



the metamorphosis starts from here....



Brilliant International Olympiad of SCIENCE

Class-11B

(Syllabus and Sample Question Paper)

PHYSICS Physical World and Measurement, Kinematics, Laws of Motion, Work, Energy and Power, Motion of System of Particles and Rigid Body, Gravitation, Properties of Bulk Matter, Thermodynamics, Behaviour of Perfect Gas and Kinetic Theory, Oscillations and Waves
CHEMISTRY Basic Concepts of Chemistry, Structure of Atom, Classification of Elements and Periodicity in Properties, Chemical Bonding and Molecular Structure, States of Matter: Gases and Liquids, Thermodynamics, Equilibrium, Redox Reaction, Hydrogen, s-Block Elements (Alkali and Alkaline Earth Metals, Some p-Block Elements (B,C,N), Organic Chemistry – Some Basic Principles and Techniques, Hydrocarbons, Environmental Chemistry
BIOLOGY Diversity in Living World, Structural Organisation in Plants & Animals, Cell Structure and Functions, Transport, Nutrition & Growth in plants, Photosynthesis and Respiration in Plants, Digestion and absorption, Breathing and respiration, Body fluids and circulation, Excretory products and elimination, Locomotion and movement, Control and coordination

The Actual Question Paper Contains 40 Questions. The Duration of the Test Paper is 60 Minutes

1. The permissible use of the technique of amniocentesis is for?

- (A) Artificial Insemination
- (B) Transfer of embryo into uterus of surrogate mother
- (C) Detecting any genetic abnormality
- (D) Detecting sex of the unborn foetus
- (E) None of these

2. Which of the following is not used as bioweapon?

- (A) Bacillus thuringiensis toxin
- (B) Small pox
- (C) Botulinum toxin
- (D) Bacillus anthracis
- (E) None of these

3. Which is the correct hierarchical order ?

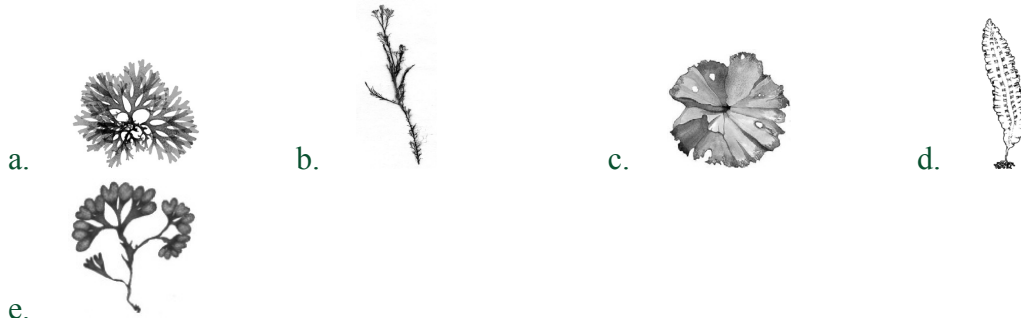
- (A) Division – order – family – class
- (B) Family – class – order – division
- (C) Family – order – class – division
- (D) Order – class – family – division
- (E) None of these

4. Rhizopus reproduces asexually through?

- (A) Sporangiospores
- (B) Aplanospores
- (C) Chlamydospores
- (D) Akinetes
- (E) None of these

5. In the diagram below, some of the algae have been labelled a,b,c,d and e.

These algae are respectively identified as



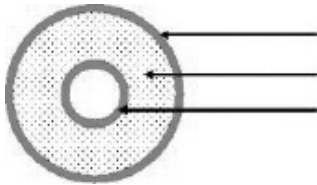
- (A) Dictyota, Polysiphonia, Porphyra, Fucus and Laminaria
 (B) Laminaria, Polysiphonia, Porphyra, Dictyota and Fucus
 (C) Dictyota, Polysiphonia, Porphyra, Laminaria and Fucus
 (D) Porphyra, Dictyota, Laminaria, Fucus and Polysiphonia
 (E) Fucus, Porphyra, Dictyota, Polysiphonia and Laminaria

6. Examine the figure a, b, c and d. In which one of the options all the items a, b, c and d are correct.



	a	b	c	d
A	Chara	Marchantia	Fucus	Pinus
B	Equisetum	Ginkgo	Selaginella	Lycopodium
C	Sellaginella	Equisetum	Salvinia	Ginkgo
D	Funaria	Adiantum	Salvinia	Riccia
E	None of these			

7. Cross section of body of an invertebrate is given. Identify the animal from the body plan



- (A) Cockroach (B) Planaria (C) Roundworm (D) Earthworm
 (E) None of these

8. One example of animals having a single opening to the outside that serves both as mouth as well as anus is ?

- (A) Asterias (B) Ascidia (C) Fasciola (D) Octopus
 (E) None of these

9. The metal X on heating in nitrogen gas gives Y. Y on treatment with H_2O gives a colourless gas which has been passed through $CuSO_4$ Solution gives a blue colour, Y is?

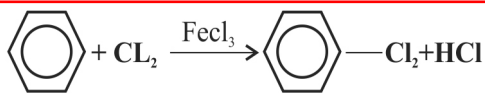
- (A) $Mg(NO_3)$ (B) Mg_3N_2 (C) NH_3 (D) MgO
(E) None of these

10. Which of the following compound (s) has least dipole moment ?

- (A) 1, 2 – Dichlorobenzene (B) 1, 3 – Dichlorobenzene
(C) 1, 4 – Dichlorobenzene (D) All have the same dipole moment
(E) None of these

11. The compound  is named in IUPAC as?

- (A) 3, 4 – hexane di-one (B) 3, 6 – hexandione
(C) Propoxy propanone (D) Propanoic anhydride
(E) None of these

12. In the reaction,  the attacking species is?

- (A) Cl_2 (B) Cl^+ (C) Cl^- (D) $FeCl_4^-$
(E) None of these

13. Two particles A and B moves with constant velocities V_1 and V_2 along two mutually perpendicular straight lines towards the intersection point O. At the moment $t=0$, the particles were to located at distances S_1 and S_2 from the point O. The line at which the distance between the particles becomes the smallest is

- (A) $\frac{V_1S_1 + V_2S_2}{V_1^2 + V_2^2}$ (B) $\frac{V_1S_1}{V_1^2 + V_2^2}$ (C) $\frac{S_1 + S_2}{V_1^2 + V_2^2}$ (D) $\frac{V_1 + V_2}{V_1^2 + V_2^2}$
(E) None of these

14. A bullet of mass m moving with a speed u strikes a wooden block of mass M and gets embedded into the block. The final speed is?

- (A) $\sqrt{\frac{M}{M+m}}v$ (B) $\sqrt{\frac{M}{M+m}}v$ (C) $\frac{m}{M+m}v$ (D) $\frac{V}{2}$
(E) None of these

15. A sphere, a cube and a thin circular plate, all made of the same material and having the same mass, are initially heated to a temprature of $3,000^\circ C$. Which of these will cool fastest ?

- (A) Sphere (B) Cube (C) Plate (D) Either cube or plate
(E) None of these

ANSWERS

1. C 2. A 3. C 4. A 5. C
6. C 7. B 8. C 9. B 10. C
11. D 12. B 13. A 14. C 15. D