



# Medical College Admission Test : 2008—2009

## ZOOLOGY

1. Which one of the following is developed from mesoderm?

- A. Nervous system
- B. Circulatory system ✓
- C. Skeletal system ✓
- D. Reproductive system ✓

Exp :

B.C.D are the answers of the given question because circulatory, skeletal and reproductive systems are developed from mesoderm germ layer.

The fate of all three germ layer is given below —

Germ layer	developed part or organ of a animal
Ectoderm	1. Epidermis & glands of skin, hair, feather, nail, horns, squamous part of skin etc. 2. Eye and internal ear. 3. Mucosa of anal canal. 4. Enamel of tooth & oral cavity 5. Whole nervous system & some muscles.
Mesoderm	1. Maximum muscle, adipose tissue, and other connective tissue. 2. Dermis and dentin of tooth. 3. Skeletal system 4. Blood circulatory system. 5. Most of the genito-urinary system 6. Coelomic epithelium, mesentery 7. Outer layer of digestive tube. 8. Eustachian tube & covering of middle ear (sometimes)
Endoderm	1. Covering of digestive tube. 2. Respiratory system, Thyroid & thymus gland 3. Liver & pancreas 4. Covering of middle ear (sometimes) 5. Part of renal & reproductive system (Sometimes)

02. Which one of the following structure does not contain voluntary muscle?

- A. Eye
- B. Tongue
- C. Uterus ✓
- D. Hand

Exp :

Answer to the following ques is C. Remember that voluntary muscle always attached to the bones. Some voluntary muscle (rectus, oblique) fix the eyeball to

the bones of the skull.

Similarly muscles of the tongue and hand are attached to the bones of the respective organ.

The muscles of the hollow organ of the thorax & abdomen are purely involuntary because they do not attach with any bone e.g.-stomach, intestine, uterus etc.

03. The facial bones are how many in number —

- A. 12
- B. 13
- C. 14 ✓
- D. 15

Exp :

The face is composed of 14 bones. They are as follows :

Bone	Number
Mandible	1
Maxilla	2
Zygomatic	2
Nasal	2
Lacrimal	2
Interior nasal concha	2
vomer	1
Palatine	2
<b>Total</b>	<b>14</b>

Total distribution of 206 bones in human skeleton is given in the primer note. Please see the note.

04. Which one of the following is not the principal element for blood clotting?

- A. Fibrinogen
- B. Prothrombin
- C. Albumin ✓
- D. Calcium

Exp :

There are 4 main factors of blood coagulation in human body. Lacking of only one of them can blocks blood coagulation. They are —

- Fibrinogen
- Prothrombin
- Tissue thromboplastin
- Calcium ion (Ca<sup>++</sup>)

Albumin is the main plasma protein but it has no role in the process of blood coagulation. So the answer will be (C) Albumin.

05. Which one of the following is the "Duplicate - Recessive Epistasis" ratio?

- A. 7:9
- B. 9:7 ✓
- C. 13:3
- D. 13:7

Exp :

The phenotypic ratios of Mendel's law and their exceptions are as follows —

- First law of Mendel — 3 : 1
- lethal gene - 2 : 1





Incomplete dominance - 1 : 2 : 1  
 Second law of Mendel - 9 : 3 : 3 : 1  
 Epistasis - 13 : 3  
 Duplicate recessive epistasis - 9 : 7  
 So the answer will be B. 9 : 7

6. Which one of the following is not a sex-linked disease —  
 A. Colour blindness B. Miopia  
 C. Anaemia ✓ D. Hemophilia

Exp : The sex linked diseases are as follows :

1. colour blindness
2. Haemophilia
3. Ectodermal dysplasia
4. spastic paraplegia
5. Night blindness
6. Optic atrophy
7. Juvenile glucoma
8. White foreloke
9. Miopia
10. Muscular dystrophy

Anaemia is not a sex linked disease 'So the answer will be C. Anaemia.

07. Which one of the following is composed of elastic cartilage  
 A. Pinna ✓ B. Trachea  
 C. Humerus D. Vocal cord

Exp : Distribution of various types of cartilage in human body :

Hyaline	Elastic	White fibrous	Calcified
Nose	External ear (Pinna)	Intervertebral disc	Humerus & Femur
Trachea	Epiglottis		
Larynx	Eustachian tube		

So Trachea, Humerus, and vocal cord is not composed of elastic cartilage. So the answer will be A

08. The only light sensitive part of the eye is —  
 A. pupil B. Iris  
 C. Retina ✓ D. Blind spot.

Exp :  
 Pupil - It is the central aperture of the iris through which light enters into the eyeball.  
 Iris - It is a circular muscular part of eye made up of contractile muscle which regulate the amount of light to pass into the eyeball.  
 Retina - The only light sensitive part of eye made up of nerve fibre. When light falls on the retina then sensation of vision is produced.

Blind spot - It is a point in the retina where there is no rod or cone cells.  
 So the answer will be C. Retina.

09. Which one of the following is not true -  
 A. Human gall bladder is not a gland.  
 B. Salivary glands are exocrine gland.  
 C. Duodenum is a part of stomach. ✓  
 D. There is no premolar in milk teeth.

Exp :  
 A. Human gall bladder is not a gland. Because gall bladder can not secrete any hormone or enzyme. It acts as a reservoir of bile which is produced by the liver.  
 B. Salivary glands are exocrine gland. We know that all most all exocrine glands accompanied by a duct and all endocrine are duct less. Salivary gland is duct having so it is an exocrine gland.  
 C. Duodenum is a part of small intestine. Small intestine comprises duodenum, Jejunum and ileum. So it can not be a part of stomach. So this statement is not true.  
 D. Milk teeth has no premolar teeth. It only comprises incisor, canine, and molar tooth.

