:15 to 4:15 p.m., only

The answer sheet for Part A and Part B–1 is the last page of this examination booklet. Turn to the last page and fold it along the perforations. Then, slowly and carefully, tear off the answer sheet and fill in the heading.

The answers to the questions in Part B–2 and Part C are to be written in your separate answer booklet. Be sure to fill in the heading on the front of your answer booklet.

You are to answer *all* questions in all parts of this examination according to the directions provided in the examination booklet. Record your answers to the Part A and Part B–1 multiple-choice questions on your separate answer sheet. Write your answers to the Part B–2 and Part C questions in your answer booklet. All work should be written in pen, except for graphs and drawings, which should be done in pencil. You may use scrap paper to work out the answers to the questions, but be sure to record all your answers on the answer sheet and in the answer booklet.

When you have completed the examination, you must sign the statement printed at the end of your separate answer sheet, indicating that you had no unlawful knowledge of the questions or answers prior to the examination and that you have neither given nor received assistance in answering any of the questions during the examination. Your answer sheet and answer booklet cannot be accepted if you fail to sign this declaration.

Notice. . .

A scientific or graphing calculator, a centimeter ruler, a protractor, and a copy of the *2006 Edition Reference Tables for Physical Setting/Physics*, which you may need to answer some questions in this examination, must be available for your use while taking this examination.

The use of any communications device is strictly prohibited when taking this examination. If you use any communications device, no matter how briefly, your examination will be invalidated and no score will be calculated for you.

DO NOT OPEN THIS EXAMINATION BOOKLET UNTIL THE SIGNAL IS GIVEN.

Part A

Answer all questions in this part.

Directions (1–35): For *each* statement or question, write on the separate answer sheet the *number* of the word or expression that, of those given, best completes the statement or answers the question.

1 Which is a vector quantity?

(1) speed
(2) work
(3) mass
(4) displacement

2 A race car starting from rest accelerates uniformly at a rate of 4.90 meters per second^2. What is the car's speed after it has traveled 200. meters?

(1) 1960 m/s
(2) 62.6 m/s
(3) 44.3 m/s
(4) 31.3 m/s

3 A ball is thrown straight downward with a speed of 0.50 meter per second from a height of 4.0 meters. What is the speed of the ball 0.70 second after it is released? [Neglect friction.]

(1) 0.50 m/s
(2) 7.4 m/s
(3) 9.8 m/s
(4) 15 m/s

4 A soccer player kicks a ball with an initial velocity of 10. meters per second at an angle of 30.° above the horizontal. The magnitude of the horizontal component of the ball's initial velocity is

(1) 5.0 m/s
(2) 8.7 m/s
(3) 9.8 m/s
(4) 10. m/s

5 Which object has the greatest inertia?

(1) a 5.00-kg mass moving at 10.0 m/s
(2) a 10.0-kg mass moving at 1.00 m/s
(3) a 15.0-kg mass moving at 10.0 m/s
(4) a 20.0-kg mass moving at 1.00 m/s

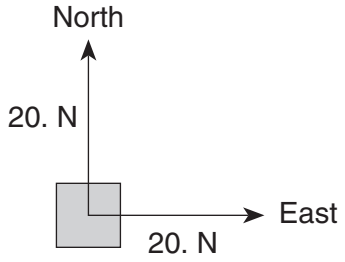
6 A 60.-kilogram physics student would weigh 1560 newtons on the surface of planet *X*. What is the magnitude of the acceleration due to gravity on the surface of planet *X*?

(1) 0.038 m/s^2
(2) 6.1 m/s^2
(3) 9.8 m/s^2
(4) 26 m/s^2

7 Two spheres, *A* and *B*, are simultaneously projected horizontally from the top of a tower. Sphere *A* has a horizontal speed of 40. meters per second and sphere *B* has a horizontal speed of 20. meters per second. Which statement best describes the time required for the spheres to reach the ground and the horizontal distance they travel? [Neglect friction and assume the ground is level.]

(1) Both spheres hit the ground at the same time and at the same distance from the base of the tower.
(2) Both spheres hit the ground at the same time, but sphere *A* lands twice as far as sphere *B* from the base of the tower.
(3) Both spheres hit the ground at the same time, but sphere *B* lands twice as far as sphere *A* from the base of the tower.
(4) Sphere *A* hits the ground before sphere *B*, and sphere *A* lands twice as far as sphere *B* from the base of the tower.

8 In the diagram below, a 20.-newton force due north and a 20.-newton force due east act concurrently on an object, as shown in the diagram below.



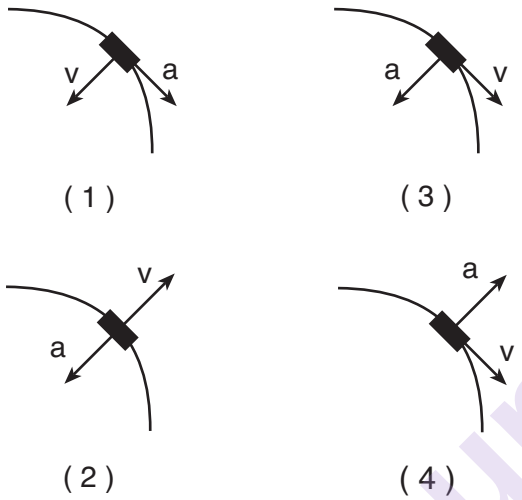
The additional force necessary to bring the object into a state of equilibrium is

(1) 20. N, northeast
(2) 20. N, southwest
(3) 28 N, northeast
(4) 28 N, southwest

9 A car's performance is tested on various horizontal road surfaces. The brakes are applied, causing the rubber tires of the car to slide along the road without rolling. The tires encounter the greatest force of friction to stop the car on

(1) dry concrete
(2) dry asphalt
(3) wet concrete
(4) wet asphalt

10 A car rounds a horizontal curve of constant radius at a constant speed. Which diagram best represents the directions of both the car's velocity, v, and acceleration, a?



