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18AS643

Sixth Semester B.E. Degree Examination, July/August 2022 Introduction to Astrophysics and Space Environment

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define major contents of Universe including all models about Universe. (10 Marks)
- b. State the following terms :
i) Color index ii) Extinction iii) Color temperature. (10 Marks)

OR

- 2 a. State the following terms : i) Radiant flux ii) Inverse square law of light
iii) Distance modulus iv) Black body radiation. (12 Marks)
- b. Write short note on Magnitude Scale for space objects. (08 Marks)

Module-2

- 3 a. Explain briefly on Newtonian Cosmology and Microwave back ground. (10 Marks)
- b. Define Shape , Size and Contents of our galaxy and briefly explain the normal and active galaxies. (10 Marks)

OR

- 4 a. Briefly explain the laws of planetary motion. (10 Marks)
- b. Define Binaries and explain the variable and Cluster star. (10 Marks)

Module-3

- 5 a. Define Scattering and explain the classical radiation field. (10 Marks)
- b. Write short notes on Annihilation and Number Operator. (10 Marks)

OR

- 6 a. Explain the following terms :
i) Radiation damping ii) Resonance fluorescence. (10 Marks)
- b. Briefly explain the basics of Quantum Electrodynamics. (10 Marks)

Module-4

- 7 a. Write short note on : Earth , Moon and Sun. (10 Marks)
- b. Briefly explain the Helioseismology and Convection. (10 Marks)

OR

- 8 a. With the neat sketch, explain the Asteriod belt. (10 Marks)
- b. Write short notes on Formation of the Solar system , Stars and Planets. (10 Marks)

Module-5

- 9 a. Explain briefly on vacuum Environment and its effects. (10 Marks)
- b. Write short note on Neutral Environment and its effects. (10 Marks)

OR

- 10 a. Write the advantages and disadvantages of Space Environment. (10 Marks)
- b. Write short note on Debris Environment and its effects. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.