So the answer will be C.

10. Which one of the following is not specific blood group antigen?  
 A. 'A' antigen B. 'B' antigen  
 C. 'A' & 'B' antigen. ✓ D. 'O' antigen

Exp : Usually the name of blood group denotes to the present antigen on the red blood all surface.

Name of blood group	Antigen
A	'A' Antigen
B	'B' Antigen
AB	'A' & 'B' Antigen
O	No antigen

So there is no 'O' antigen in blood group. So the answer will be D. 'O' antigen.

11. Which one of the following is not considered as coronary heart disease —  
 A. Angina pectoris  
 B. Myocardial infarction  
 C. Unstable angina  
 D. Stroke. ✓

EXP :  
 A. Angina pectoris - It is the heart pain due to deminished blood supply to a part of heart muscle.  
 B. Myocardial infarction - If blood supply to the heart muscle is stopped completely then the situation arised is called myocardial infarction.





- C. Unstable angina - The heart pain which rapidly goes to the dangerous state.  
 D. Stroke - If blood supply to the brain is stopped due to a block or bleeding then the symptoms arise is known as stroke. It is not a disease of heart.  
 So the answer will be D. Stroke.

12. Which one of the following is not correct —

- A. Nitrogenous waste products produced after protein digestion.  
 B. Chorionic gonadotropin is secreted from ovary. ✓  
 C. Amino acid is the structural unit of protein.  
 D. Anterior chamber of the eye is filled with aqueous humour.

EXP :

Here the statement of B option is incorrect. Because the hormone chorionic gonadotropin is secreted from the placenta of pregnant woman. Ovary and chorion is completely different organ. This hormone is not coming from the ovary it is released from chorion of placenta. So B option will be the answer.

Other statements are correct.

13. Which one of the following joint is situated between the atlas and axis of spinal cord (correct-will be vertebral column)

- A. Gomphosis                      B. Hinge  
 C. Pivot ✓                         D. Saddle

EXP :

Gomphosis is a type of fibrous joint which is only situated in between the root of the tooth and socket of the mandible.

Hinge variety of sinovial joint is found in elbow joint.

Pivot variety of sinovial joint is found in between the atlas & the axis of vertebral column.

Saddle variety of sinovial joint is found in between the carpal & metacarpal bone of thumb.

So the answer will be (C) pivot.

14. Which one of the following part of the brain controls voluntary movement of the body?

- A. Cerebrum                      B. Cerebellum ✓  
 C. Pons                             D. Medulla

EXP :

Functions of the various parts of brain as follows —

**Cerebrum :**

1. control the power of speech.
2. Receive & analyse the sensory information from various sensory organ.

3. Control thought, intelligence, and creative power.
4. Control all voluntary actions of the body.

**Cerebellum :**

1. Control voluntary movements of the body.
2. Regulate the muscle tone of the voluntary muscles.
3. Maintain equilibrium and posture of the body.
4. Make the direction of movement.

**Pons :**

1. Regulate normal respiratory rate.
2. 5th to 8th cranial nerves are originated from pons.
3. Acts as a relay station.

**Medulla :**

1. control reflex action of internal organ.
2. control respiration, heart beat, and blood pressure.
3. helps in salivation
4. 9th, 10th, 11th cranial nerve arise from medulla.

So the answer will be B. cerebellum.

15. Which one of the following statement is not correct —

- A. Parotid gland is a salivary gland.  
 B. Oesophagus is about 25 cm long.  
 C. The taste buds of the hind part of the tongue help to taste sweet. ✓  
 D. Appendix is an inert organ of adult human body.

Exp :

\* Parotid is a salivary gland. Other salivary glands are submandibular and sublingual.

\* Oesophagus is 25 cm long.

\* The fore most part of tongue is for sweet. upper surface salty, two edges of tongue is sour and hind part is for bitter taste.

So C option is incorrect.

\* Appendix of adult human body is an inert organ.

So the answer will be C.

16. Which one of the following is secreted from parietal cell of stomach —

- A. Pepsinogen                      B. Hydrochloric acid ✓  
 C. Mucin                             D. Gastrin

Exp :

There are 3 types of secretory cells are found in the stomach —

1. Chief cell — pepsinogen.
2. Parietal cell - HCl, intrinsic factor of castle
3. Parietal cell - mucus.

So the answer will be B. Hydrochloric acid.





17. Which one of the following statement is not true —

- A. Epiglottis prevents the entry of food material in respiratory tract.
- B. Lung is expanded during inspiration.
- C. Oxygen enter capillary blood from alveoli by the process of diffusion.
- D. Oxygen react with haemoglobin in the capillary blood of lung to form stable compound named oxyhaemoglobin. ✓

Exp :

- \* Epiglottis prevents the entry of food particles into the respiratory tract.
  - \* Lung is expanded during inspiration, not during expiration.
  - \* Oxygen enter into the capillary blood from air of alveoli through the process of diffusion.
  - \* Oxygen is react with the haemoglobin to form oxyhaemoglobin which is not stable and release O<sub>2</sub> easily to the tissue.
- So The answer will be D, because it is incorrect.

18. Which one of the following statement is not correct?

- A. Sertoli cell of the testes secret testosterone. ✓
- B. Epididymis helps in increasing the movement of spermatozoa.
- C. prostate gland secret an alkaline substance named alkaline phosphatase.
- D. Seminal fluid principally supply nutrition to spermatozoa.

