

# V-SAT 2015

## Mathematics Sample Questions

1.  $\lim_{n \rightarrow \infty} \left( \frac{1}{1.2} + \frac{1}{2.3} + \frac{1}{3.4} + \dots + \frac{1}{n(n+1)} \right) =$

A) 0  
B) 1  
C) 1  
D) 2

**Answer : B**

2. If the percentage error in the volume of a sphere is 5, then the percentage error in the radius of the sphere is
- A) 4/9  
B) 2/5  
C) 5/3  
D) 1/2

**Answer : C**

3. The function  $f(x) = \tan x - x$
- A) Always decreases  
B) Always increases  
C) Sometimes increase and sometimes decrease  
D) Never decreases

**Answer : B**

4.  $\lim_{x \rightarrow 0} \frac{9^x + 9^{-x} - 2}{x^2}$  is

- A)  $\log 9$   
B)  $(\log 3)^2$   
C)  $(\log 9)^2$   
D)  $\log 1$

**Answer : C**

5.  $\int_0^1 \tan^{-1} \left( \frac{2x-1}{1+x-x^2} \right) dx =$

- A) 0  
B) 1  
C) 2  
D)  $\frac{\pi}{4}$

**Answer : A**

## Physics Sample Questions

1. Escape velocity on the surface of the earth is 11 km/s. If a body on the surface of the earth is given a velocity equal to 11 km/s in horizontal direction, the body will:
- A) Not escape and will return back to the earth, traveling along parabolic path
  - B) Escape away from the earth traveling along parabolic path
  - C) Escape away from the earth traveling along straight line path
  - D) Orbit along elliptical path around the earth

**Answer : B**

2. A SHM has time period of one second. Its differential equation is

A)  $\frac{d^2x}{dt^2} + x = 0$

B)  $\frac{d^2x}{dt^2} + 2\pi x = 0$

C)  $\frac{d^2x}{a^2} + 4\pi x = 0$

D)  $\frac{d^2x}{dt^2} + 4\pi^2 x = 0$

**Answer : D**

3. If a graph is plotted between stress along "y" axis and strain within elastic limit along "x" axis, it is a straight line :
- A) Parallel to y axis
  - B) Parallel to x axis
  - C) Inclined and passing through the origin
  - D) Inclined and interception both the x and y axes

**Answer : C**

4. When the intermolecular distances due to compressive force, there is :

- A) No force between molecules
- B) Attractive force between molecules
- C) Repulsive force between molecules
- D) Zero resultant force between molecules

**Answer : C**

5. The length of the second's pendulum is increased by 2%. The clock using the pendulum in a day will

- A) Lose 864 sec
- B) Gain 864 sec
- C) Lose 432 sec
- D) Gain 432 sec

**Answer : A**

## Chemistry Sample Questions

1. A 500g tooth paste contains 0.2g of fluoride. The fluoride concentration in ppm is

- A) 250
- B) 200
- C) 400
- D) 4000

**Answer : C**

2. Phenol is used as a starting material for the manufacture of a drug known as

- A) Phenoyl
- B) Bakelite
- C) Aspirin
- D) Dettol

**Answer : C**

3. The N-atom does not possess a lone pair of electrons in

- A)  $\text{RNH}_2$
- B)  $\text{R}_2\text{NH}$
- C)  $\text{R}_3\text{N}$
- D)  $[\text{R}_4\text{NH}]^+$

**Answer : D**

4. In polymerization, the monimer and polymer do not differ in their

- A) Molecular weights
- B) Molecular formulatate
- C) Empirical formulae
- D) Properties

**Answer : C**

5. The Reduction potential NCE at 25°C is

- A) 0.3338V
- B) 0.2415V
- C) 0.2415 V
- D) 0.2415 V

**Answer : C**

## Biology Sample Questions

1. Parenchyma cells are characterized by the presence of

- A) Thickenings in corners
- B) Uniform thickening
- C) Intercellular spaces
- D) Lignified walls

**Answer : B**

2. Which of the following causes malaria?

- A) Amoeba proteus
- B) Trypanosoma gambiense
- C) Plasmodium vivax
- D) Paramecium caudatum

**Answer : C**

3. Following statements are correct regarding the genus *Streptomyces*

(I) Belongs to kingdom protista (II) Produces antibiotics (III) Branched filamentous bacteria

Choose the correct answer

- A) I & II
- B) II & III
- C) I & III
- D) All

**Answer : B**

4. Match the following enzymes with pathway in which they act as catalysts.

<u>Enzyme</u>	<u>Pathway</u>
I. PEP carboxylase	P. glycolysis
II. RuBisCO	Q. Krebs cycle
III. Enolase	R. Calvin cycle
IV. Fumerase	S. C <sub>4</sub> pathway

Choose the correct match

- |                        |                        |
|------------------------|------------------------|
| A. I-S;II-R;III-P;IV-Q | C. I-R;II-Q;III-P;IV-S |
| B. I-S;II-Q;III-S;IV-R | D. I-R;II-S;III-Q;IV-P |

**Answer : A**

5. In which of the following period reptiles arose

- A) Jurassic
- B) Triassic
- C) Permian
- D) Pencylvarian

**Answer : C**

## English/Aptitude Sample Questions

1. Opposite of the given Word: Economy

- A. Extravagance
- B. Spend thrift
- C. Politics
- D. Society

**Answer. A**

2. Pick out the answer choice from below options: I have \_\_\_\_\_ any money left

- A. Nearly
- B. Scarcely
- C. Hardly
- D. No

**Answer. B**

3. Choose the option that has nearly the same meaning as the given word: Grace

- A. Daring
- B. Appropriate
- C. Favour
- D. Controversial

**Answer. C**

4. Find the average of all odd numbers from 1 to 100 ?

- A. 49
- B. 50
- C. 51
- D. none

**Answer. B**

5. If the product of number's is 750 and their LCM is 150, then what is their HCF ?

- A. 5
- B. 6
- C. 7
- D. 8

**Answer. A**