BARBARA COX COLLEGE

FIRST TERM EXAMINATION

SUBJECT: Physics CLASS: SS1

**SECTION A: OBJECTIVES**  TIME: 1⅟2 HOURS

INSTRUCTION: ANSWER ALL THE QUESTIONS

1. Which of the following is NOT correct?
2. The best instrument for measuring the internal diameter of a test tube is metre rule.
3. The best instrument for measuring the internal diameter is vernier calliper
4. The best instrument for measuring the thickness of paper is micrometer screw gauge
5. The best instrument for measuring the length of an office table is metre rule
6. The internationally agreed system of units (SI) for physical instruments are
7. Kg, cm, sec b. cm, g, sec c. g, m, sec d. Kg,m,sec
8. The following are NOT fundamental unit except
9. Nm-3 b. M3 c. Kg d. Kgm-3
10. Which of the following statements is true about a body moving in a circle at a constant speed?
11. There is a force acting at a tangent to the circle
12. There is a force acting towards the centre of the circle
13. There is no force acting on it
14. There is no acceleration
15. The motion of the bob of a simple pendulum when displaced slightly is
16. Circular b. Rotational c. oscillatory d. Random
17. The length of a simple pendulum can be best measured by
18. Micrometre screw gauge
19. Metre rule
20. Vernier calliper
21. Spring balance
22. If heat is removed from an object, its temperature will normally
23. Rise b. Fall and rise c. stay the same d. Fall
24. A man of mass 50kg ascends a flight of stairs 5m high in 5 seconds. If acceleration due to gravity is 10m/s2, the power expended is
25. 200w b. 500w c. 250w d. 400w
26. A catapult is used to project a stone. Which of the following energy conversions takes place as the stone is released?
27. The kinetic energy of the stone is converted into gravitational potential energy
28. The gravitational potential energy is converted into kinetic energy of the stone
29. The elastic potential energy of catapult is converted into the kinetic energy of the stone
30. The gravitational potential energy is converted into elastic potential energy
31. Under which of the following condition is work done?
32. A man pushes against a stationary petrol tanker
33. A boy climbs unto a table
34. A woman holds a pot of water
35. A man supports a heavy load above his head with his hands
36. The motion of smoke particles is
37. Oscillatory b. Translationary c. Random d. Rotational
38. Which of the following is **not** an example of force?
39. Tension b. mass c. Friction d. Thrust
40. The Slope of a straight line displacement –time graph indicates
41. distance travelled b. Acceleration at an instant c. uniform acceleration d. Uniform velocity
42. The density of a substance is its mass per unit volume. The derived unit for density is
43. Kg/m2 b. m/s c. kg/m3 d. J/s
44. The motion of a rocking chair is
45. Oscillatory b. Rotational c. a combination of translational and rotational d. Random motion
46. Which of the following is not a good conductor of electricity?
47. Earth b. Aluminium c. Glass d. Human body
48. The rate at which work is done is \_\_\_\_\_\_ and its unit is \_\_\_\_\_\_\_\_
49. Energy, joule b. Energy, watt c. power , watt d. Horse-power, no unit
50. The ratio of the frictional force (F) to the normal reaction (R) is called
51. Coefficient of static friction
52. Centrifugal force
53. Coefficient of dynamic friction
54. Coefficient of centripetal force