Exp :

There are mainly 3 types of cell present in the testes.

Cells	Function
1. Primordial germ cell	precursor of sperm
2. Interstitial cells of Leydig	production of hormone testosterone
3. Sertoli cell	provide nutrition to the growing sperm.

So it is obvious that Sertoli cell do not produce or secrete testosterone hormone.

∴ Statement of A option is incorrect. Other statements are correct.  
So the answer will be A.

19. Which one of the following organ is not supplied by coeliac artery —

- A. Stomach
- B. Kidney ✓
- C. spleen
- D. Liver

EXP :

Coeliac artery is a branch of abdominal aorta and divided into 3 branches —

- 1. Left gastric artery — supply stomach
- 2. Common hepatic artery — supply stomach, liver, gall bladder & duodenum.

3. Splenic artery - supply the spleen.  
Kidney is supplied by the renal artery which is a branch of abdominal aorta.  
So the answer will be B. kidney.

20. Which one of the following statements about Pulmonary system is not correct —

- A. Pulmonary artery arises from left atrium of the heart. ✓
- B. semilunar valve is present at the entrance of pulmonary artery.
- C. Pulmonary vein carries oxygenated blood from lung to heart.
- D. Double circulation is seen in human circulatory system.

Exp :

The atria of heart do not give rise to any artery. They only receive the great veins. Pulmonary veins (not artery) end in the left atria and superior and inferior vena cava in the right atrium. Pulmonary artery arises from right ventricle. So the statement of 'A' option is not correct. So the answer will be A. Other statements are correct

21 Which one of the following statement is not true?

- A. Vestibular nerve helps man in hearing. ✓
- B. Endocrine secretion poured into blood.
- C. Glucocorticoid hormone is secreted from adrenal cortex.
- D. Radio-ulnar joint is a sinovial joint.

Exp :

Eighth cranial nerve is called vestibulo-cochlear nerve. It has two component, one is vestibular and another is cochlear. Vestibular part is responsible for the maintenance of equilibrium of body and cochlear part is responsible for hearing.

- Hormones which are secreted by the endocrine gland is poured directly into the blood stream.
- Hormones glucocorticoid & mineralocorticoid is secreted by the adrenal cortex.
- The joint between the radius & ulna is a pivot variety of sinovial joint. So the answer will be A.

22. Which one of the following statements is not correct about lymphatic system?

- A. Actually lymph is one type of altered tissue fluid.
- B. About 10% of the tissue fluid is removed from tissue by lymph.
- C. Abundant thrombocytes are present in lymph. ✓
- D. Lymph glands produce antibodies.





Exp :

The A,B,D option is correct. Information of C option is not correct because lymph does not contain thrombocytes.

**Composition of Lymph :-**

- Numerous WBC, but RBC & thrombocytes are absent.
- 94% H<sub>2</sub>O & 06% solid.
- proteins, Fat, Carbohydrate
- Phosphorus, N<sub>2</sub> compounds, NaCl
- Enzyme & antibody

So answer will be C.

23. Which one of the following statements is not true?

- A. Female characters are developed under the influence of estrogen.
- B. Estrogen & progesterone are important female sex hormone.
- C. Lutinizing hormone is secreted from corpus luteum. ✓
- D. Graafian follicle is that follicle which is the most matured one.

Exp :

Lutinizing hormones are secreted from pituitary gland. not from corpus luteum. The hormones secreted from corpus luteum are as follows —

- Progesterone
- Estrogen
- Relaxin

So information given in the C option is not correct. Other statements are correct.

So the answer will be C.

24. Which one of the following is not the functions of kidney?

- A. to excrete nitrogenous waste product from the body.
- B. To produce white blood cells. ✓
- C. To maintain acid-base balance.
- D. To maintain water balance.

Exp :

**Functions of kidney :**

- A. Excrete nitrogenous waste products from the blood.
- B. Maintenance of acid-base balance of the body.
- C. Maintenance of blood pressure.
- D. Maintenance of water balance.
- E. Production of vitamin-D & RBC.

So production of white blood cell is not a function of kidney.

The answer will be B.

### BOTANY

01. Which one of the following is not the character of miosis?

- A. never occur in haploid cell.
- B. Nucleus divides twice and chromosome divides once

C. Four daughter cells are produced by this cell division

D. The nature of the chromosomes of daughter cell remain same as that of mother cell after crossing over. ✓

Exp :

**Characteristics of miosis—**

1. Miosis occurs in diploid cell called myocytes and primordial germ cell.
2. Here nucleus divides twice but chromosome divides once.
3. Prophase I is very lengthy and it is subdivided into 5 phases.
4. Homologous chromosome forms bivalent by making pair.
5. Exchange of genetic material occurs between homologous chromosomes by crossing over and formation of chiasma.
6. One mother cell produces four daughter cells.
7. Isolated orientation of chromosome occurs.
8. The daughter cell are produced by crossing over and isolated orientation, so they are not same.
9. New characteristics are produced after miosis division. Diversity of heredity is produced by it.

So the answer will be D. It is a property of miosis cell division.

02. Which one of the following pulse is responsible for producing BOAA (B-N-oxalyl amino l-alanine)?

- A. Arabar
- B. Munga
- C. Khesari ✓
- D. mash kalari

Exp :

Khesari pulse contains 29% protein and 46% carbohydrate. A toxic amino acid called BOAA (B-N-Oxalyl amino alanine) is produced in the khesari pulse which causes paralysis of lower part of the body. This disease is called Lathyrism.

