

TIRUVANNAMALAI DT - MHS GIRITHARAN PET
PHYSICS FULL PORTION TEST
STANDARD X-SCIENCE
PART-I

TIME : 3hrs
Marks : 75
(12 × 1=12)

Answer all the questions

1. Impulse is equals to
 - a) rate of change of momentum
 - b) rate of force and time
 - c) change of momentum
 - d) rate of change of mass
2. The unit of 'g' is m s⁻². It can be also expressed as
 - a) cms⁻¹
 - b) Nkg⁻¹
 - c) Nm² kg⁻¹
 - d) cm²s⁻²
3. Magnification of a convex lens is
 - a) Positive
 - b) negative
 - c) either positive or negative
 - d) zero
4. Power of a lens is -4D, then its focal length is
 - a) 4m
 - b) -40m
 - c) -0.25 m
 - d) -2.5 m
5. The value of Avogadro number _____
 - a) 6.023×10²³
 - b) 6.023×10⁻²³
 - c) 60.23×10²³
 - d) 0.6023×10⁻²³
6. In the Given diagram, the possible direction of heat energy transformation is

303 K
A

304 K
B

305 K
C

 - a) A ← B, A ← C, B ← C
 - b) A → B, A → C, B → C
 - c) A → B, A ← C, B → C
 - d) A ← B, A → C, B ← C
7. Kilowatt hour is the unit of
 - a) resistivity
 - b) conductivity
 - c) electrical energy
 - d) electrical power
8. SI unit of resistance is
 - a) mho
 - b) joule
 - c) ohm
 - d) ohm meter
9. The frequency, which is audible to the human ear is
 - a) 50 kHz
 - b) 20 kHz
 - c) 15000 kHz
 - d) 10000 kHz
10. The sound waves are reflected from an obstacle into the same medium from which they were incident. Which of the following changes?
 - a) speed
 - b) frequency
 - c) wavelength
 - d) none of these
11. Unit of radioactivity is _____
 - a) roentgen
 - b) curie
 - c) becquerel
 - d) all the above
12. _____ aprons are used to protect us from gamma radiations
 - a) Lead oxide
 - b) Iron
 - c) Lead
 - d) Aluminium

PART-II

Answer any seven questions. Questions No.22 is compulsory.

(7 × 2 =14)

13. State Newton's second law.
14. **Assertion:** The value of 'g' decreases as height and depth increases from the surface of the Earth.
Reason: 'g' depends on the mass of the object and the Earth.
 - a. Both the assertion and the reason are true and the reason is the correct explanation of the assertion.
 - b. Both the assertion and the reason are true but the reason is not the correct explanation of the assertion.
 - c. Assertion is true but the reason is false.
 - d. Assertion is false but the reason is true.
15. True or False. If false correct it.
 The power of lens depends on the focal length of the lens
16. State-the law of volume
17. State Ohm's law.

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18. Give any two uses of radio isotopes in the field of agriculture?
19. Distinguish between the resistivity and conductivity of a conductor.
20. **Match the following**
- | | | |
|-------------------------|---|---------------------|
| 1. Infrasonic | - | (a) Compressions |
| 2. Echo | - | (b) 22 kHz |
| 3. Ultrasonic | - | (c) 10 Hz |
| 4. High pressure region | - | (d) Ultrasonography |
- 21.a) Spontaneous process : Natural Radioactivity, Induced process : _____
 b) Nuclear Fusion : Extreme temperature, Nuclear Fission : _____
22. A person with myopia can see objects placed at a distance of 4m. If he wants to see objects at a distance of 20m, what should be the focal length and power of the concave lens he must wear?

PART-III

Answer any seven questions. Questions No.32 is compulsory.

(7 × 4=28)

23. Differentiate mass and weight.
24. List any four properties of light
25. Differentiate convex lens and concave lens.
26. a) What is coefficient of real expansion?
 b) Calculate the current and the resistance of a 100 W, 200 V electric bulb in an electric circuit.
27. List the merits of LED bulb.
28. Explain why, the ceilings of concert halls are curved.
29. a) What is an echo?
 b) State two conditions necessary for hearing an echo.
30. a) **Match the following**
- | | | |
|------------|---|-------------------|
| a. Co - 60 | - | Age of fossil |
| b. I - 131 | - | Function of Heart |
| c. Na - 24 | - | Leukemia |
| d. C - 14 | - | Thyroid disease |
- b) **Arrange the following in the chronological order of discovery**
 Nuclear reactor, radioactivity, artificial radioactivity, discovery of radium.
31. Compare the properties of alpha, beta and gamma radiations.
32. Give the applications of universal law gravitation.

PART-IV

Answer all the questions

(3 × 7=21)

33. a) What are the types of inertia? Give an example for each type. **(OR)**
 b) Differentiate the eye defects: Myopia and Hypermetropia **(OR)**
34. a) Derive the ideal gas equation. **(OR)**
 b) a) State Joule's law of heating.
 b) An alloy of nickel and chromium is used as the heating element. Why?
35. a) a) Why does sound travel faster on a rainy day than on a dry day?
 b) Why does an empty vessel produce more sound than a filled one?
 c) What is the audible range of frequency? **(OR)**
 b) What is a nuclear reactor? Explain its essential parts with their functions.