55. A block of wood on horizontal table, when slightly pushed, quickly comes to rest but takes longer time to come to rest when put on plastic beads. This is because the plastic beads
56. Increase the friction between the table and the block
57. Totally eliminate friction between the components of the set-up
58. Aid the block to move freely on the table
59. Reduce friction between the block and the table
60. The motion of a cylindrical object rolling down an inclined plane is
61. Translational only b. Rotational and translational c. circular and translational d. Rotational
62. A boy of mass 30kg climbed to the top of a vertical ladder 1.5m high in 5s . calculate the work done by the boy (g = 10ms-2
63. 45j b. 150j c. 450j d. 90J
64. Which of the following statements is not correct?
65. Elastic P.E = 1/2kx2 b. Power FXV c. Gravitational P.E= 1/2gh
66. Power = FXV c. Gravitational P.E =1/2gh d. Unit of power =watt
67. A boy of mass 60kg runs up a set of steps of total height 3m, work done in joules is (take g= 1oms -2)
68. 1800 b. 180 c. 20 18
69. A loaded test- tube, which floats upright in water is carefully and slightly depressed and then released. Which of the following best describes the sub-sequent motion of the test –tube?
70. Circular b. Rotational c. random d. Oscillatory
71. A boy cycles continuously through a distance of 1.0km in 5 minutes. Calculate his average speed
72. 0.3ms-1 b. 3.3 ms-1 c. 16.6ms -1 d. 20.0 ms-1
73. A man will exert the greatest pressure on a bench when he
74. Lies flat on his back b. Lies flat on his belly c. stands on the toes of one foot d. Stands on both feet
75. Which of the following is used to determine the relative density of the acid in a car battery?
76. Hypsometer b. Hygrometer c. manometer d. Hydrometer
77. Which of the following is a derived unit?
78. Metre b. Coulomb c. kilogram d. Second
79. An engine raises 100kg of water through a height of 60m in 20s. What is the power of the engine ?(Take g =10ms-2)
80. 120,000w b. 3000w c. 333w d. 300w
81. An object weighs 10.oN in air and 7.0N in water. What is its weight when immersed in a liquid of relative density of 1.5?
82. 4.50N b. 4.67N c. 5.50N d. 6.67N
83. Power is defined as the
84. Capacity to exert a force b. Product of force and time c. product of force and distance d. Energy expended per unit time
85. Which of the following statement about solid friction is /are correct?
86. Friction depends on the area of contact
87. Friction depends on the area of contact
88. Friction always acts in the direction of motion
89. i only b. Ii only c. iii only d. I, ii , and iii
90. A ball bearing is gently released from rest and allowed to fall through a viscous fluid. Which of the following statements about the motion is correct?
91. Its acceleration decreases before terminal velocity is attained
92. When terminal velocity is attained the acceleration of the fluid becomes zero.
93. Its velocity increases before terminal velocity is attained
94. There is no resultant force on the ball before it attains terminal velocity
95. An object weighs 60.0N in air, 48.2N in a certain liquid X, and 44.9N in water. Calculate the relative density of X
96. 3.300 b. 1.279 c. 0.932 d. 0.782
97. The speed of an object in rectilinear motion can be determined from the
98. Area under a velocity –time graph
99. Area under a distance-time graph
100. Slope of a distance-time graph
101. Slope of a velocity –time graph