03. Which one of the following is not correct?

- A. Most of the water is inertly absorbed.
- B. Cytochrome is an enzyme.
- C. Glucose is a monosaccharide.
- D. All the reactions of glycolysis occur in mitochondria of the cell. ✓

Exp :

Glycolysis step of internal respiration occurs in cytoplasm of the cell. Kreb's cycle, oxidative phosphorylation and electron transport cycle occurs in the mitochondria. So the information given in the D option is not correct. So the answer will be D. Other statements are correct.





04. Which one of the following is not true?

- A. Either DNA & RNA is present in a virus.
- B. Polio is a DNA virus. ✓
- C. HIV infects and kills T cell lymphocyte and macrophages of human bodies.
- D. The virus which attacks and kills the bacteria is known as bacteriophage.

Exp :

Usually DNA and RNA are not present. Simultaneously in a virus. DNA viruses are animal virus and RNA viruses are plant virus. The difference between them given below —

RNA Virus	DNA Virus
1. The nucleic acid core is RNA	1. The nucleic acid core is DNA
2. Maximum plant viruses are RNA virus.	2. Maximum animal virus and bacteriophage are DNA virus.
Example : Tobacco mosaic virus (TMV) Potato X Virus Sugarcane mosaic virus Turnip mosaic Alfalfa mosaic Rabies Polio virus Dengue virus Yellow fever virus Mumps virus Measles virus Influenza-B Encephalitis	Example : T <sub>2</sub> phage Vaccinia Variola TIV (tipula iridescent Virus) Adeno virus Herper virus

Usually RNA virus contains single stranded RNA but some disease of paddy and rice virus is Double stranded RNA Virus. On the other hand DNA virus contains double stranded DNA. But X-174 and M13 coliphage virus contains single stranded DNA.

Statement of A,C,D options are correct.

So the answer will be B. because polio virus is not a DNA virus.

5. Which one of the following is not correct —

- A. Thallophytic plants do not produce embryo. ✓
- B. The thallophytic plants in which chlorophyll pigment present is called algae.
- C. Bryophytic plants have rhizoids instead of root in their body.
- D. Light is not essential for fungi.

Exp :

Characteristic features of thallophytic plants—

1. Body can not be separated into root, stem and leaves.
2. They do not produce embryo.
3. Do not contain vascular system.
4. Chlorophyll containing thallophytes are called algae.
5. Fungi does not contain chlorophyll and they are colourless so light is not essential for fungi.

So statement of A option is not correct. Answer will be A.

6. Air is said to be polluted if the quantity of lead in the air is at least —

- A. 1 μgm
- B. 2 μgm ✓
- C. 3 μgm
- D. 4 μgm

Exp :

Lead (Pb) : — lead is a very heavy metal which is used for multipurpose use. The atomic number of lead is 82. If the quantity of lead in the air exceeds 2 μgm then the air will be polluted.

Source :

- Petroleum
- Ceramic
- Paint industry
- Battery factory
- Pipe factory
- Insulation factory
- Pesticide factory

Adverse effect :

- Restlessness
- Unattentiveness in work or study
- Loss of understanding power
- Chest pain
- Vomiting
- Diarrhoea
- Anaemia
- Loss of weight
- Death

### CHEMISTRY 1ST PAPER

1. Regarding Ideal & Real gas which one of the following informations given below is wrong—

- A. N<sub>2</sub>, O<sub>2</sub> - Ideal gas. ✓
- B. H<sub>2</sub>, CO<sub>2</sub> - Real gas.
- C. Ideal gas perfectly follow the equation PV = nRT.
- D. Real gas do not perfectly follow the equation PV = nRT.

Exp :

Ideal gas is absent in the nature. In very high temperature and low pressure some gases like H<sub>2</sub>, He acts as ideal gas though they are not ideal.





- \*  $H_2, CO_2$  — are real gas.
- \* Ideal gases perfectly follow the equation  $PV = nRT$
- \* Real gases do not follow perfectly the equation  $PV = nRT$ .

So statements of B, C, D, options are correct.  
So the answer will be A.

2. Which one of the following is not correct according to the formulae of angular momentum of electrons

$$mvr = \frac{nh}{2\pi}?$$

- A.  $m$  = mass of electron.
- B.  $v$  = speed of proton ✓
- C.  $r$  = radius of orbit
- D.  $h$  = plank's constant.

Exp :

Formulae of angular momentum  $mvr = \frac{nh}{2\pi}$ .

Here

- $m$  = mass of electrons.
- $v$  = velocity of electron, not 'proton' because protons are fixed to the nucleus so they are not participate in the motion.
- $r$  = radius of orbit
- $h$  = constant of Plank ( $6.626 \times 10^{-37}$  KJ sec-1)
- $n$  = complete number.

So information of B option is false.

Answer will be B.

03. Which one of the following is not the quantum number?

- A. Principal Quantum Number
- B. Subsidiary Quantum Number
- C. Electric Quantum Number ✓
- D. Magnetic Quantum number

Exp :

There are four types of quantum number. They are —

- A. Principal Quantum Number
- B. Subsidiary Quantum Number
- C. Magnetic Quantum Number
- D. Spin Quantum number.

There is no quantum number named electric quantum number.

So the answer will be C.

04. Which one of the following is not true about modern periodic table?

- A. Has 7 rows & 18 columns.
- B. Elements are classified as s,p,d, and f block.
- C. 109 elements only. ✓
- D. Hydrogen has one location.