11 A 6.0-kilogram block, sliding to the east across a horizontal, frictionless surface with a momentum of 30. kilogram•meters per second, strikes an obstacle. The obstacle exerts an impulse of 10. newton•seconds to the west on the block. The speed of the block after the collision is

(1) 1.7 m/s
(2) 3.3 m/s
(3) 5.0 m/s
(4) 20. m/s

12 If a 65-kilogram astronaut exerts a force with a magnitude of 50. newtons on a satellite that she is repairing, the magnitude of the force that the satellite exerts on her is

(1) 0 N
(2) 50. N less than her weight
(3) 50. N more than her weight
(4) 50. N

13 A 1.0-kilogram laboratory cart moving with a velocity of 0.50 meter per second due east collides with and sticks to a similar cart initially at rest. After the collision, the two carts move off together with a velocity of 0.25 meter per second due east. The total momentum of this frictionless system is

(1) zero before the collision
(2) zero after the collision
(3) the same before and after the collision
(4) greater before the collision than after the collision

14 Student *A* lifts a 50.-newton box from the floor to a height of 0.40 meter in 2.0 seconds. Student *B* lifts a 40.-newton box from the floor to a height of 0.50 meter in 1.0 second. Compared to student *A*, student *B* does

(1) the same work but develops more power
(2) the same work but develops less power
(3) more work but develops less power
(4) less work but develops more power

15 While riding a chairlift, a 55-kilogram skier is raised a vertical distance of 370 meters. What is the total change in the skier's gravitational potential energy?

(1) 5.4×10^1 J
(2) 5.4×10^2 J
(3) 2.0×10^4 J
(4) 2.0×10^5 J

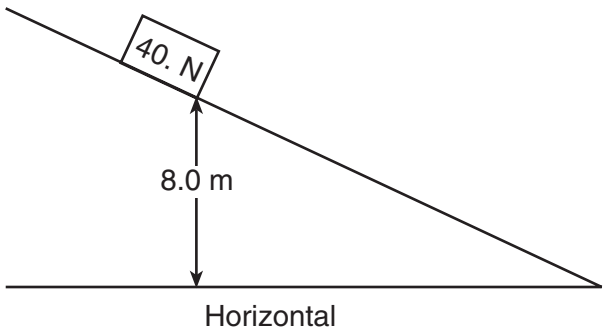
16 The work done on a slingshot is 40.0 joules to pull back a 0.10-kilogram stone. If the slingshot projects the stone straight up in the air, what is the maximum height to which the stone will rise? [Neglect friction.]

(1) 0.41 m
(2) 41 m
(3) 410 m
(4) 4.1 m

17 A 0.686-meter-long wire has a cross-sectional area of 8.23×10^{-6} meter^2 and a resistance of 0.125 ohm at 20° Celsius. This wire could be made of

(1) aluminum
(2) copper
(3) nichrome
(4) tungsten

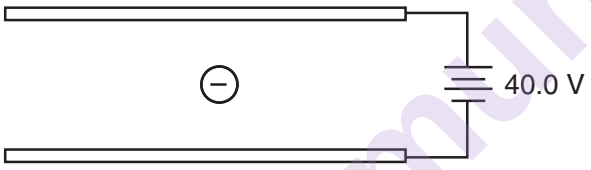
18 A block weighing 40. newtons is released from rest on an incline 8.0 meters above the horizontal, as shown in the diagram below.



If 50. joules of heat is generated as the block slides down the incline, the maximum kinetic energy of the block at the bottom of the incline is

(1) 50. J
(2) 270 J
(3) 320 J
(4) 3100 J

19 The diagram below represents an electron within an electric field between two parallel plates that are charged with a potential difference of 40.0 volts.



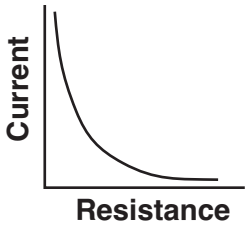
If the magnitude of the electric force on the electron is 2.00×10^{-15} newton, the magnitude of the electric field strength between the charged plates is

(1) 3.20×10^{-34} N/C
(2) 2.00×10^{-14} N/C
(3) 1.25×10^{4} N/C
(4) 2.00×10^{16} N/C

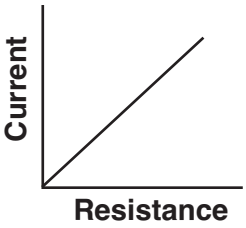
20 A circuit consists of a 10.0-ohm resistor, a 15.0-ohm resistor, and a 20.0-ohm resistor connected in parallel across a 9.00-volt battery. What is the equivalent resistance of this circuit?

(1) 0.200 Ω
(2) 1.95 Ω
(3) 4.62 Ω
(4) 45.0 Ω

21 An electric circuit contains a variable resistor connected to a source of constant potential difference. Which graph best represents the relationship between current and resistance in this circuit?



(1)



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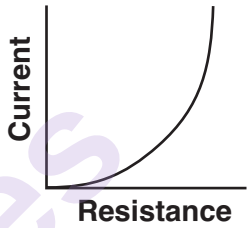

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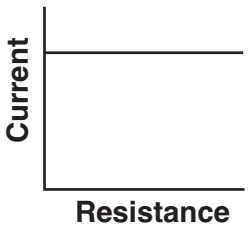
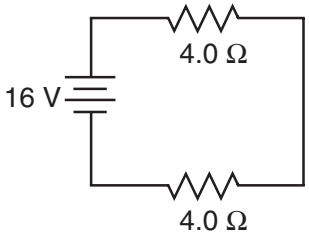


(4)

22 In the circuit diagram below, two 4.0-ohm resistors are connected to a 16-volt battery as shown.



The rate at which electrical energy is expended in this circuit is

(1) 8.0 W
(2) 16 W
(3) 32 W
(4) 64 W

23 Increasing the amplitude of a sound wave produces a sound with

(1) lower speed
(2) higher pitch
(3) shorter wavelength
(4) greater loudness

24 The product of a wave's frequency and its period is

(1) one
(2) its velocity
(3) its wavelength
(4) Planck's constant

25 A periodic wave having a frequency of 5.0 hertz and a speed of 10. meters per second has a wavelength of

(1) 0.50 m
(2) 2.0 m
(3) 5.0 m
(4) 50. m

26 An electromagnetic wave traveling through a vacuum has a wavelength of 1.5×10^{-1} meter. What is the period of this electromagnetic wave?

