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Sardar Patel University

Vallabh Vidyanagar

MSc (Applied Science)-I semester Examination

Subject: Earth, Earth materials and Solar system: PET01EAS01

Day & Date: Wednesday 08 Jan 2014

Time: 10:30 am to 01:30 pm

Max marks 70

I Select the most probable answer from the choices given below each question (8x1=8)

1. The average distance a molecule travels between successive collisions is called as

- A. RMS velocity B. Drift velocity
C. Mean free path D. Impact parameter

2. The peak of ozone concentration occurs in Earth's atmosphere at

- A. 10 km above the surface B. 25 km above the surface
C. 3 km below the sea surface D. At the mean sea level

3. Mixture of solid or liquid particles suspended in air is generally referred as

- A. Aerosols B. Moist C. Fog D. Pollutants

4. Total energy flux radiated by a black body is related to its temperature according to

- A. Boltzmann relation B. Stefan's T^4 law
C. Planck's law D. Wien's T^2 law

5. Which of the following does not qualify to be called as a mineral?

- A. Marble B. Natural Salt C. Diamond D. Calcite

6. Which of the following mineral has 4 sets of cleavage and hardness also 4?

- A. Fluorite B. Calcite C. Apatite D. Magnetite

7. Which of the following seismic waves are the most destructive waves?

- A. P-waves B. S-waves C. L-waves D. None

8. Name the galaxy our solar system belongs to

- A. Andromeda B. Large Magellanic C. Milky way D. Triangulam

II. Answer any seven questions very briefly

2X7= 14

1. Define extinction coefficient
2. Explain the Junge power law of the aerosol size distribution
3. Show graphically the temperature profile of our Atmosphere.
4. What way a mineral is different than a rock?
5. What is difference between abrasion and attrition?
6. Name all major boundary faults of _____
7. Define the term 'focus' and 'epicentre' of earthquake.
8. What are radio isotopes? Give examples
9. Explain the term Isostasy.

III A. Write short note on Moh's scale of hardness 6

B. Describe the Silicate structures of minerals 6

OR

B. Discuss Major physical properties of minerals 6

IVA. Write a short note on Sedimentary structures 6

B. Discuss the modern theories on the origin of Earth and other planetary bodies 6

OR

B. Discuss the basic principles of stratigraphy 6

VA. Explain the main features of the Stratosphere in comparison with that of troposphere. 6

B. Write a short note on physical and chemical properties of sea water. 6

OR

B. Discuss the ozone layer and their importance in our atmosphere.

VIA. What are aerosols? Explain the role of aerosols in the Earth- Atmosphere radiation budget. 6

B. Discuss Rayleigh scattering of light by air molecules and show that the scattered intensity is proportional to fourth power of the radiation frequency. 6

OR

B. Write a short note on El Nino southern oscillation. 6

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