36. An object of mass m moves with a uniform speed v round a circular path of radius r. if its angular speed is ω, the magnitude of the centripetal force acting on it is A. mω²r B. mv²/r C. mωr D. mv²/r²

1. Which one of the following is a fundamental unit?
2. Kgm (b) N/m2 (C) m2 (d) S
3. Which unit of the following physical quantities is derived?
4. Area (b) Mass (c) Time (d)Length
5. Which of the following is not a consequence of a force field?
6. Weight (b) magnetic force (c) electrical force (d) gravitational pull
7. Which of the following can be used to measure accurately to 3 decimal places in centimeters?
8. Meter rule (b) ruler (c) vernier (d)calipers
9. The volume of a stone having an irregular shape can be determine using a?
10. meter rule (b) measuring cylinder (c)vernier calipers (d) micrometer screw gauge
11. The slope of a straight line displacement time graph is?
12. Distance travelled (b) uniform velocity (c) uniform acceleration (d) uniform speed
13. If the coefficient of friction is 0.5 and the normal reaction is 60N. calculate the limited frictional force required to prevent an object from moving
14. 30N (b) 3N (c) 13N (d) 25N
15. Which of the statement is correct
16. Centrifugal and centripetal force are the same (b) they act in opposite direction (c)centrifugal force is greater than centripetal force (d)they are not related.
17. The angular velocity of the object is
18. 2rad/s (b) 4rad/s (c) 8rad/s (d) 10rad/s
19. The centripetal force acting on the body is
20. 215N (b) 125N (c) 512N (d) 51N
21. Which of the following statement is true of a body which is moving in a straight line with acceleration? The velocity of the body
22. Is also uniform (b) must always be zero when the body stops accelerating (c) will increase with time in the direction of the acceleration n (d) will remain constant.
23. A body accelerates uniformly from rest at 2m/s2 calculate its velocity after travelling 9m (a) 36m/s (b) 18m/s (c) 6m/s (d)4.50m/s
24. A car travelling at 20m/s is brought to rest with a constant deceleration of 10m/s2 calculate the distance travelled (a) 10m (b) 20m (c) 200m (d)400m
25. The force required making an object of mass M, travelling with velocity V, turn in a circle of radius R is? (a) Mv2/r (b) mr2/v (c) mr/v (d) mv/r
26. An object moving in a circle has an acceleration towards the center, this is provided by (a) A change of momentum (b) a centripetal force (c) a centrifugal force (d) acceleration due to gravity
27. A fruit falls from a tree of mass 2kg is 5m above the ground. Calculate the potential energy of the fruit above the ground (g=10m/s2) (a) 50J (b) 100J (c) 150J (d)200J
28. A sledge is pulled 10m by a force of 40N. What is the work done?
29. 40J (b)400J (c) 410J (d)450J
30. A boy of weight 300n climbs to the top of a hill of height 20m. The work done by the boy against the force of gravity is?
31. 6000J (b) 600J (c) 320J (d) 15J
32. Energy is measured as
33. The rate of doing work (b) the product of force and distance (c) product of mass and acceleration (d) the product of work

56. Power is defined as the

(a)product of force and time (b) capacity extent of a force (c) product of force and distance (d)energy expanded per unit time

57. The inner diameter of a small test tube can be measure accurately using

(a) Micrometer screw gauge (b) pair of dividers (c) meter rule (d) pair of vernier calipers.

58. . When a resultant force of 6N is applied to a mass of of 3kg, the acceleration of the mass will be A. 0.5m/s² B. 2.0m/s² C. 3.0m/s² D. 18m/s²

59. Which of the following force is not a contact force A. Force of tension B. force of friction C. force of reaction D. magnetic force

60. Which of the following has the same unit as force A. force B. power C. work D. momentum

THEORY ANSWER ANY 5 QUESTIONS

1. A boy of mass 500g climbs up 20steps each of height 0.2m in 30secsonds. Calculate

(i) the work done

(ii) the power of the boy

(iii) find the potential energy of a boy of mass 10kg standing on a building floor 10m above the ground level

2. (a) Mention three reasons why the weight of a body varies from place to place.

(b) (i) Explain relative motion (ii) Two cars moving in opposite directions on the same straight road with velocities 80km/h and 60km/h respectively pass each at a point. Determine the velocity of the first car relative to the second car.

3. Distinguish between work, energy, and power

b. At what height above the ground must a body of mass 10kg be situated in order to

have a potential energy equal in value to the kinetic energy possessed by another

body of mass 10kg moving with a velocity of 10ms -1? (g= 10ms-2)

4. State two

1. Laws of solid friction
2. Advantages of friction
3. Methods of reducing friction
4. A metal block of mass 5kg lies on a rough horizontal platform. If a horizontal force of 8N applied to the block through its centre of mass just slides the block on the platform, calculate the coefficient of limiting friction between the block and the platform (g= 10m/s2)

5. A motor car accelerates for 10sec to attain a velocity of 15mls, it continues with uniform velocity for a further 10sec and then decelerate so that it stops in 20sec.

i. Draw the velocity-time graph

ii. Calculate the acceleration

iii. Calculate the total distance travelled

6. Does frictional force between two surfaces in contact depend on the nature of the surfaces? (b) Give an illustration to support your answer in (a) above (c) Classify the following forces either as contact forces or field forces: push, tension, gravitational force, electrostatics force, reaction and magnetic force.

7. Distinguish between static and dynamic friction (ii) State two methods of reducing friction. (b) A box of mass 5.4kg, when given an initial speed of 4/s, slides a distance of 3.6m along a horizontal floor before coming to rest. Calculate the coefficient of dynamic friction between the box and the floor (g = 10m/s²)