Exp:

Criteria of modern periodic table —

- Has 7 rows & 18 columns
- Elements are classified as s,p,d,f blocks.
- 111 elements only.
- position of Hydrogen is 1.

- First period has 2 elements
- Second and third period has 8 elements
- 4th & 5th period has 18 elements
- 6th period has 32 elements and 7th period is incomplete.

- From left to right in a period the properties of elements are change orderly.

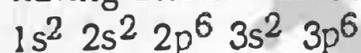
So the answer will be c.

05. Which one of the following is not correct about elements having atomic number 18?

- A. Electronic configuration :  $1s^2 2s^2 2p^6 3s^2 3p^6$
- B. Positioned in 3rd period & grouped in O
- C. Are inert gases
- D. Outermost electronic configuration is  $3p^6$ . ✓

Exp :

Electronic configuration of as element having atomic numebr 18 is given below —



So —

- It is situated in 3rd period & 'O' group.
- Inert gas Argon.
- Outermost orbital is  $3p^6$  but outermost orbit is 3.

So the information of D option is incorrect.

∴ Answer will be D.

06. The oxidation number of which compound mentioned below is correct?

Name of compound	Oxidation number
A. HCl	+1
B. HClO	+1
C. NO	+1
D. NO <sub>2</sub>	+2

Exp :

This question is problematic. Because the oxidation number of neutral molecule is 0. So all are (A,B,C,D) incorrect.

But if we consider atoms then —

- A. HCl — oxidation number of H → +1  
oxidation number of Cl → -1
- B. HClO — oxidation number of H → +1  
oxidation number of Cl → +1  
oxidation number of O → -2
- C. NO — oxidation number of N → +2  
oxidation number of O → -2
- D. NO<sub>2</sub> — oxidation number of N → +4  
oxidation number of O → -2

7. Which one of the following information about fructose is not correct?

- A. Amount of oxygen in fructose is 53.33%
- B. Relative number of C atom is 3.33
- C. Relative number of H atom is 6.67
- D. Relative numebr of O atom is 53.33% ✓





Exp :

Element	Percent Quantity	atomic Number	Relative number of atom = $\frac{\text{Percent mass}}{\text{Atomic mass}}$
C	40%	12	$\frac{40}{12} = 3.33$
H	6.67%	1	$\frac{6.67}{1} = 6.67$
O	53.33%	16	$\frac{53.33}{16} = 3.33$

$$\text{Quantity of O}_2 \text{ in fructose} = \{100 - (40 + 6.67)\}\% = 53.33\%$$

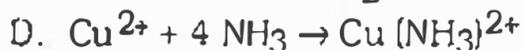
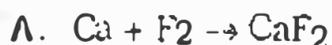
So A, B, C option is correct.

In D option the relative number of O<sub>2</sub> is given as 53.33 which is incorrect.

Relative number of O<sub>2</sub> will be 3.33.

So the answer will be D.

18. Which one of the following is redox reaction?



19. Which one of the following formula given against the oxidation number is wrong?

	Oxidation Number	Formulae
A.	+1	N <sub>2</sub> O
B.	+2	NO
C.	+4	NO <sub>2</sub>
D.	+5	NO <sub>3</sub> ✓

Exp :

If the oxidation number of O<sub>2</sub> is -2 then the oxidation of number of N

in N<sub>2</sub>O is → +1

in NO is → +2

in NO<sub>2</sub> is → +4

in NO<sub>3</sub> is → +5

So information of D option is incorrect —

So the answer will be D.

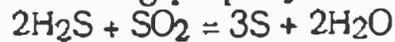
10. Which one of the following acts as both oxidizing and reducing agent?



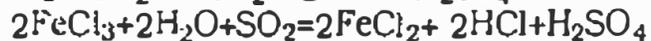
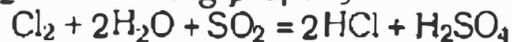
Exp :

Some compounds acts both as oxidizing & reducing agent. e. g - SO<sub>2</sub>

SO<sub>2</sub> - Oxidizing property —



SO<sub>2</sub> - reducing property —



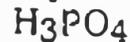
11. Which one of the following is a negative catalyst?



Exp :

The catalyst which reduces the rate of reaction is called negative catalyst.

Example : Alcohol



Glycerine etc.

Cu, MnO<sub>2</sub>, Fe are all positive catalyst.

So the answer will be B.

12. How many times the rate of reaction will increase for every 10°C rise of temperature?

A. 2-3 ✓

B. 3-4

C. 4-5

D. 5-6

Exp :

Raise in temperature greatly enhance the rate of reaction because if temperature is raised the mean velocity of reactant molecules are increased. If increase the rate of reaction in two ways —

firstly by increase the number of active molecule, and secondly by rate of collision of molecules is increased. So for every 10°C raise will increase the rate of reaction 2-3 times more.

So the answer will be A.

13. Half life for decomposition of N<sub>2</sub>O<sub>5</sub> is 3400 min. In that case the rate of reaction (K) is —

A.  $1.7325 \times 10^{-4} \text{ s}^{-1}$

B.  $2.038 \times 10^{-4} \text{ min}^{-1}$  ✓

C.  $2.038 \times 10^{-3} \text{ s}^{-1}$

D.  $2.038 \times 10^{-3} \text{ s}^{-2}$

Exp : This reaction is a first order reaction —

$$\text{So } t_{1/2} = \frac{0.693}{k}$$

$$k = \frac{0.693}{t_{1/2}}$$

$$= \frac{0.693}{3400}$$

$$= 2.038 \times 10^{-4} \text{ min}^{-1}$$

So the answer will be B.

