



Nagarjuna Degree College
38/36, Ramagondanahalli,
Yelahanka Hobli,
Bengaluru - 560 064.

OEPH112

Reg. No.

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I Semester B.Sc. Degree Examination, May/June - 2022

PHYSICS (Open Elective)

Physics For All

(NEP - Freshers Scheme 2021 - 22 and Onwards)

Time : 2½ Hours

Maximum Marks : 60

PART- A

Answer any **Ten** questions. Each question carries **One** mark.

(10×1=10)

1. What is an explosion?
2. is the cheapest form of fossil fuel.
3. What is the main reason that hydrogen driven automobiles have not replaced gasoline ones?
4. Solar power is about kW per square meter.
5. Mention the value of escape velocity from earth.
6. Weight of a person on moon is ____ that on earth (less/more).
7. Air pressure is halved for every ____ km increase in altitude.
8. Recoil of a gun is a consequence of law of conservation of ____.
9. The mass of the nucleus is close to ____ percentage of that in the entire atom.
10. LD50 refers to a _____ dose.
11. After three half - lives, the fraction of nuclei remaining is _____ of the original mass.
12. Carbon - 14, compared to Carbon - 12, has more number of _____.

PART - B

Answer any **Ten** questions. Each question carries **Two** marks.

(10×2=20)

13. What is heat? Mention its unit.
14. Define kinetic energy. Give an example of a body possessing kinetic energy.
15. What sources of fuel are used in a hybrid automobile?
16. What is the impact on environment, if we use hydrogen as an alternate fuel?

[P.T.O.]



17. How does the force of gravity between two objects vary when the distance between them is increased? Explain.
18. State Newton's third law.
19. Mention any two applications of low earth orbit satellite.
20. What is g - rule? Give the maximum acceleration of the astronauts in the space shuttle.
21. What are the constituents of an atom?
22. What is a dirty bomb? Is it feasible?
23. Are humna beings radioactive and which elements are responsible for this action?
24. Mention any two uses of radioactive sources other than medical use.

PART - C

Answer any **Five** questions. Each question carries **Six** marks.

(5×6=30)

25. a) Mention any four sources of energy.
b) Define power and mention its unit. (4+2)
 26. a) Chocolate chip cookies (CCC) contain more energy than similar weight of TNT, yet we can't blow up a building with CCC's instead of TNT. Explain.
b) Why low energy batteries are preferred to gasoline in submarines? (4+2)
 27. a) Explain the efficiency of working of an electric power plant.
b) Explain how gasoline releases energy in an automobile. (3+3)
 28. Write a note on geosynchronous and geostationary satellites.
 29. a) Explain the principle of hot air balloons.
b) Give a practical application of Gravity measurement. (4+2)
 30. a) How does your weight vary in an elevator when it is accelerating up or down? Explain.
b) Explain how does a submarine adjust its depth below water. (3+3)
 31. Mention any two properties of each of α , β and γ rays.
 32. What is radiation poisoning and mention the corresponding illness caused by different dosages?
 33. Distinguish between fission and fusion reactions.
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