

2nd Semester Midterm Exam
SCIENCE SC22102 MEP M.2/8

Name: _____ Student no. _____ Class: M.2/8

Part 1. Multiple choices

Instruction: Read each question carefully and select the best answer.

Indicator 1: SC 2.2 Gr2.1. Predict the object moving as a result of resultant force. (Items 1-7)

1. _____ are actions that affects the object to change its original state.

- | | |
|-----------|--------------|
| a. Force | c. Movements |
| b. Motion | d. Power |

2. The sum of all forces applied to an object is called ...

- | | |
|--------------------|----------------|
| a. summed force | c. final force |
| b. resultant force | d. end force |

Items 3-4.

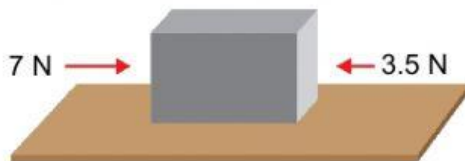


Figure 1

3. Figure 1 shows a stationary box. Two forces are applied at the same time on the box.

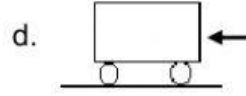
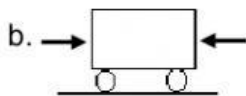
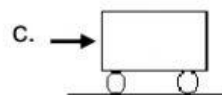
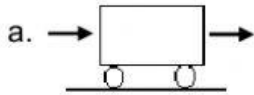
What is the resultant force in Figure 1?

- | | |
|-----------|----------|
| a. 10.5 N | c. 2 N |
| b. 24.5 N | d. 3.5 N |

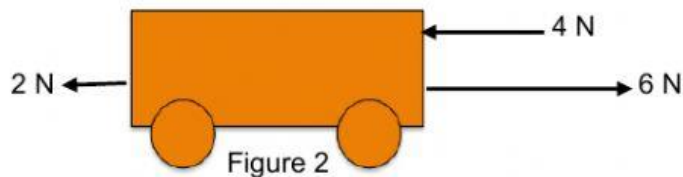
4. What will happen to the box?

- | | |
|-----------------------------|-------------------------------|
| a. It will not move. | c. It will move to the right. |
| b. It will continue moving. | d. It will move to the left. |

5. What happens to a stationary object if the resultant force is zero?
- a. The acceleration will increase.
 - b. It moves in different directions.
 - c. The object will start moving.
 - d. It does not move.
6. Which of the following shows an applied force in the same direction?



Items 7-8.



7. Figure 2 shows a moving object with constant velocity. Several forces are applied on the object. What is the resultant force?
- a. 10 N
 - b. 8 N
 - c. 2 N
 - d. 0 N
8. What happen to the object?
- a. The object moves in the same constant velocity.
 - b. The object changes direction.
 - c. The object stops.
 - d. The object increases its speed.

Indicator 2: SC2.2 Gr 2.4. Analyze buoyant force, sinking and floating of objects in liquids.

(Items 9-15)

9. Which best described buoyant force?

- a. The weight of the object.
- b. The volume of the fluid displaces.
- c. The upward force of a liquid.
- d. The downward force of a liquid.

10. Liquid exerts pressure because of its ...

- a. weight
- b. mass
- c. volume
- d. depth

11. The pressure of a liquid increases with its ...

- a. area
- b. depth
- c. mass
- d. volume

12. Archimedes' principle is best describes as...

- a. The buoyant force is equal to all sides of submerged object.
- b. The buoyant force is equal to the weight of object.
- c. The buoyant force is equal to the gravitational force.
- d. The buoyant force is equal to the weight of the fluid displaces.

13. The weight of an object is 3.25 N. Its weight become 1.50 N when it is immersed in water. Find the buoyant force acting on the object.

- a. 1.75 N
- b. 4.75 N
- c. 2.17 N
- d. 4.9 N

14. If the weight of an object that is submerged in a fluid is 10 N and the buoyant force on it is 20 N, what will happen to the object?

- a. It will sink.
- b. It will float.
- c. It will remain balance.
- d. It will sink initially and then float.

15. If the density of a liquid is 1000 kg m^{-3} , its depth is 2 cm and the gravitational field is 10 N kg^{-1} . What is the pressure exerted by the liquid? Formula: $P = \rho h g$

- a. 20 Pa
- b. 200 Pa
- c. 2000 Pa
- d. 20000 Pa

Indicator 3. SC2.2 Gr2.6. Explain static friction and kinetic friction.(Items 16-24)

16. _____ is a force that acts to stop the movement of two surfaces in contact.

- a. Speed
- b. Acceleration
- c. Friction
- d. Direction

17. Which of the following statement is true?

- I. Rough surfaces give more friction.*
- II. Smooth surfaces give less friction.*
- III. Lighter objects give less friction.*
- IV. Heavy objects give more friction.*

- a. I and II only
- b. II and III only
- c. III and IV only
- d. I, II, III and IV

18. Which factors affects the magnitude of friction?

- I. Size of the object*
- II. Weight of the object*
- III. Type of surface*

- a. I and II only
- b. II and III only
- c. I and III only
- d. I, II, and III

19. _____ prevent and object from moving when force is applied.

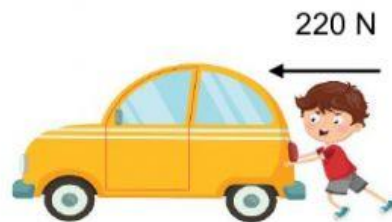
- a. Static friction
- b. Kinetic Friction
- c. Sliding friction
- d. Rolling friction

20. _____ is a force that acts between moving surfaces.

