VTSE 12TH MED

BIOLOGY

1. Select the correct statement.

A Phosphorus cycle is an example of gaseous nutrient cycle

B The pyramid of biomass in sea is generally inverted

By the process of humification, soluble inorganic nutrients go down into soil horizon

D A given organism may not occupy more than one trophic level simultaneously

E Pyramid of energy is always inverted, can never be upright

2. Which of the following statements is incorrect?

(A) The species that invade a bare area are called pioneer species

B The entire sequence of communities that successively change in a given area called sere

(C) Pyramid of energy is always inverted

D Pyramid of numbers in a tree ecosystem can be inverted

3. Fertility of paddy fields is improved by addition of

A Rhizobium B Gypsum

(c) C Sodium sulphate (D) Blue-Green Algae

4.Bacteria responsible for fermentation of dairy milk are

A Lactobacillus B Hay Bacillus

C . Acetobacter D Rhizobium

5. Malacophily is observed in.

A Ruppia B Zostera

C Lemna D Bignonia

CHEMISTRY

1. 2 gm of a radioactive sample having half life of 15 days was synthesised on 1st Jan 2009. The amount of the sample left behind on 1st March. 2009 (including both the days)

A 1 gm B 0.5 gm

C 0 gm D 0.125 gm

2. 5 moles of SO_2 and 5 moles of O_2 are allowed to react. At equilibrium, it was found that 60% of SO_2 is used up. If the partial pressure of the equilibrium mixture is one atmosphere. the partial pressure of O_2 is

A 0.21 atm B 0.41 atm

C 0.82 atm D 0.52 atm

3. Assertion (A): Cryoscopic constant depends on nature of solvent.

Reason (R):Cryoscopic constant is a universal constant.

A Both A and R are true and R is the correct explanation of A

B Both A and R are true but R is not the correct explanation of A.

C A is true but R is false.

D A is false but R is true.

4. Which of the following statements is true:

(A) Ammonia is the weakest reducing agent and the strongest base among Group 15 hydrides.

B Ammonia is the strongest reducing agent as well as the strongest base among Group 15 hydrides.

C Ammonia is the weakest reducing agent as well as the weakest base among Group 15 hydrides.

D Ammonia is the strongest reducing agent and the weakest base among Group 15 hydrides.

5. Alkenes decolourise bromine water in presence of $CC1_4$ due to formation of:

A allyl bromide B vinyl bromide

C bromoform D vicinal dibromide

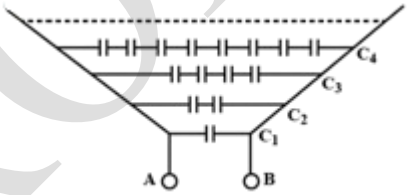
PHYSICS

1. The largest distance between a source and a destination up to which the signal is received with sufficient strength is called:

A Attenuation B Range

C Bandwidth D None of these

2. Determine equivalent capacitance between A and B Each capacitance is of 1 F.



A 1F B 2F

C 3F D 4F

3. Conservation of charges in tribo electric charging

A implies half are positively charged and other half are neutral

B implies both are negatively charged

C implies one is positively charged and the other is negatively charged.

D implies both are positively charged

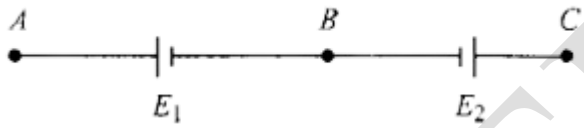
4. Two positive point charges of 12 and 8 microcoulombs are placed 10 cm apart in air. The work done to bring them 4 cm closer is

A zero B 3.8 J

C 4.8 J D 5.8 J

5. Two cells of e.m.f.s E_1 and E_2 ($E_1 > E_2$) are connected as shown

When a potentiometer is connected between A and B. the balancing length of the potentiometer wire is 300 cm. On connecting the same potentiometer between A and C. the balancing length is 100 cm. The ratio E_1/E_2 is



A 3:1 B 1:3

C 2:3 D 3:2

MATHEMATICS

Q1. The probabilities that a student will solve Question A and Question B are 0.4 and 0.5 respectively. What is the probability that the solves at least one the two question?

a) 0.6 b) 07. C) 0.8 d) 0.9

Q2. It is given that a family of 3 children has two girls, what is the probability that the other child is also a girl?

a) 0.50 b) 0.75 c) $\frac{1}{3}$ d) $\frac{1}{4}$

Q3. If f : N → N be defined by f (x) = 2x +3 then f^{-1} (x) =

a) 2x – 3 b) $\frac{x-3}{2}$

c) $\frac{x+3}{2}$ d) Not defined

Q4. If f (x) = x + 4, g (x) = 5x and h (x) = 12/8x. find the value of f^{-1} (g(h(6))).

a) 10 b) 14 c) 6 d) 0

Q5. The value of sin^1 ($sin\frac{5\pi}{3}$ is

a) $\frac{\pi}{3}$ b) $\frac{5\pi}{3}$ c) $\frac{\pi}{3}$ d) $\frac{2\pi}{3}$