14. The empirical and molecular formulae of which compound mentioned below is wrong?

Name of compound	Empirical Formulae	Molecular Formulae
A. Benzene	CH	C <sub>6</sub> H <sub>6</sub>
B. Hydrochloric acid	HCl	HCl
C. Ethylene	CH <sub>2</sub>	C <sub>2</sub> H <sub>4</sub>
D. Acetylene	C <sub>2</sub> H <sub>2</sub>	CH ✓✓

Exp :

**Empirical formulae :** It is the simplest formulae of a compound where component elements are shown in simplest ratio. It does not show the actual number of atoms of the elements are shown.

**Molecular formulae :** It is the formulae of a compound where actual number of atoms of the element.





Molecular formulae : It is the formulae of a compound where actual number of atoms of different elements are shown.

We know that Acetylene has a formulae  $CH = CH$ . So its empirical formulae is  $CH$  and molecular formulae  $C_2H_2$ . But in the D option there arrangement become reverse. So it is not right.

The answer will be D. Other compound's empirical and molecular formulae given are right.

### CHEMISTRY 2nd PAPER

1. Which one of the following group is the location of nitrogen in periodic table?

- A. IIIA                                      B. IVA  
C. VA                                         D. VIA

Exp :

Nitrogen is a P block element and non-metal. It's atomic number is 7. Electronic configuration of N is  $1s^2 2s^2 2p^3$ . We know the total number of electron in nsnp orbital (outermost orbit) indicate the group of a element where it belongs. So the group of N<sub>2</sub> in periodic table is V. It is not a 'd' block element so the group is VA.

Other elements of Group VA—

Phosphorus - P  
Arsenic — As  
Antimony - Sb  
Bismuth - Bi

So the answer will be C. VA

2. Which one of the following formula is incorrect?

- A. Nitrous oxide :  $N_2O$   
B. Nitric oxide :  $NO_3$  ✓  
C. Nitrogen di oxide :  $NO_2$   
D. Di nitrogen tri oxide :  $N_2O_3$

Exp :

Formula of various oxides of nitrogen —

Name of oxide	Formulae	Oxidation Number of N <sub>2</sub>	Physical state
1. Nitrous Oxide	$N_2O$	+1	Colour less gas
2. Nitric Oxide	$NO$	+2	Colour less gas
3. Nitrogen tri oxide	$N_2O_3$	+3	Blue liquid substance
4. Nitrogen per oxide (or, Nitrogen di oxide or, Di nitrogen tetra oxide)	$NO_2$ (or) $N_2O_4$	+4	Brown gas
Nitrogen penta oxide	$N_2O_5$	+5	Colourless solid.

So formula of B option is false. The answer will be B.

03. Which one of the following information is wrong about production of ammonia in Haber process?

- A. Direct combination of  $N_2$  &  $H_2$  gas.  
B. Temperature :  $450^\circ C - 500^\circ C$   
C. pressure : 20 atm ✓  
D. catalyst : Iron dust

Exp :

Relative informations about production of  $NH_3$  in haber process are as follows —

- A. Most available process.  
B. Direct combination of  $N_2$  &  $H_2$   
C.  $\Delta H = -92.38 \text{ KJ mol}^{-1}$ . Heat producing reaction  
D. Volume is contracted during reaction.  
E. Bidirectional reaction.  
F. Optimum temperature  $450^\circ C - 500^\circ C$   
G. Catalyst is Fe powder and catalyst helper is  $MoO$  or  $Al_2O_3$   
H. Optimum pressure 200 atm.  
I. Highest production 25%

So the information of C option is false. It will be 200 atm. Answer will be C.

04. Which one of the following is not true about organic compound?

- A. catenation                              B. Tetra valency ✓  
C. Isomerism                                D. Slow ionic reaction

Exp :

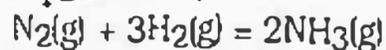
The organic compounds are formed by carbon. Carbon has catenation property so organic compounds are show catenation property. They show wide range of isomerism due to this property. Their reactions are slow, bidirectional, catalyst dependent and side reaction often seen.

Valency is a property of elements; not compounds. Carbon is tetra-valent not the organic compounds.

So B is not correct.

Answer will be B.

5. Which one of the following information is not correct about the equation :



- A. A reversible reaction  
B. Ratio of volume of nitrogen & hydrogen is 1 : 3  
C. Volume is decreased after gaseous reaction.  
D.  $\Delta H = +92.38 \text{ KJ mol}^{-1}$  ✓

Exp :

Please see the explanation of above mentioned question No. 3.

So the answer will be D.





**PHYSICS 1st PAPER**

1. Relating to pressure, temperature and volume which is wrong?

A.  $V = V_0 \left(1 + \frac{0}{273}\right)$     B.  $P = P_0 \left(1 + \frac{0}{273}\right)$

C.  $PV = \frac{M}{m} RT$     D.  $PV = nRT$

Exp :

Combination of Boyle & Charles law produce  $PV = KT$

$\frac{PV}{T}$  is equal for every gas when their amount is 1 mol. So we can imagine a constant for  $\frac{PV}{T}$ . this constant is R which is called universal gas constant. So,

$PV = RT$

If we take n mole gas instead of 1 mole then  $PV = nRT$

Know Mole number  $n = \frac{m}{M}$

Here

m = mass of gas designated n gm

M = molecular weight in gm

So equation of C option is incorrect, it will

be  $PV = \frac{m}{M} RT$ , not  $PV = \frac{M}{m} RT$ .

Other informations are correct.

So the answer will be C.