(1) 5.0×10^{-10} s
(2) 1.5×10^{-1} s
(3) 4.5×10^{7} s
(4) 2.0×10^{9} s

27 A ray of light ($f = 5.09 \times 10^{14}$ Hz) traveling in air strikes a block of sodium chloride at an angle of incidence of 30.°. What is the angle of refraction for the light ray in the sodium chloride?

(1) 19°
(2) 25°
(3) 40.°
(4) 49°

28 The speed of a ray of light traveling through a substance having an absolute index of refraction of 1.1 is

(1) 1.1×10^{8} m/s
(2) 2.7×10^{8} m/s
(3) 3.0×10^{8} m/s
(4) 3.3×10^{8} m/s

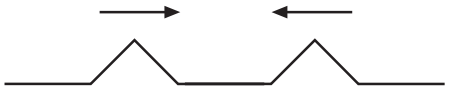
29 Resonance occurs when one vibrating object transfers energy to a second object causing it to vibrate. The energy transfer is most efficient when, compared to the first object, the second object has the same natural

(1) frequency
(2) loudness
(3) amplitude
(4) speed

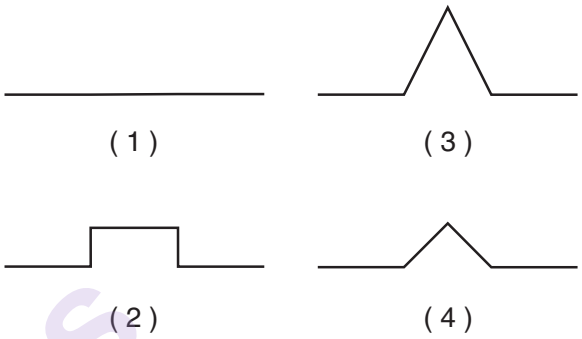
30 A subatomic particle could have a charge of

(1) 5.0×10^{-20} C
(2) 8.0×10^{-20} C
(3) 3.2×10^{-19} C
(4) 5.0×10^{-19} C

31 Two pulses traveling in the same uniform medium approach each other, as shown in the diagram below.



Which diagram best represents the superposition of the two pulses?



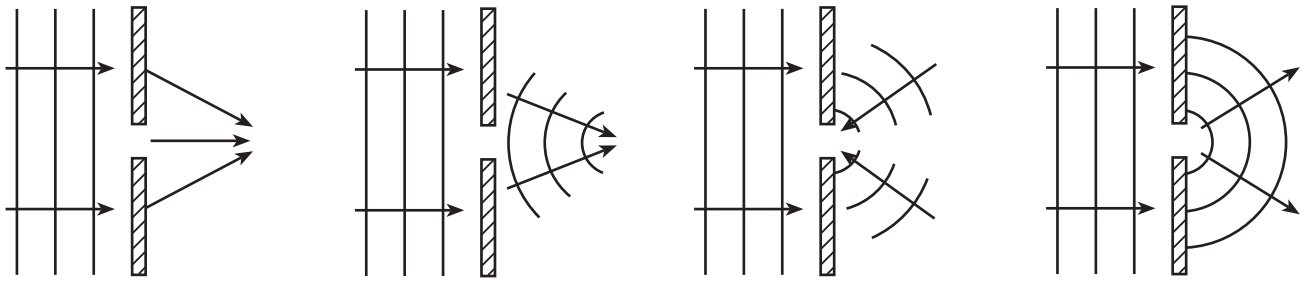
32 A police car traveling at a speed of 30.0 meters per second sounds its siren, which has a frequency of 1.00×10^{3} hertz. As the police car approaches a stationary pedestrian, the pedestrian detects a siren frequency of

(1) 30.0 Hz
(2) 9.19×10^{2} Hz
(3) 1.00×10^{3} Hz
(4) 1.10×10^{3} Hz

33 A variable-frequency light source emits a series of photons. As the frequency of the photon increases, what happens to the energy and wavelength of the photon?

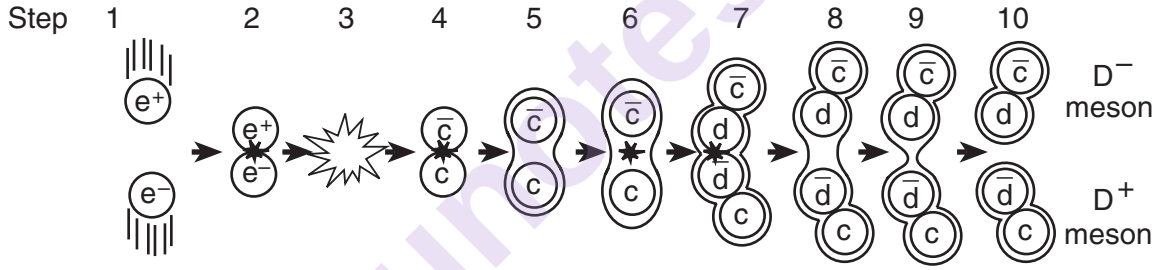
(1) The energy decreases and the wavelength decreases.
(2) The energy decreases and the wavelength increases.
(3) The energy increases and the wavelength decreases.
(4) The energy increases and the wavelength increases.

34 Which diagram best represents the shape and direction of a series of wave fronts after they have passed through a small opening in a barrier?



(1) (2) (3) (4)

35 The diagram below represents the sequence of events (steps 1 through 10) resulting in the production of a D^- meson and a D^+ meson. An electron and a positron (antielectron) collide (step 1), annihilate each other (step 2), and become energy (step 3). This energy produces an anticharm quark and a charm quark (step 4), which then split apart (steps 5 through 7). As they split, a down quark and an antidown quark are formed, leading to the final production of a D^- meson and a D^+ meson (steps 8 through 10).



