

QPCode**Reg.No:.....****Name :.....**

MAHATMAGANDHI UNIVERSITY,KOTTAYAM
MGU-UGP(HONOURS) EXAMINATIONMONTHYYYY THIRD SEMESTER
DSE CourseCode-MG3DSEPHYA03 CourseName ASTRONOMY: A FIRST LOOK
(2025ADMISSION ONWARDS)

Duration: 1 Hour 30 Minutes**Maximum Marks: 50**

***Remember(K),Understand(U),Apply(A),Analyse(An),Evaluate(E),Create(C),Skill(S),Interest(I)and
Appreciation(Ap)***

Students should attempt atleast one question from each course outcome to enhance their over all outcome attainability.

PartA

Short Answer Questions

Answer any **10** questionsEachquestioncarries**2**marks

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|---|------------|
| 1. Who was Aryabhata? Which are the major fields that he contributed to? | [K]/[CO2] |
| 2. What are seasons? How are they caused? | [U]/[CO3] |
| 3. Define one light year. What is the value of one light year in kilometres? | [U]/[CO4] |
| 4. Find the distance to a star in meters if it is located 2 parsecs away | [An]/[CO4] |
| 5. Who proposed the Geocentric model of the universe? | [K]/[CO1] |
| 6. State Kepler's First Law of Planetary Motion. | [U]/[CO1] |
| 7. What are the prime mechanisms responsible for the generation of high energy gamma rays? | [K]/[CO5] |
| 8. What is the period and speed of Hubble Space Telescope mission? | [A]/[CO5] |
| 9. Calculate the solar constant. Given, $1AU = 1.5 \times 10^{11}$ m, and solar luminosity 3.826×10^{26} J/s. | [A]/[CO3] |
| 10. The ratio of fluxes from two objects is 145. The magnitude of brighter object is 1.2.
Calculate the magnitude of other object? | [A]/[CO3] |
| 11. Derive the relation between the radiant fluxes and apparent magnitudes of two stars. | [An]/[CO4] |
| 12. Name the famous books written by Brahmagupta. What does they deal with? | [U]/[CO2] |

[2x10 = 20]**Part B**

Short Essay Questions/Problems

Answer any **6** questions

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| 13. What are seasons? How are they caused? | [U]/[CO3] |
| 14. Explain the different phases of the moon with diagram. | [A]/[CO3] |
| 15. Write the contributions of any two Indian astronomers. | [U]/CO2] |

16. A satellite of mass 500 kg orbits the Earth at a distance 7×10^6 m from Earth centre.

Find the gravitational force on it (Earth's mass = 6×10^{24} kg)

[U]/[CO1]

17. Define one AU. If a planet is 10 AU away, how long would light take to reach it?

[An]/[CO4]

18. Show that one parsec is equal to 3×10^{13} km when two objects separated by distance 1 AU subtend an angle of one arc sec.

[A]/[CO5]

19. Write a brief note on Chandra telescope mission

[U]/[CO5]

20. What are the main scientific objectives of the AstroSat mission?

[A]/[CO5]

[5x6 = 30]