02. In respect of elastic Modulus which of the following is wrong —

A.  $Y = \frac{FL}{Al}$

B.  $Y = \frac{Mgl}{\pi r^2 l}$

C. Y Dimension  $[Y] = ML^{-1}T^{-2}$

D.  $[E] = ML^{-2}T^{-2}$

Exp :

We know

Modulus of Young =  $\frac{\text{longitudinal stress}}{\text{longitudinal strain}}$

$= \frac{F}{A}$

$= \frac{l}{L}$

$\therefore Y = \frac{Fl}{Al}$

So A is correct.

Again if  $F = Mg$

and  $A = \pi r^2$

then  $Y = \frac{Mr^2}{\pi r^2 l}$

So B is correct.

Again

Dimension of Y =  $\frac{\text{dimension of FL}}{\text{dimension of Al}}$   
 $= \frac{MLT^{-2} \cdot L}{L^2 \cdot L}$   
 $= ML^{-1}T^{-2}$

So C is also correct.

$E = \frac{1}{2} \cdot \frac{F}{A} \cdot \frac{l}{L}$

$[E] = \frac{1}{2} \cdot \frac{MLT^{-2}}{L^2} \cdot \frac{L}{L}$

$= \frac{1}{2} ML^{-1}T^{-2}$

$\therefore$  Equation of D option is not correct.

So the answer will be D.

03. Which value of Young's modulus is wrong?

A. Brass (60% copper) — 20 ✓

B. Iron — 20

C. Nickel — 20

D. Steel — 20

Exp :

A chart of value of Young's modulus of various metals is given below —

Substance	Young's modulus ( $10^{10} \text{ Nm}^{-2}$ )
Aluminium	07
Brass (60% Copper)	10
Copper	13
Glass	6.0
Iron (Rod)	20
Iron (cast)	11.5
Lead	1.6
Nickel	20
Steel	20

So it is obvious that the Young's modulus of brass is 10, not 20. So the statement of A option is not true.

The answer will be A.

04. Which one of the following equations is wrong in respect of effective length (L) of a simple pendulum & its period of oscillation?

A.  $T = 2\pi \sqrt{\frac{L}{g}}$

B.  $T = \sqrt{\frac{L_1}{L_2 \times T_2}}$

C.  $T_2 = T_1 \times \sqrt{\frac{L_2}{L_1}}$

D.  $L = \frac{gT^2}{4\pi^2}$

Exp :

From law of simple pendulum we get —

$T \propto \sqrt{L}$

$T \propto \sqrt{\frac{l}{g}}$

$T \propto \sqrt{\frac{L}{g}}$





Or,  $T = 2\pi \sqrt{\frac{l}{g}}$

So A is correct

Again  $T^2 = 4\pi^2 \frac{l}{g}$

So D is also correct

$T \propto \sqrt{l}$

So  $\frac{T}{\sqrt{l}}$  = constant

$\frac{T_1}{\sqrt{l_1}} = \frac{T_2}{\sqrt{l_2}}$

$\frac{T_1}{\sqrt{l_1}} = \frac{T_2}{\sqrt{l_2}}$

$\therefore T_2 = T_1 \sqrt{\frac{l_2}{l_1}}$

So C is correct

Or  $T_1 = T_2 \sqrt{\frac{l_1}{l_2}}$

But  $T_1 = \sqrt{\frac{l_1}{l_2 \times T_2}}$  is impossible. It is

wrong.

So the answer will be B.

05. A man of 0.2 kg is whirled round in a horizontal circle at the end of a string of length 0.5 m at a constant angular speed of 4 rads<sup>-1</sup>. In that case the tension (force) in the string in N is —

- A. 0.4
- B. 0.6
- C. 0.8
- D. 1.6√

Exp :

Here

mass of object,  $m = 0.2$  kg

Angular velocity,  $\omega = 4$  rad s<sup>-1</sup>

radius,  $r = 0.5$  m

So

Centripetal force  $F = m\omega^2 r$

$= 0.2 \times (4)^2 \times 0.5$  N

$= 1.6$  N

∴ The answer will be D.

06. Two exactly identical spaceship A & B are falling freely towards the earth. A is nearer to earth than B. In that case which one of the following statements is wrong?

- A. Weight of A > weight of B
- B. Mass of A = Mass of B
- C. Acceleration of A = Acceleration of B. √
- D. Astronauts of both spaceship will feel weightlessness.

Exp :

We know weight = mass x acceleration due to gravity.

Again if any object come nearer to the earth it's value of 'g' will increase. So the weight of

A will be greater than that of B, because A is more nearer to the earth than B.

So A statement is correct.

The spaceships are identical so that their mass will be equal.

So B statement is correct.

The weight of A is greater than that of B. So the acceleration due to gravity of A will be greater than that of B.

So C statement is wrong.

Two space ship are falling freely towards the earth so astronauts of both spaceship will feel weightless ness.

So D statement is correct.

The answer will be C.

07. A rifle bullet can only pierce a piece of wood. If bullet speed is tripled then how many pieces of similar wooden piece can it pierce?

- A. 6
- B. 9√
- C. 90
- D. None is true.

Exp :

If the thickness of one piece of wood is S then

**In first situation**

Initial velocity =  $V_0$  | We know

final velocity = 0 |  $v^2 = V_0^2 - 2as$  ..... (i)

Displacement = S |  $= \frac{V_0^2}{2S}$

deceleration = a

**In second situation**

if the numebr of wooden

piece = n

from 1st equation —

Initial velocity =  $3V_0$

$0 = 9V_0^2 - 2 \cdot \frac{V_0^2}{2S} ns$

final velocity = 0

$nv_0^2 = 9V_0^2$

Displacement = nS

$\therefore n = 9$

deceleration =  $\frac{V_0^2}{2S}$

So 9 wooden piece.