Adapted from: Electon/Positron Annihilation http:/www.particleadventure.org/frameless/eedd.html 7/23/2007

Which statement best describes the changes that occur in this sequence of events?

(1) Energy is converted into matter and then matter is converted into energy.
(2) Matter is converted into energy and then energy is converted into matter.
(3) Isolated quarks are being formed from baryons.
(4) Hadrons are being converted into leptons.

Part B–1

Answer all questions in this part.

Directions (36–49): For *each* statement or question, write on the separate answer sheet the *number* of the word or expression that, of those given, best completes the statement or answers the question.

36 A joule is equivalent to a

(1) N•m
(2) N•s
(3) N/m
(4) N/s

37 The weight of a chicken egg is most nearly equal to

(1) 10^{-3} N
(2) 10^{-2} N
(3) 10^{0} N
(4) 10^{2} N

38 Two forces act concurrently on an object. Their resultant force has the largest magnitude when the angle between the forces is

(1) 0°
(2) 30°
(3) 90°
(4) 180°

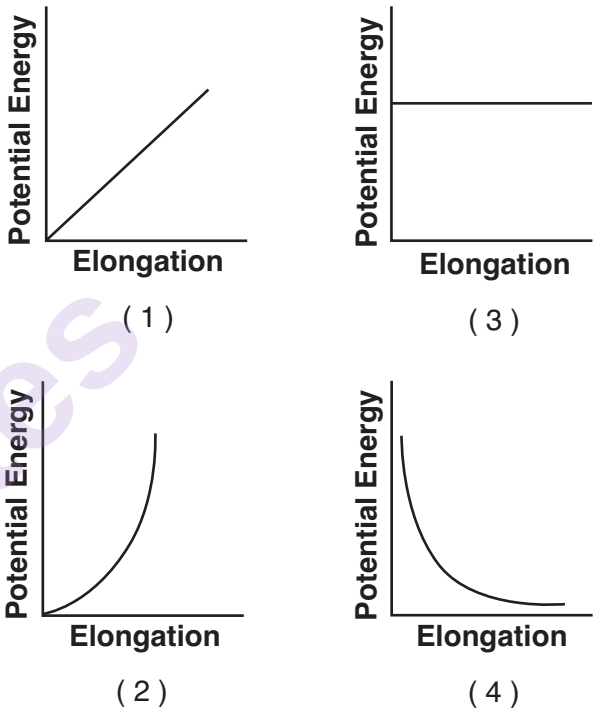
39 A bicycle and its rider have a combined mass of 80. kilograms and a speed of 6.0 meters per second. What is the magnitude of the average force needed to bring the bicycle and its rider to a stop in 4.0 seconds?

(1) 1.2×10^{2} N
(2) 3.2×10^{2} N
(3) 4.8×10^{2} N
(4) 1.9×10^{3} N

40 Gravitational forces differ from electrostatic forces in that gravitational forces are

(1) attractive, only
(2) repulsive, only
(3) neither attractive nor repulsive
(4) both attractive and repulsive

41 Which graph best represents the relationship between the elastic potential energy stored in a spring and its elongation from equilibrium?

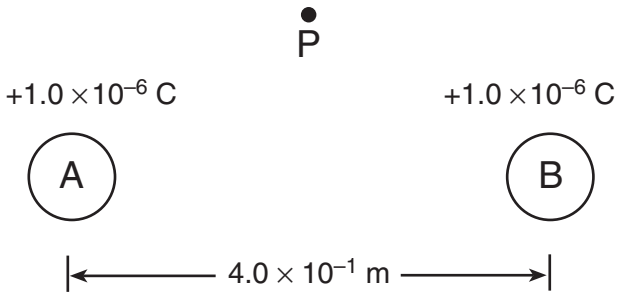


42 A car with mass m possesses momentum of magnitude p. Which expression correctly represents the kinetic energy, KE, of the car in terms of m and p?

(1) $KE = \frac{1}{2}\frac{p}{m}$
(2) $KE = \frac{1}{2}mp^{2}$
(3) $KE = \frac{1}{2}mp$
(4) $KE = \frac{1}{2}\frac{p^{2}}{m}$

Base your answers to questions 43 and 44 on the information and diagram below.

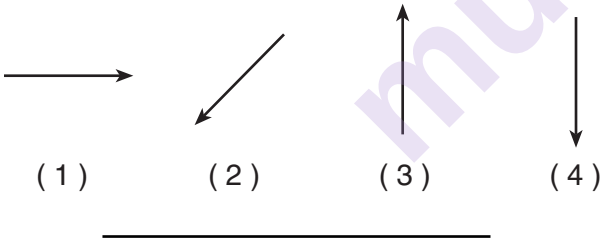
Two small metallic spheres, *A* and *B*, are separated by a distance of 4.0×10^{-1} meter, as shown. The charge on each sphere is $+1.0 \times 10^{-6}$ coulomb. Point *P* is located near the spheres.



43 What is the magnitude of the electrostatic force between the two charged spheres?

(1) 2.2×10^{-2} N
(2) 5.6×10^{-2} N
(3) 2.2×10^{4} N
(4) 5.6×10^{4} N

44 Which arrow best represents the direction of the resultant electric field at point *P* due to the charges on spheres *A* and *B*?



