

S. 2PHYSICS

MID TERM ONE EXAMS 2020

INSTRUCTIONS: Attempt ***all*** questions
*Neat and organized work is a **must**.*

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

1. The interval between the ice and steam points on a thermometer is 192mm. Find the temperature when the length of the mercury thread is 67.2mm from the ice point.

A 32.80C B 35.00C C 65.00C D 67.20C

2. Radiation in a thermos flask is minimized by

- A. cork. B. vacuum.
C. felt pad. D. silvered glass walls

3. An object 6 cm high is placed 24 cm from a tiny hole in a pin-hole camera. If the distance from the hole to the screen is 8 cm, find the size of the image on the screen.

- A. 0.2cm.
B. 2.0cm.
C. 18.0cm.
D. 32.0cm.

4. A magnet can be made to lose its strength by

- (i) heating
(ii) throwing it violently.
(iii) putting it in a solenoid carrying direct current

- A. (i) and (iii) only,
B. (ii) and (iii) only,
C. (i) and (ii) only,
D. (i), (ii) and (iii).

5. A driving mirror tends to produce a false impression of the image formed because the image is

- A. diminished.
- B. magnified.
- C. virtual.
- D. real.

6. The lowest possible temperature on a Kelvin scale is called the

- A. ice-point.
- B. absolute zero.
- C. steam-point.
- D. dew-point.

7. The principle of conservation of energy states that

- A. energy is the ability to do work.
- B. energy is composed of kinetic and potential energy.
- C. energy will always be converted from one form to another.
- D. energy cannot be created or destroyed but it can be changed from one form into another.

another.

8. The image formed in a plane mirror is

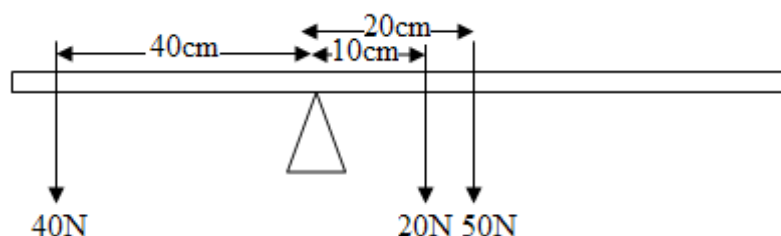
- (i) the same distance behind as the object is in front.
- (ii) totally inverted.
- (iii) magnified and virtual.

- A. (i) and (ii) only.
- B. (i) and (iii) only.
- C. (ii) and (iii) only.
- D. (i), (ii) and (iii).

9. The most suitable instrument for measuring the outer diameter of a test tube is

- A. a ruler.
- B. a tape measure.
- C. vernier callipers.
- D. a micrometre screw gauge.

10. Forces of 40N, 20N and 50N are applied on a metre rule supported on a knife edge as shown in figure 4.



The meter rule will

- A. balance.
- B. oscillate.
- C. turn in a clockwise direction.
- D. turn in anti-clockwise direction.

11. Forces of 10N, 8N and 4N acts on object, O as shown in fig. 2 . Find the magnitude of the resultant on O.

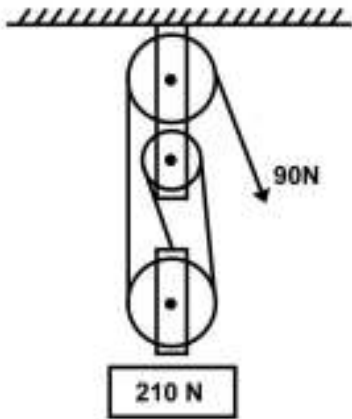


Fig. 1

Calculate the efficiency of the pulley system shown in Figure 1 if the minimum effort needed to raise a load of 210N is 90N.

- a. 77.77
- b. 66.66
- c. 44.44
- d. 33.33

16. A concave mirror can be used as a shaving mirror because when an object is placed between the focus and the pole, the image formed is

- a. magnified, virtual and erect.
- b. magnified, real and inverted.
- c. diminished, real and inverted
- d. diminished, virtual and erect.

17.

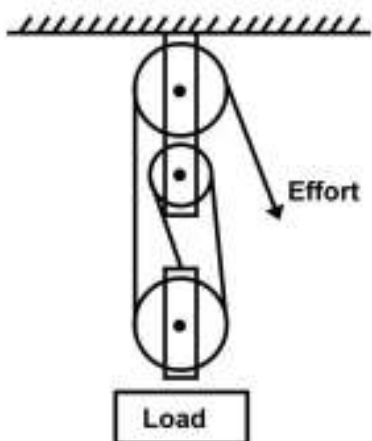


Fig .3

What is the velocity ratio of the pulley system shown in Figure 3?

- a. 1
- b. 2

c. 3

d. 4

18. A load of 500N is placed at 2m from a pivot of a seesaw. At what distance from the pivot should a weight of 250N be placed to balance the see saw?

A. 0.5m

B. 1.0m

C. 2.0m

D. 4.0m

19. which of the following information is true about the concave and convex mirrors.

Concave mirror convex mirror

a) Converges light

diverges light

b) Diverges light

converges light

c) Refracts light

reflects light

d) Has a wide field of view

has a narrow field of view

20. The three fundamental physical quantities are ;

A. density, mass and time.

B. Length, time and mass

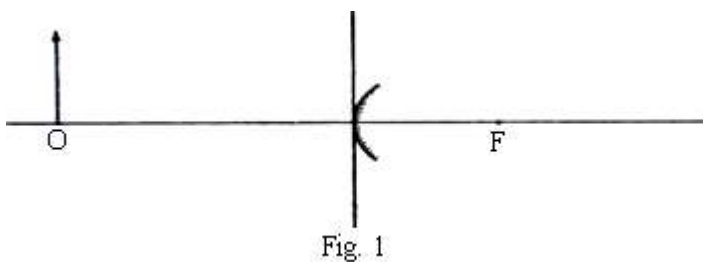
C. length, time and weight

D. volume, temperature and mass

SECTION B

21.

(a) Draw a ray diagram to show the formation of an image of an object O placed in front of a convex mirror shown in the figure below. F is the principal focus of the mirror.



(02 Marks)

(a) State two applications of convex mirror

22. (a) State two reasons why mercury is preferred to alcohol as a thermometric liquid.
(2 marks)

- (b) The fundamental interval of mercury in glass thermometer is 192mm. Find the temperature in degrees Celsius when the mercury thread is 67.2mm long. (2marks)

(02 Marks)

23(a) Define Moment of a force.

(01 Marks)

- (b) A uniform meter-rule is balanced at the 30-cm mark when a load of 0.8 N is hang at the zero-mark. Find the weight of the meter-rule.

(03 Marks)

24(a) State the principle of rectilinear propagation of light. (1 mark)

- (b) (i) State two natural observations that support this principle. (1 mark)
- (ii) State two properties of images formed by plane mirrors. (2 marks)

(03 Marks)

25.a) What is meant by efficiency of a machine?

(01 Mark)

(b) draw a single pulley system of velocity ratio 3.

(02 Marks)

(c) State one reason why the efficiency of a machine is always less than 100%.

SECTION C

26.a) Differentiate between conduction and convection. (02marks)

b) Describe an experiment which can be performed to show convection currents in a liquid. (04marks)

c) i) Draw a well labeled diagram of a vacuum flask. (03marks)

ii) Explain how a vacuum flask minimizes heat losses. (04marks)

d) Explain why it is not advisable to wear black clothes during extremely very cold weather. (03marks)