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F - 1377

C.B.S. (Second Semester)
EXAMINATION, MAY-JUNE, 2022
GLIMPSES OF CONTEMPORARY SCIENCE
(G-202)

Time : Three Hours] *[Maximum Marks:40]*

Note- Attempt all sections as directed.

SECTION-A
(Objective/Multiple Choice Questions)

(0.5 marks each)

Note:- Attempt all questions.

1. Which of the phenomenon would increase on raising the temperature.
   (A) Diffusion, evaporation, compression of gas
   (B) Evaporation, compression of gas, solubility.
   (C) Evaporation, diffusion, expansion of gas
   (D) None of above

2. Chromosomes are made up of
   (A) DNA
   (B) Protein
   (C) DNA and Protein
   (D) RNA
3. A force increases the speed of a 1.0 Kg. object from 4 m/s. to 8 m/s. The work done by the force will be
   (A) 8 J
   (B) 32 J
   (C) 24 J
   (D) 16 J
4. Identify the vector quantity from the following:
   (A) Heat
   (B) Acceleration
   (C) Work
   (D) Both (A) and (B)
5. The gravitational force between the two object is F. If masses of both objects are 1/4th of their original masses without changing distance between them, then the gravitational force become-
   (A) F/4
   (B) F/8
   (C) F/12
   (D) F/16

6. Which of the following force is always attractive?

   (A) Electrostatic force

   (B) Gravitational force

   (C) Muscular force

   (D) Magnetic force

7. Calculate the momentum of gun of mass 400 Kg. when it recalls with the velocity of 0.26 ms^{-1}

   (A) 100 Kg ms^{2}

   (B) 100 Kg ms^{-1}

   (C) 100 Kg ms^{-3}

   (D) 100 Kg ms

8. Which is the form of energy that does not occur while riding a bycyle.

   (A) Chemical energy

   (B) Heat energy

   (C) Mechanical energy

   (D) Kinetic energy

9. One Kilowatt- hour is unit of

   (A) Energy

   (B) Power

   (C) Electric charge

   (D) Electric current

10. Energy is continously created in the sun due to-

    (A) Nuclear Fusion

    (B) Nuclear Fission

    (C) Radioactivity

    (D) Artificial radiation

11. Kinetic friction in comparison of static friction is

    (A) More

    (B) Less

    (C) Equal

    (D) Equal or more

12. Mechanical Energy is combination of kinetic energy and_____

    (A) Heat energy

    (B) Chemical energy

    (C) Potential energy

    (D) Nuclear energy

13. Which planet is known as the water planet?

    (A) Mercury

    (B) Earth

    (C) Mass

    (D) Jupiter

14. In order of this distance from sun which of the following planet lie between mars and uranus.

    (A) Earth and Jupiter

    (B) Jupiter and Saturn

    (C) Saturn and Earth

    (D) Saturn and Neptune

15. Which of the following is indicated by the colour of a star?

    (A) Weight

    (B) Distance

    (C) Temperature

    (D) Size

16. Milky way Galaxy was first seen by.

    (A) Galileo

    (B) Martin Schmidt

    (C) Marconi

    (D) Newton

17. Halley's comet oppears once in a period of

    (A) 24 years

    (B) 32 years

    (C) 76 years

    (D) 84 years

18. The dimensions of power are

    (A) ML^2T^{-2}

    (B) ML^2T^{-3}

    (C) M^2LT^{-3}

    (D) M^2LT^{-2}

19. The cardiac muscle is found in

    (A) Chest

    (B) Lungs

    (C) Hearts

    (D) All of above

20. The S.I. unit of measuring work and energy is

    (A) Joule

    (B) Watt

    (C) Faradey

    (D) Ohms

Section - B

(Very Short Answer Type Question)

(0.75 marks each)

Note: Attempt all questions.

1. Write down the dimensions of

    (A) Work

    (B) Gravitational constant

2. Write down the moment of intertia of (with center of axes)
   (A) Rind
   (B) Rod
3. Write short note on following planet
   (A) Mars
   (B) Jupiter
4. Explain conservative force briefly.
5. What do you mean by electrostatic force.
6. Explain elastic and Inelastic collision.
7. Explain (A) Torque (B) Angular velocity.
8. A force of 1000 Newton is applied on 26 Kg mass for 5 sec. What would be its acceleration?
9. A car of mass 600 Kg is moving at 15m/sec. Calculate its momentum.
10. How much kinetic energy does a 160 gm Criket ball have when it thrown at a speed of 22m/sec?

Section - C

(Short Answer Type Questions)

(1.25 marks each)

Note : Attempt all questions.

1. Explain physics in life system.

2. Write short note on
   (1) Rotationary any motion
   (2) Moment of Inertia
3. Explain discovery of electron in brief.
4. Write short note on following:
   (A) Protein
   (B) Carbohydrate
5. Explain Magnetic tweezer in brief.
6. Write short note on:
   (A) Internal energy
   (B) Entropy
7. Explain the following:
   (A) Astrobiology
   (B) diffusion
8. Explain -
   (A) Wein law
   (B) Kinetic Energy & potential energy.
9. Explain ion channels in brief.
10. Explain the law of thermodynamics.

Section - D

(Long Answer Type Questions)

(2 marks each)

Note : Attempt any five questions.

1. Explain Black Body Radiation in brief.
2. What do you mean by optical or laser tweezer. Explain in brief?
3. Explain cell locomotion in brief.
4. Write short note on
   (A) Galaxy
   (B) Black hole
5. Explain star formation in brief.
6. Write short note on
   (1) Comet
   (2) Supernova
7. Explain stimulated emission and spontaneous emission
8. Explain our solarsystem in brief.