45 A particle unaffected by an electric field could have a quark composition of

(1) *css*
(2) *bbb*
(3) *udc*
(4) *uud*

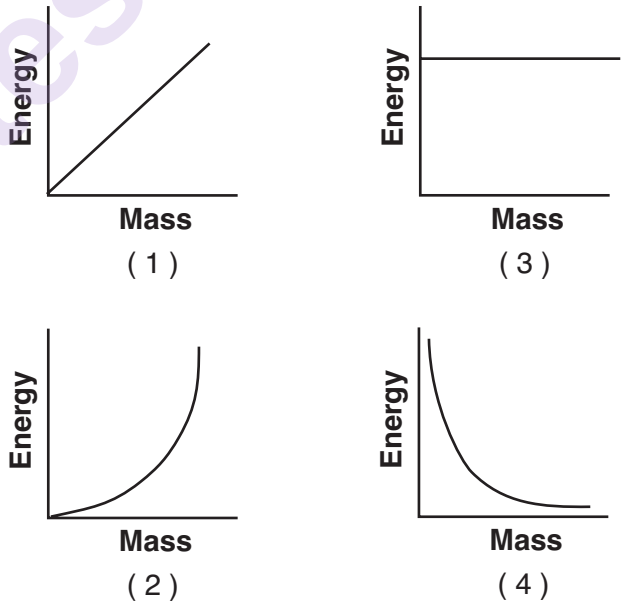
46 An electrical appliance draws 9.0 amperes of current when connected to a 120-volt source of potential difference. What is the total amount of power dissipated by this appliance?

(1) 13 W
(2) 110 W
(3) 130 W
(4) 1100 W

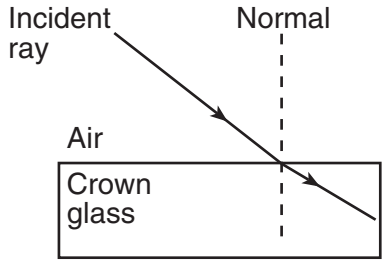
47 A sound wave has a wavelength of 5.5 meters as it travels through air at STP. What is the wavelength of this sound in a medium where its speed is 1324 meters per second?

(1) 1.4 m
(2) 2.2 m
(3) 14 m
(4) 22 m

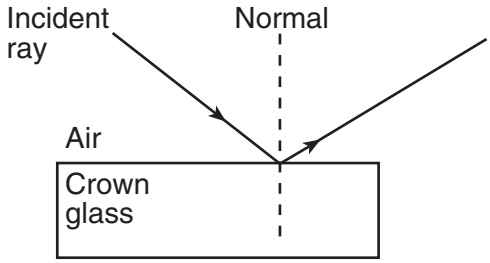
48 Which graph best represents the relationship between energy and mass when matter is converted into energy?



49 Which diagram best represents the behavior of a ray of monochromatic light in air incident on a block of crown glass?



(1)



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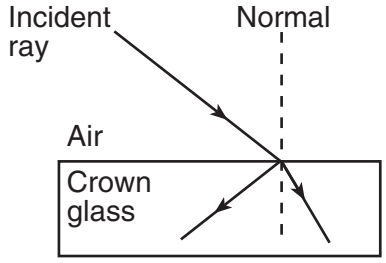

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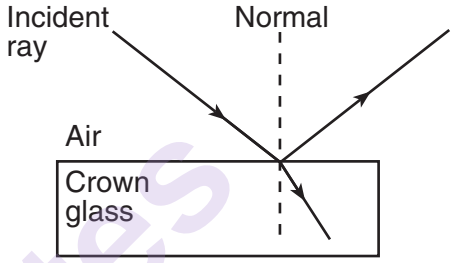


(4)

Part B–2

Answer all questions in this part.

Directions (50–62): Record your answers in the spaces provided in your answer booklet.

50 A spring in a toy car is compressed a distance, x. When released, the spring returns to its original length, transferring its energy to the car. Consequently, the car having mass m moves with speed v.

Derive the spring constant, k, of the car's spring in terms of m, x, and v. [Assume an ideal mechanical system with no loss of energy.] [Show all work, including the equations used to derive the spring constant.] [2]

Base your answers to questions 51 and 52 on the information below.

A 75-kilogram athlete jogs 1.8 kilometers along a straight road in 1.2×10^3 seconds.

51 Determine the average speed of the athlete in meters per second. [1]

52 Calculate the average kinetic energy of the athlete. [Show all work, including the equation and substitution with units.] [2]

Base your answers to questions 53 and 54 on the information below.

A copper wire at 20°C has a length of 10.0 meters and a cross-sectional area of 1.00×10^{-3} meter^2. The wire is stretched, becomes longer and thinner, and returns to 20°C.

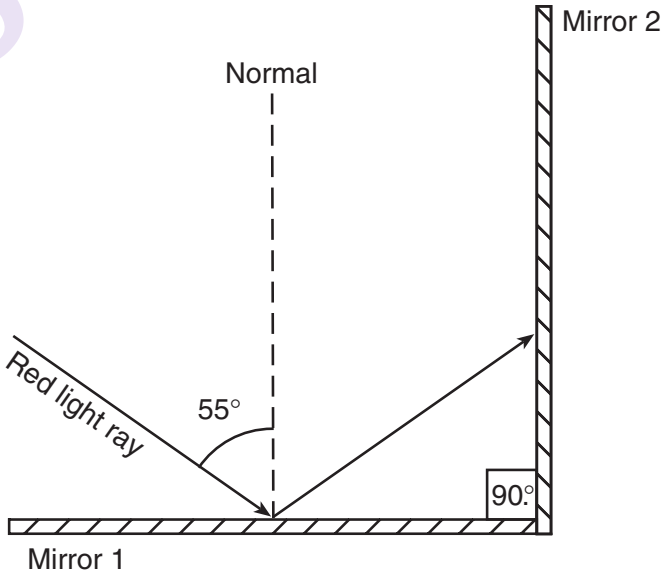
53 What effect does this stretching have on the wire's resistance? [1]

54 What effect does this stretching have on the wire's resistivity? [1]

55 A car, initially traveling at 30. meters per second, slows uniformly as it skids to a stop after the brakes are applied. On the axes *in your answer booklet*, sketch a graph showing the relationship between the kinetic energy of the car as it is being brought to a stop and the work done by friction in stopping the car. [1]

Base your answers to questions 56 and 57 on the information and diagram below.

Two plane mirrors are positioned perpendicular to each other as shown. A ray of monochromatic red light is incident on mirror 1 at an angle of 55°. This ray is reflected from mirror 1 and then strikes mirror 2.

