

Model Question Paper

MAHATMA GANDHI UNIVERSITY

V SEMESTER B.Sc. (Programme) EXAMINATION.....YEAR

Open Course -PH5D01.1U- AMATEUR ASTRONOMY

Instructions:

Time allotted: 3 hrs

Answer all questions in part A. This contains 4 bunches of 4 objective questions. For each bunch, grade A will be awarded if all the 4 answers are correct, B for 3, C for 2. D for 1 and E for 0. Answer any 5 questions from part B, any 4 from part C and any 2 from part D.

3. Candidates can use(type of calculator/tables)

Part A (Objective type- weight 1 each)

Bunch I

Fill in the blanks

1. Among all planets of the solar system, has the most elaborate ring system.
2. Solar eclipses occur when moon's shadow falls on
3. According to Ptolemy is at the centre of the universe.
4. There is an upper limit to the mass of a white dwarf and it is called limit..

Bunch II

Match the following

- | | |
|------------------------|------------------------|
| 5. 1.Orion- the hunter | a) Constellation |
| 6. 2.Copernicus | b) Star cluster |
| 7. 3.Sirius | c) Bright star |
| 8. 4.Pleiades | d) Heliocentric theory |
| | e) Galaxy |

Bunch III

State whether True/False

9. 1.The stars that we see with our naked eyes belong to our own galaxy.
- 10.2 Everything in the universe is expanding.
- 11.3 A star of apparent magnitude 2 will appear brighter than a star of magnitude 4.
- 12.4 Galileo was the first person to make a telescope.
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Bunch IV

. Choose the correct option.

- 13.1 One parsec is equal to ... light-years.
- a) 1 b) 3.26 c) 4 d) 2.2 million
- 14.2 Largest moon (natural satellite) in the solar system is
- a) Charon b) Titan c) Triton d) Ganymede
- 15.3 Penzias and Wilson were awarded Nobel Prize for their discovery of
- a) Pulsars b) Redshift c) Black holes d) Cosmic Microwave Background
- 16.4 Solar system planet with the highest surface temperature is
- a) Mercury b) Venus c) Earth d) Mars
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Part-B (Short answer questions-weight 1 each)

17. Explain the concept of Julian date.
- 18.What do you mean by constellations?
- 19.Write a short note on Lunar asterisms (*nakshatras*)
- 20.Write a short note on the origin of comets.
- 21.Briefly explain why most of the big telescopes use mirrors as objectives.
- 22.Explain what is meant by Epicycles in the context of Ptolemaic model of the universe.
- 23.Explains why Pluto was removed from the list of planets.
- 24.What is meant by inflationary universe in the context of Big Bang model?

Part C (Short Essay/ Problems- weight 2 each)

- 25.Explain the celestial coordinates – right ascension and declination.
- 26.Discuss classification of galaxies with the help of sketches.
- 27.Write a note on Saturn - the ringed planet.
- 28.Discuss parallax method to determine the distance to nearby stars.
- 29.Explain the concept of epicycles. How could Ptolemy explain retrograde motion of planets with the help of epicycles?
- 30.Write short notes on dark matter and dark energy.

Part D (Essay type questions- weight 4 each)

- 31.With a neat diagram, explain the working of a Newtonian reflector telescope.
- 32.Describe qualitatively the nebula hypothesis on the origin of the solar system.
- 33.Discuss how Galileo’s telescopic observations challenged several notions about the universe.