- a. Kinetic Friction
- b. Resultant force
- c. Static friction
- d. Buoyant force

(Items 21-22)

A boy is pushing a stationary car that has a mass of 950 kg. He is pushing with a force of 220 N but the car does not move.



21. What is the magnitude of friction acting on the car?

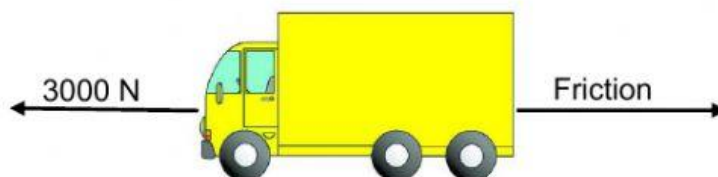
- a. 475 N
- b. 110 N
- c. 220 N
- d. 730 N

22. What type of friction is involved?

- a. Kinetic friction
- b. Static friction
- c. Rolling friction
- d. Sliding friction

(Items 23-24)

A lorry with a mass of 1000 kg is moving with an acceleration of 2 ms^{-2} . The force exerted by its engine is 3000 N.



23. What is magnitude of the resultant force acting on the lorry?

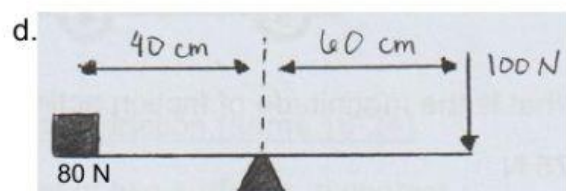
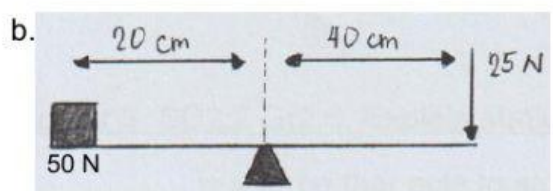
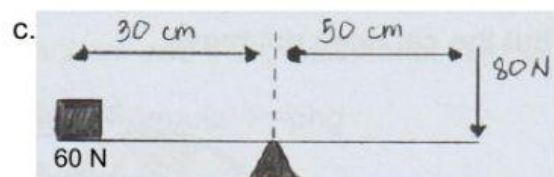
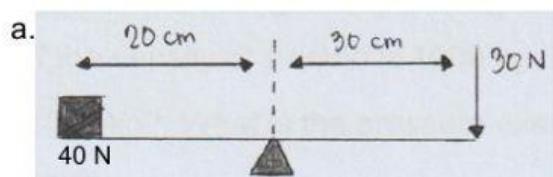
- a. 20000 N
- b. 2000 N
- c. 200 N
- d. 20 N

24. What is the magnitude of the friction acting on the lorry?

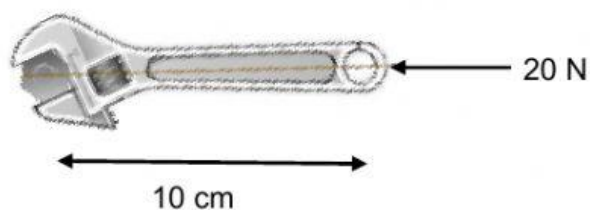
- a. 10000 N
- b. 1000 N
- c. 100 N
- d. 10 N

Indicator 4. SC2.2 Gr 2.10 Explain moment of force when an object is balance to turn and calculate using $M=Fl$. (Items 25-28)

25. Which of the following lever is balance?



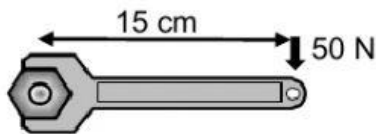
26. Figure 3 shows a force of 20 N applied on a spanner. What is the moment of force?



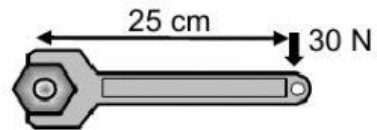
- a. 30 Nm
- b. 10 Nm
- c. 2 Nm
- d. 0 Nm

27. Which of the following has the greatest moment of force?

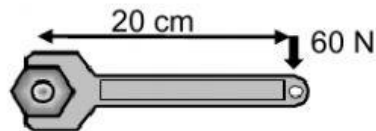
a.



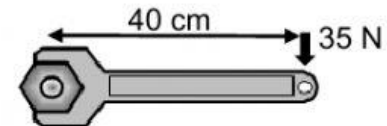
c.



b.



d.



28. Which of the following statements is true?

- a. A spanner with longer handle produces larger turning effects.
- b. A spanner with shorter handle produce larger turning effects.
- c. The size of the spanner doesn't affects the moment of force.
- d. The size of the spanner is always equal to the applied force.

Part 2. Writing

Indicator 3. SC2.2 Gr2.6. Explain static friction and kinetic friction.(Items 29-36)

A. Identify if the picture shows **Static friction** or **Kinetic friction**.



29. _____



31. _____



30. _____



32. _____

B. Identify if the sentence shows **Static friction** or **Kinetic friction**.

33. A car driving on the snow. _____

34. A child jumping on the bed. _____

35. A ball in a basketball player's hand. _____

36. A car parked in the driveway. _____

(สำหรับข้อ 37-40 เขียนคำตอบลงในสมุดบันทึกวิทยาศาสตร์ของคุณ)

Indicator 4. SC2.2 Gr 2.10 Explain moment of force when an object is balance to turn and calculate using $M=Fl$. (Items 37-40)

Give four application of moment of force in daily life.

37. _____

38. _____

39. _____

40. _____