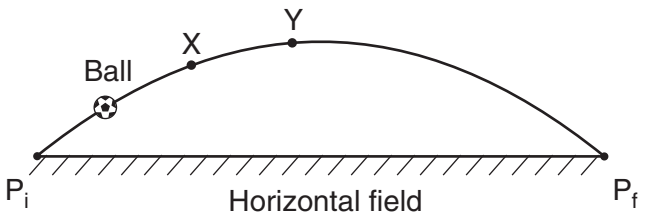


56 Determine the angle at which the ray is incident on mirror 2. [1]

57 On the diagram *in your answer booklet*, use a protractor and a straightedge to draw the ray of light as it is reflected from mirror 2. [1]

Base your answers to questions 58 and 59 on the information and diagram below.

A soccer ball is kicked from point P_i at an angle above a horizontal field. The ball follows an ideal path before landing on the field at point P_f.



58 On the diagram *in your answer booklet*, draw an arrow to represent the direction of the net force on the ball when it is at position *X*. Label the arrow F_{net}. [Neglect friction.] [1]

59 On the diagram *in your answer booklet*, draw an arrow to represent the direction of the acceleration of the ball at position *Y*. Label the arrow *a*. [Neglect friction.] [1]

60 A 1500-kilogram car accelerates at 5.0 meters per second^2 on a level, dry, asphalt road. Determine the magnitude of the net horizontal force acting on the car. [1]

61 Calculate the magnitude of the centripetal force acting on Earth as it orbits the Sun, assuming a circular orbit and an orbital speed of 3.00×10^4 meters per second. [Show all work, including the equation and substitution with units.] [2]

62 A tau lepton decays into an electron, an electron antineutrino, and a tau neutrino, as represented in the reaction below.

$$\tau \rightarrow e + \overline{\nu}_e + \nu_\tau$$

On the equation *in your answer booklet*, show how this reaction obeys the Law of Conservation of Charge by indicating the amount of charge on each particle. [1]

Part C

Answer all questions in this part.

Directions (63–76): Record your answers in the spaces provided in your answer booklet.

Base your answers to questions 63 through 66 on the information and data table below.

A 1.00-kilogram mass was dropped from rest from a height of 25.0 meters above Earth's surface. The speed of the mass was determined at 5.0-meter intervals and recorded in the data table below.

Data Table

Height Above Earth's Surface (m)	**Speed** (m/s)
25.0	0.0
20.0	9.9
15.0	14.0
10.0	17.1
5.0	19.8
0	22.1

Directions (63–66): Using the information in the data table, construct a graph on the grid *in your answer booklet*, following the directions below.

63 Mark an appropriate scale on the axis labeled "Height Above Earth's Surface (m)." [1]

64 Plot the data points for speed versus height above Earth's surface. [1]

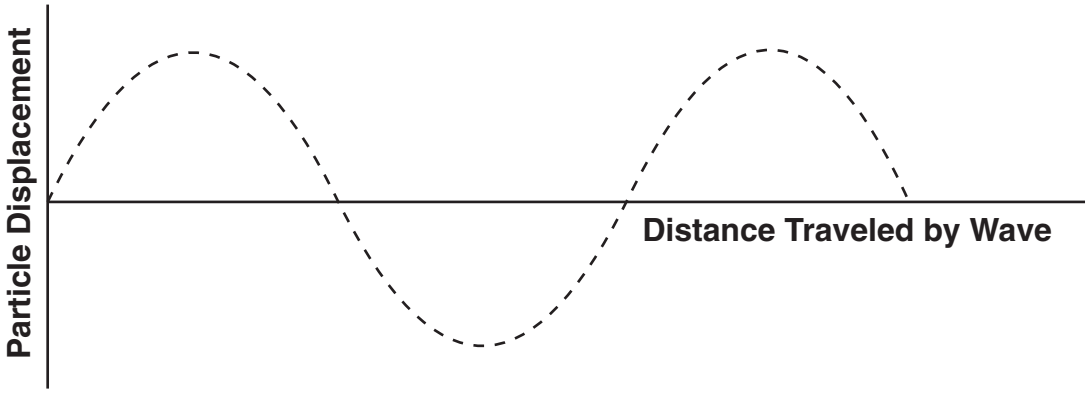
65 Draw the line or curve of best fit. [1]

66 Using your graph, determine the speed of the mass after it has fallen a vertical distance of 12.5 meters. [1]

---

67 An electric circuit contains a source of potential difference and 5-ohm resistors that combine to give the circuit an equivalent resistance of 15 ohms. In the space *in your answer booklet*, draw a diagram of this circuit using circuit symbols given in the *Reference Tables for Physical Setting/Physics*. [Assume the availability of any number of 5-ohm resistors and wires of negligible resistance.] [2]

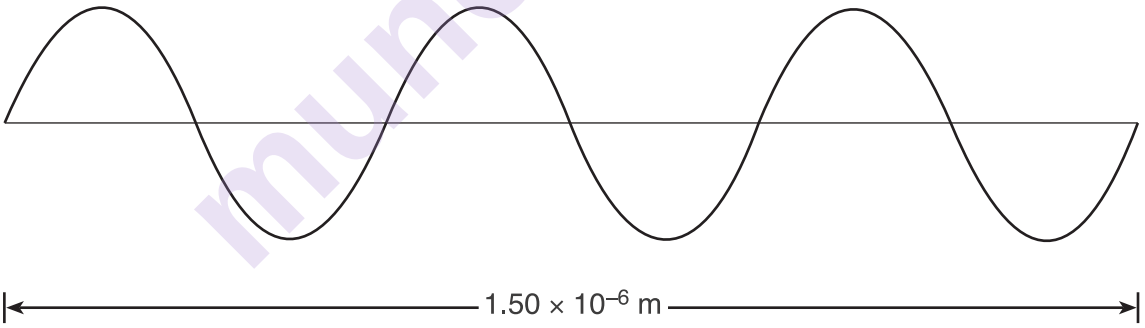
68 The diagram below represents a periodic transverse wave traveling in a uniform medium.



