

R.E.D. Group of Schools

Entrance Test – Session (2017-18)

Class : (XII)

Subject - Biology

Time :30 Min.

Student Name _____

Roll No. _____

M.M. 20

Sec. _____

1. Separate Xylem and phloem bundles are known as: **1×3=3**
(a) Radial (b) Amphivasal
(c) Collateral (d) Bicollateral
2. Important site for formation of glycoprotein and glycolipids is
(a) Vacuole (b) Plastids
(c) Lysosome (d) Golgi Apparatus
3. Phytochrome was isolated by
(a) Buttl (b) R. Hill
(c) Borthwick (d) Went
4. Distinguish between vessels and sieve tubes. **2×4=8**
5. List three main differences between DNA and RNA.
6. How ear helps in maintaining equilibrium?
7. What is water potential? Why is it negative in value.
8. Discuss development of seed habit. **3×3=9**
9. What are lipid? Give their types?
10. What is peristalsis? How does it help in digestion.

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Entrance Test–(Session-2017-18)

Class : XII

Subject - Mathematics

Time : 30 Min.

M.M. 20

1. Find the derivative of the function $f(x) = \sec \sqrt{x}$ by using first principle

2. Evaluate: $\lim_{x \rightarrow \frac{\pi}{4}} \frac{\tan^3 x - \tan x}{\cos(x + \frac{\pi}{4})}$

3. Find the equation of the hyperbola whose directrix is $2x + y = 1$, focus (1,2) and eccentricity $\sqrt{3}$?

4. The sum of an infinite number of terms in G.P. is 57 and sum of their cubes is 9747. Find the G.P. ?

5. Find the co-ordinates of the foot of perpendicular from the point (2,3) on the straight line. $4x - 5y + 8 = 0$

6. If A and B be two sets containing 3 and 8 element respectively, then find the minimum and maximum number of elements in $A \cup B$?

7. Find the domain and range of function $\sqrt{x^2 - 9}$

8. Prove that $2 \sin^2 \beta + 4 \cos(\alpha + \beta) \sin \alpha \sin \beta + \cos 2(\alpha + \beta) = \cos 2\alpha$

9. Solve : $4x^4 - 4x^3 - 7x^2 - 4x + 4 = 0$

10. A polygon has 44 diagonals. Find the number of its sides ?

(10×2=20)

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Subject - Mathematics

Time : 30 Min.

M.M. 20

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Entrance Test– Session : 2017-18

Class : XII

Subject - Physics

Time :30 Min.

M.M. 20

- (i). All questions are necessary
(ii). Every questions are 2 marks

1. The displacement x of the body in motion is given by $x = A \sin(\omega t + \theta)$. Determine the time at which the displacement is maximum.
2. Prove that there are two timings for which the projectile travels the same vertical distance. Also prove that the sum of the two timings is equal to the time of flight.
3. How does banking of roads reduce wear and tear of the tyres?
4. A bird is sitting on the floor of a closed glass cage and the cage is in the hands of a girl. Will the girl experience any change in the weight of the cage when the bird (i) starts flying in the cage with constant velocity (ii) flies upwards with acceleration (iii) flies downwards with acceleration?
5. If stretch in a spring of force constant K is doubled, calculate
 - (a) ratio of final to initial force in the spring
 - (b) ratio of elastic energies stored in the two cases
 - (c) work done in changing to the state of double stretch.
6. A sphere of mass m moving with velocity u hits another stationary sphere of same mass. If e is coefficient restitution, what is the ratio of velocities of two spheres after collision?
7. A person sitting in an artificial satellite of earth feels weightless, but a person standing on moon has weight through moon is also a satellite of earth.
8. A refrigerator is to maintain estables kept inside at 15°C when room temperature is 25°C . Calculate the coefficient of performance.
9. The absolute temperature of a gas is made 4 times. How are rms velocity of its molecules ; pressure of gas and K.E. of gas affected?
10. Calculate mean free path of air molecules when number of molecules per cm^3 is 3×10^{19} and diameter of each molecule is 2×10^{-8} cm.

(10×2=20)

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