



**ST. JOSEPH'S UNIVERSITY, BENGALURU -27**  
**Physics open elective – II SEMESTER**  
**SEMESTER EXAMINATION: APRIL 2023**  
 (Examination conducted in May 2023)  
**PH OE 2: Wonders of Physics**

**(For current batch students only)**

Time: 2 Hours

Max Marks: 60

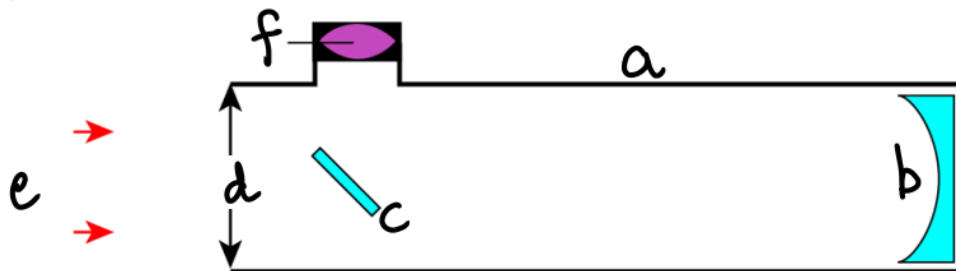
This paper contains four printed pages and four parts

**PART-A**

**Answer any six questions. Each question carries five marks.**

**[6x5 = 30]**

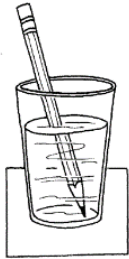
1. What are the different attributes of time?
2. Mention a few important points on why is earth considered a privileged planet.
3. Mention the different stages involved in the life and death of low-mass stars.
4. Stephen Hawking in his book 'The Grand Design' proposed the idea that the universe can and will come into existence out of nothing because of gravity. Identify the logical inconsistencies in this idea.
5. Draw a schematic writing different levels of information.
6. Mention any two important features of the human eye.
7. What type of telescope is given below in the figure? Label the parts a,b,c,d,e, and f.



## PART B

This part has seven cartoons that are connected to a physics concept. Chose any five cartoons and briefly mention the concepts, or words that you are reminded of when you see them. Each cartoon carries two marks. [5x2 = 10]

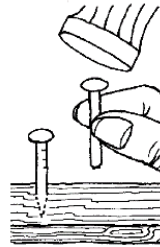
1. a.



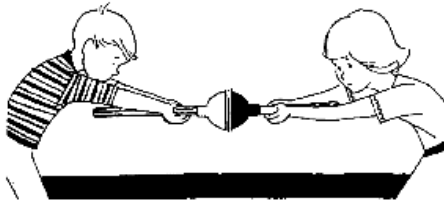
b.



c.



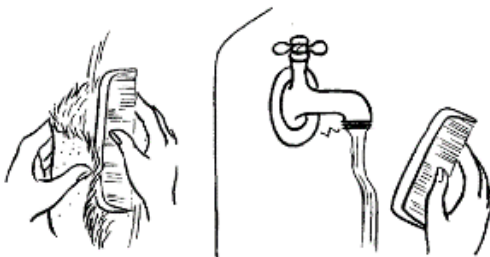
d.



e.



f.



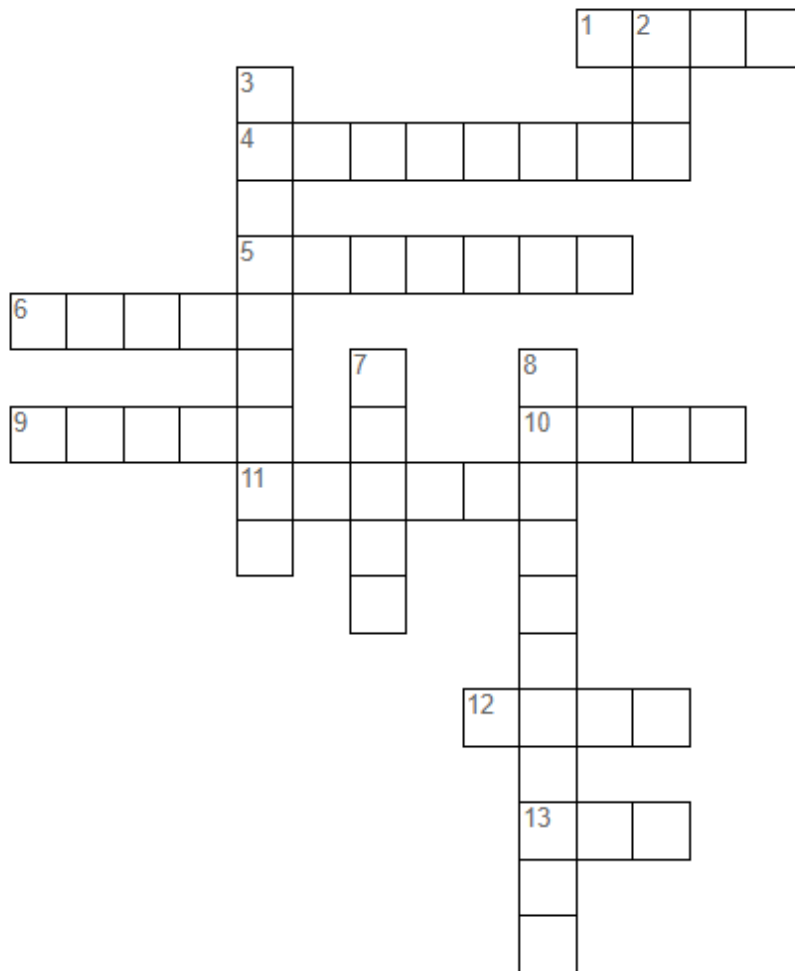
g.



### Part C

This session requires you to complete the crossword puzzle on the electromagnetic spectrum. Each solved word carries one mark [13x1=13]

## The Electromagnetic Spectrum



**Across**

- 1 After gamma waves, what is the second most dangerous type of wave on the spectrum?
- 4 What type of waves have energy that is higher than microwaves but lower than visible light?
- 5 What is the acronym used to remember the colors in visible light?
- 6 What type of wave on the electromagnetic spectrum has the lowest energy?
- 9 What type of wave on the electromagnetic spectrum has the most energy?
- 10 What type of wavelength does a wave have if it has a low frequency?
- 11 What color in visible light has the shortest wavelength?
- 12 Describe the energy of a wave with a high frequency.
- 13 A wave with \_\_\_\_ energy has a low frequency.

**Down**

- 2 What color in visible light has the longest wavelength?
- 3 What type of wave has a frequency higher than a radio wave, but lower than an infrared wave?
- 7 If a wave has a high frequency, it has a \_\_\_\_ wavelength.
- 8 What type of wave has a higher frequency than visible light, but lower than x-rays?

**PART D**

**This session has some words that are jumbled. Find the correct word and write a sentence on it. Each solved word carries one mark. [7x1=7]**

1. EMTOC
2. ETMORE
3. CPEOELSTE
4. SULHTET
5. NUS
6. NOMO
7. RUNAST