On the diagram *in your answer booklet*, draw a wave having *both* a smaller amplitude and the same wavelength as the given wave. [2]

Base your answers to questions 69 and 70 on the information and diagram below.

A 1.50×10^{-6}-meter-long segment of an electromagnetic wave having a frequency of 6.00×10^{14} hertz is represented below.



69 On the diagram *in your answer booklet*, mark *two* points on the wave that are in phase with each other. Label each point with the letter *P*. [1]

70 According to the *Reference Tables for Physical Setting/Physics*, which type of electromagnetic wave does the segment in the diagram represent? [1]

Base your answers to questions 71 and 72 on the information below.

A 747 jet, traveling at a velocity of 70. meters per second north, touches down on a runway. The jet slows to rest at the rate of 2.0 meters per second^2.

71 Calculate the total distance the jet travels on the runway as it is brought to rest. [Show all work, including the equation and substitution with units.] [2]

72 On the diagram *in your answer booklet*, point *P* represents the position of the jet on the runway. Beginning at point *P*, draw a vector to represent the magnitude and direction of the acceleration of the jet as it comes to rest. Use a scale of 1.0 centimeter = 0.50 meter/second^2. [2]

Base your answers to questions 73 and 74 on the information below.

Io (pronounced "EYE oh") is one of Jupiter's moons discovered by Galileo. Io is slightly larger than Earth's Moon.

The mass of Io is 8.93×10^{22} kilograms and the mass of Jupiter is 1.90×10^{27} kilograms. The distance between the centers of Io and Jupiter is 4.22×10^{8} meters.

73 Calculate the magnitude of the gravitational force of attraction that Jupiter exerts on Io. [Show all work, including the equation and substitution with units.] [2]

74 Calculate the magnitude of the acceleration of Io due to the gravitational force exerted by Jupiter. [Show all work, including the equation and substitution with units.] [2]

Base your answers to questions 75 and 76 on the information below.

In a mercury atom, as an electron moves from energy level *i* to energy level *a*, a single photon is emitted.

75 Determine the energy, in electronvolts, of this emitted photon. [1]

76 Determine this photon's energy, in joules. [1]

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The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
PHYSICS

Thursday, January 24, 2008 — 1:15 to 4:15 p.m., only

ANSWER SHEET

Student . . . . . Sex: ☐ Male ☐ Female Grade . . . . .

Teacher . . . . . School . . . . .

Record your answers to Part A and Part B–1 on this answer sheet.

Part A

1	13	25 . . . . .
2	14	26 . . . . .
3	15	27 . . . . .
4	16	28 . . . . .
5	17	29 . . . . .
6	18	30 . . . . .
7	19	31 . . . . .
8	20	32 . . . . .
9	21	33 . . . . .
10	22	34 . . . . .
11	23	35 . . . . .
12	24	

Part A Score

Part B–1

36	43 . . . . .
37	44 . . . . .
38	45 . . . . .
39	46 . . . . .
40	47 . . . . .
41	48 . . . . .
42	49 . . . . .

Part B–1 Score

Write your answers to Part B–2 and Part C in your answer booklet.

The declaration below should be signed when you have completed the examination.

I do hereby affirm, at the close of this examination, that I had no unlawful knowledge of the questions or answers prior to the examination and that I have neither given nor received assistance in answering any of the questions during the examination.

Signature

Tear Here

PS/PHYSICS

The University of the State of New York

REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING
PHYSICS

Thursday, January 24, 2008 — 1:15 to 4:15 p.m., only

ANSWER BOOKLET

☐ Male

Student . . . . . Sex: ☐ Female

Teacher . . . . . .

School . . . . . Grade . . . . .

Answer all questions in Part B–2 and Part C. Record your answers in this booklet.

Part	Maximum Score	Student's Score
A	35	
B–1	14	
B–2	16	
C	20	

Total Written Test Score (Maximum Raw Score: 85)

Final Score (from conversion chart)

Raters' Initials:

Rater 1 . . . . . **Rater 2** . . . . . .

Part B–2

For Raters Only

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50

51 _____ **m/s**

51

52

52

For Raters Only

53 _____

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54 _____

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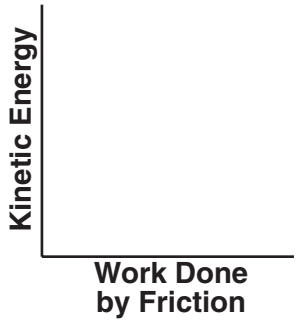

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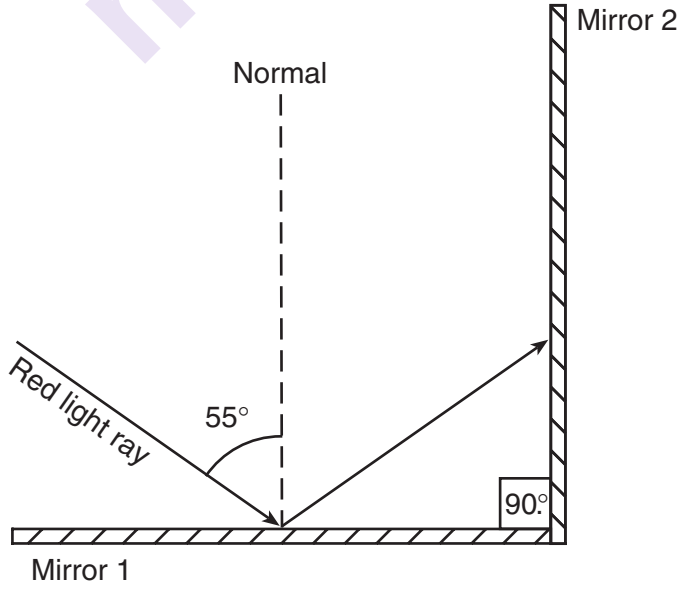

