



DRR-3218

Third Year B. Sc. (Sem. VI) Examination

March / April - 2016

PHY-6011 : Physics : Paper - XI

(Astrophysics & Cosmology) (New Course)

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

नीचे दशांशवेक निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
Third Year B. Sc. (Sem. VI)	<input type="text"/>
Name of the Subject :	<input type="text"/>
PHY-6011 : Physics : Paper - XI (New)	<input type="text"/>
Subject Code No. : <input type="text"/> 3 <input type="text"/> 2 <input type="text"/> 1 <input type="text"/> 8	<input type="text"/>
Section No. (1, 2,.....) : <input type="text"/> NIL	
Student's Signature	

- (2) Draw neat diagrams wherever necessary.
- (3) Symbols used in the paper have their usual meaning.
- (4) Figures to the right side indicate full marks of the question.
- (5) Scientific non-programmable calculator may be used.

1 Answer the following questions in brief :

8

- (1) What is an astronomical unit?
- (2) State the cosmological principle.
- (3) State the steady state hypothesis.
- (4) What would happen to life on Earth if universe expands for ever?
- (5) What is a flow chart?
- (6) What are comment lines in a C program?
- (7) Pick the incorrect floating point constants from the following :
 $4.0; -\frac{1}{4}; 6300.0; 23,521.$
- (8) What do you mean by a compound statement in C program?

- 2 (a) Attempt any one of the following in details : 10
- (i) What is cosmology? Discuss the expansion of universe and hence explain Hubble's law and Hubble parameter.
 - (ii) Discuss the cosmic microwave background radiation and the present day temperature of the universe.
- (b) Attempt any one of the following : 4
- (i) Certain characteristic wavelengths in the light from a galaxy are observed to be decreased in wavelength, as compared with terrestrial sources by about 0.4%. What is the radial speed of this galaxy with respect to Earth? Is it approaching or receding?
 - (ii) If a star is at a distance of 9 kpc from the center of our Milky way galaxy, and if its tangential velocity is 250 km s^{-1} , then calculate the mass contained within the region of its circular path.
 $\left(1 \text{ pc} = 3.084 \times 10^{11} \text{ km}; G = 6.67 \times 10^{-11} \text{ SI}\right)$
- 3 (a) Attempt any one of the following in details : 10
- (i) What is an algorithm? Discuss its essential properties. Write an algorithm to pick up the largest number from a set of three numbers.
 - (ii) Discuss the different types of numeric constants which are used in C programming alongwith the rules to be followed.
- (b) Attempt any one of the following : 4
- (i) Write a program in C to convert temperature in degree Celsius to Kelvin.
 - (ii) Write a program in C to read the height and base of a triangle and compute its area.
- 4 Discuss any two of the following in details : 14
- (i) Dark matter.
 - (ii) Big bang cosmology.
 - (iii) Operator precedence and the use of parentheses in C programming.
 - (iv) Input and output functions in C program.