C 40408   (Pages : 2)   Name...................................

Reg. No............................

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2013

(CCSS)

Physics

Elective PH 6B 20 (E2) —ATMOSPHERIC PHYSICS

Time : Three Hours   Maximum : 30 Weightage

I. Answer all 12 questions :

  1 The major gaseous constituent (by mass) of air is :

      (a) Oxygen.   (b) Nitrogen

      (c) Carbon dioxide   (d) Ozone.

  2 A black body absorbs the incident radiations ————.

      (a) At selected wavelengths   (b) Completely.

      (c) Partially.   (d) None of the above.

  3 The gas constant of dry air is ————.

  4 Atmosphere is a ———— heat engine.

      (a) Efficient

      (b) Inefficient.

      (c) Sometime efficient and sometime inefficient.

      (d) None of the above.

  5 The maximum temperature in a tropical station is observed around :

      (a) 12.30 p.m.   (b) 1.30 p.m.

      (c) 2.30 p.m.   (d) 4 p.m.

  6 Out of the following ,which comes under the category of Greenhouse gass :

      (a) Water Vapour.   (b) Nitrogen.

      (c) Sulphur dioxide.   (d) Carbon Monoxide.

  7 At ———— temperature, the numerical value of degree Centigrade and Fahrenheit will be same.

  8 Maximum observed relative humidity in the atmosphere is ————.

  9 The mean sea level atmospheric pressure is :

      (a) 013 hpa.   (b) 850 hpa.

      (c) 100 hpa.   (d) 10.

 10 Solat and terrestrial radiation are termed as long and short wave radiations respectively. T/F

 11 Monsoon depressions are severe forms of tropical cyclones. T/F

 12 Line joining places having equal pressure in a weather map is termed as ————.

                                 (12 × ¼ = 3 weightage)

Turn over

II. Answer *all* questions :

13 Write short note on different types of clouds.

14 What are the liquids used in maximum and minimum thermometers ?

15   Define Stefan-Boltzmann law.

16 Distingusih between weather and climate.

17 Briefly explain the working principle of a weather radar.

18 Tropical tropopause is cooler than polar tropopause. Justify.

19 Write a note on colours on sunrise and sunset.

20 What are the different instruments housed in a Stephansen screen.

21 What is the cloud type associated with a thunderstorm and what will be its horizontal and vertical extend ?

(9 × 1 = 9 weightage)

III. Answer any *five* questions from seven :

22 Describe the vertical thermal structure of the atmosphere.

23 From the first law of thermodynamics, obtain the Poisson equation.

24 Distinguish between rainbow, hallow and glory.

25 Explain a Carnot cycle.

26 Distinguish between Rayleigh scattering, mie scattering and refraction of radiation.

27 Explain in brief the geographic location and seasons where tropical cyclones are formed in Indian seas.

28 Write a note on Atmospheric remote sensing.

(5 × 2 = 10 weightage)

IV. Eassy questions (Answer *two* questions from three) :

29 Write a detailed note on global warming with special reference to climate . change and its possible impacts.

30 Write an essay on different seasons of India with special reference to the weather disturbances during these seasons in India.

31 Discuss in detail the heat budget of the earth atmospheric system.

(2 × 4 = 8 weightage)