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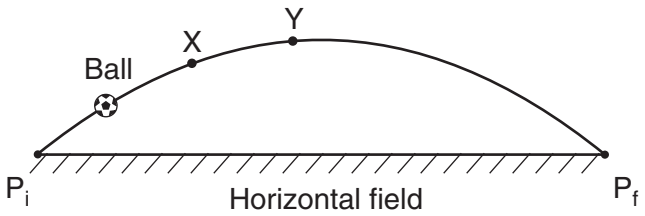
[2]

For Raters Only

58–59



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59 ☐

60 _____ **N** **60** ☐

61 **61** ☐

62 _____e → _____e + _____e + _____e **62** ☐

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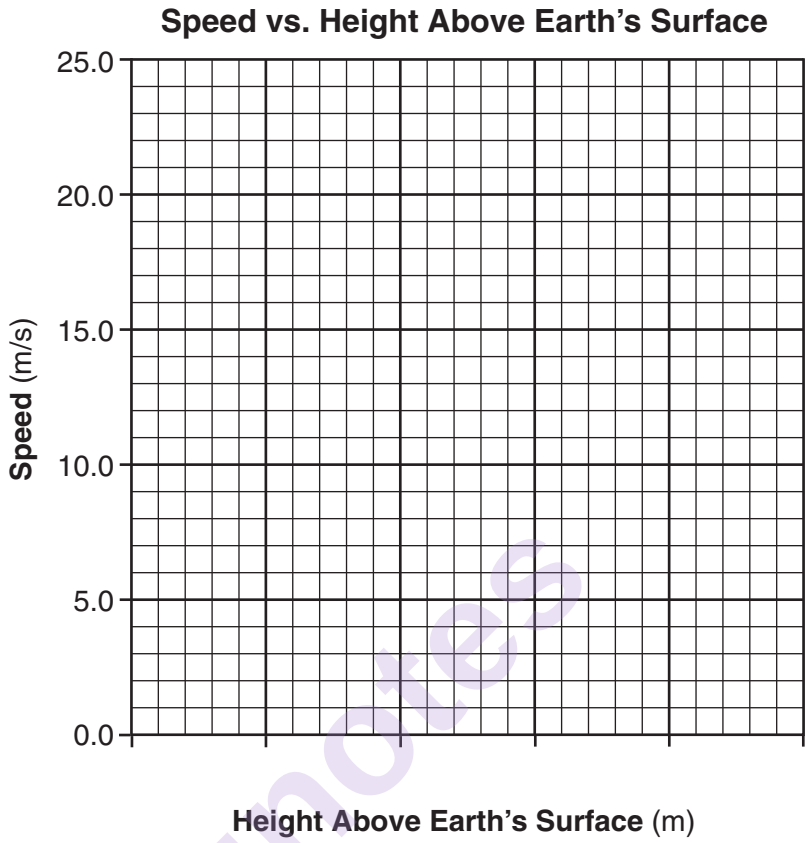
Total Score for Part B–2

Part C

For Raters Only

63–65



63 ☐

64 ☐

65 ☐

66 _____ **m/s**

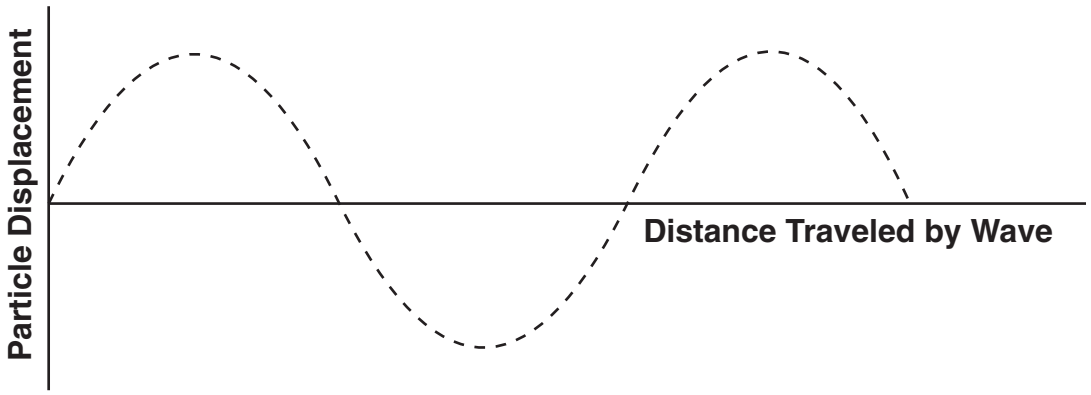
66 ☐

67

67 ☐

For Raters Only

68



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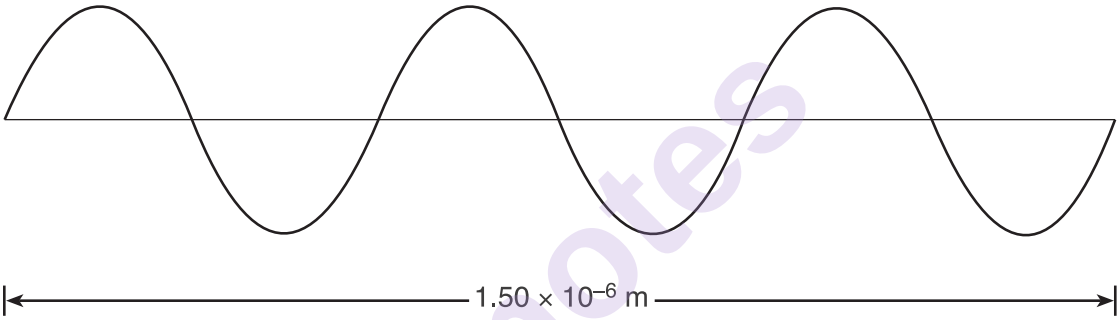

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71

71 ☐

For Raters Only

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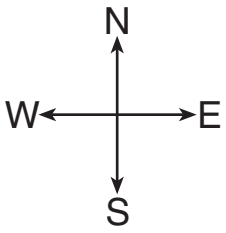

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72 ☐

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For Raters Only

75

76

Total Score for Part C