

(7 pages)

Reg. No. : .....

Code No. : 30942 E      Sub. Code : FSPH 11

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2024.

First Semester

Physics

Skill Enhancement Course — PHYSICS FOR  
EVERYDAY LIFE

(For those who joined in July 2024 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer.

1. When riding a bicycle uphill, which force must be overcome in addition to gravitational force?
  - (a) Only the frictional force from the tires on the road
  - (b) The gravitational force is the only force acting on the bicycle
  - (c) The mechanical resistance from the bicycles components
  - (d) The aerodynamic drag caused by air resistance

2. How does a rocket achieve propulsion according to Newton's laws?
  - (a) By relying on gravitational pull from the Earth
  - (b) By expelling gas in one direction to create thrust in the opposite direction
  - (c) By using a series of pulleys to lift itself
  - (d) By using a lame sail to catch the wind
3. What is the main principle behind the creation of a hologram?
  - (a) The magnification of images
  - (b) The interference of light waves
  - (c) The absorption of UV rays
  - (d) The reflection of sound waves
4. LASER is a short form of
  - (a) Light amplification by spontaneous emission of radiation
  - (b) Light amplification by stimulated emission of radiation
  - (c) Light absorption by stimulated emission of radiation
  - (d) Light absorption by spontaneous emission of radiation

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5. Due to absorption of heat by evaporator \_\_\_\_\_ the reffridgerant converts into

- (a) saturated vapour
- (b) liquid
- (c) sub cooled liquid
- (d) saturated liquid

6. What is wet process?

- (a) Grinding and mixing of the raw materials in their dry state
- (b) Grinding and mixing of the raw materials in their medium state
- (c) Grinding and mixing of the raw materials in their wet state
- (d) Grinding and mixing of the raw materials in their overheated state

7. What is solar water heater?

- (a) Use solar energy to heat water
- (b) Use solar energy to generate current which is then used to heat water
- (c) Use water to generate heat
- (d) Use solar energy to generate steam

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8. The amount of energy received in unit time on a unit area perpendicular to the sun's direction at the mean distance of the earth from the sun is called \_\_\_\_\_.

- (a) Solar radiation
- (b) Solar constant
- (c) Intensity of solar radiation
- (d) Air Mass

9. Which of the following statements about C.V. Raman is true?

- (a) He received the Nobel Prize in Physics in 1930
- (b) He was born in Mumbai
- (c) He established the Indian Space Research Organisation
- (d) He was awarded the Nobel Prize in Chemistry

10. What was Homi J. Bhabha's vision for India's nuclear program primarily focused on?

- (a) Rocket exploration
- (b) Space exploration
- (c) Medical advancements
- (d) Agricultural improvements

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, by choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the basic principles of spring scale.

Or

- (b) Analyze the importance of bicycle.

12. (a) Explain how polarized glasses work.

Or

- (b) Extend the theory and applications of holography.

13. (a) What are the advantages and disadvantages of refrigeration system?

Or

- (b) Explain the working principle of wet grinder.

14. (a) State the applications of solar energy in various sectors.

Or

- (b) Annotate the solar-powered water pumping and its benefits.

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15. (a) Recognize the analogy used to describe Homi J. Bhabha's vision for India's nuclear program.

Or

- (b) Explain the role of Raman spectroscopy in material characterization and its applications in various fields.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, by choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe about the working principle of rocket engine

Or

- (b) Explain Space travel.

17. (a) State the importance of UV protective glasses.

Or

- (b) Outline the basic concept of LASER.

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18. (a) Describe about the components of a hair dryer interact to optimize the hair drying process.

Or

- (b) Define filament bulb and explain the function of filament in a bulb.

19. (a) Identify the components of a solar water heater and their functioning.

Or

- (b) How does the solar constant impact the design and efficiency of solar energy systems in various contexts?

20. (a) Identify the applications of the Bhabha Atomic Research Centre (BARC) and the Indian Space Research Organisation (ISRO) in various fields.

Or

- (b) How do satellites fundamentally alter our daily lives, and in what ways did Vikram Sarabhai's vision shape their development and societal impact?