So the answer will be B.

08. Equation of location (x) & time (t) for anybody in motion is  $x = 18m + (12ms^{-1})t - 1.2(ms^{-2})t^2$  which one of the following value of location is wrong against the given time?

Time (t)	Location (X)
<u>s</u>	<u>m</u>
A. 0	18
B. 1	28.2√
C. 2	37.2
D. 3	45.2√



Exp :

$X = 18 m + (12 m s^{-1}) t - (1.2 m s^{-2}) t^2$

In this equation if we put the values of time 0, 1, 2, 3 then the value of location —

A.  $X = 18 m + 0 - 0 = 18 m$ . So A is correct.

B.  $X = 18 m + (12 m s^{-1}) 1s - (1.2 m s^{-2}) 1s^2 = 28.8$  So B is incorrect.





C.  $X = 18 \text{ m} + (12 \text{ ms}^{-1}) 2\text{s} - (1.2 \text{ ms}^{-2}) 4\text{s}^2$   
 $= 37.2$  So C is correct.

D.  $X = 18\text{m} + (12\text{ms}^{-1}) 3\text{s} - (1.2\text{ms}^{-2}) 9\text{s}^2$   
 $= 43.2$  So D is incorrect.

So the answer will be B & D.

9. Which one of the following equations of motion is wrong?

A.  $V = V_0 + at$       B.  $V^2 = V_0 + 2as$  ✓

C.  $S = \frac{V_0 + V}{2} t$       D.  $S = V_0 t + \frac{1}{2} at^2$

Exp :

Imagine that an object is moving with a acceleration from  $V_0$  initial velocity and after  $t$  time it gets the velocity  $V$ .

So the mean velocity  $\bar{v} = \frac{S}{t}$

or  $S = \bar{v} t$  ..... (1)

Again  $\bar{v} = \frac{V_0 + V}{2}$

$S = \left( \frac{V_0 + V}{2} \right) t$  ..... (2)

Again we know that change in variable velocity in respect of time is called acceleration so —

$a = \frac{V - V_0}{t}$

or  $t = \frac{V - V_0}{a}$

we put the value of  $t$  in equation 2

$S = \frac{V_0 + V}{2} \cdot \frac{V - V_0}{a}$

$S = \frac{V^2 - V_0^2}{2a}$

$\Rightarrow V^2 - V_0^2 = 2as$

$\therefore V^2 = V_0^2 + 2as$

But in the B option there is  $v^2 = v_0 + 2as$  which is not correct. it will be  $v^2 = v_0^2 + 2as$ .

So the answer will be B.

10. Which one of the following is not true?

A. Dimension of linear motion is  $LT^{-1}$

B. Unit of linear motion is  $\text{ms}^{-1}$

C. Dimension of angular motion is  $T^{-1}$

D. Unit of angular motion is  $S^{-1}$  ✓

Exp :

We know

linear velocity =  $\frac{\text{displacement}}{\text{time}}$

of the dimension of

linear velocity =  $\frac{\text{dimension of displacement}}{\text{dimension of time}}$

$[V] = \frac{L}{T}$

$= LT^{-1}$  So A is correct.

Again

linear velocity =  $\frac{\text{displacement}}{\text{time}}$

$\therefore$  Unit of linear velocity =  $\frac{\text{unit of displacement}}{\text{unit of time}} = \text{ms}^{-1}$

Angular velocity =  $\frac{\text{Angular displacement}}{\text{time}}$

So Dimension of angular velocity =  $T^{-1}$

So C is correct.

But

Unit of angular velocity =  $\frac{\text{rad}}{\text{second}} = \text{rads}^{-1}$

$\therefore$  Information given in the D option is incorrect.

The answer will be D.

**PHYSICS-2ND PAPER**

01 Regarding light which equation is wrong?

A.  $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$

B.  $m = \frac{v}{u}$  ✓

C.  $P = \frac{1}{f}$

D.  $\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2} + \dots$

Exp :

We know

magnification =  $\frac{\text{length of image}}{\text{length of object}}$   
 $= \frac{\text{distance of image}}{\text{distance of object}}$

$\therefore m = \frac{v}{u}$

But we know if the image is perpendicular then the magnification will be positive. But straight (imaginary) image's distance is

negative. So if  $m = -\frac{v}{u}$  then the magnification will be positive. So the

equation  $m = \frac{v}{u}$  is not correct. It will be  $m =$

$-\frac{v}{u}$

The answer will be B.

02. Based on which factor transformer and generator were discovered?

A. Magnetic induction

B. Electric induction

C. Electro magnetic induction ✓

D. All

Exp :

Generator & transformer is discovered on the basis of electro magnetic induction.

Here there are 2 coils of wire named primary & secondary coil. There is induction of electromagnetic induction.





Here there are 2 coils of wire named primary & secondary coil. There is induction of electromotive force or generation of voltage or change in voltage in the secondary coil occurs depending on electric current or number of circle in the coil in primary coil. Transformer & generator was invented on this principle.

03. The wave length of light in air is 4800Å. The wave length in the glass will be —
- A. 3200Å ✓                      B. 320Å  
C. 32Å                              D. None is true

Exp :

Here  
Wave length of light in air  $\lambda_a = 4800\text{Å}$  The relative refractive index of glass in relation to air is  $\mu_{ag} = 1.5$   
We know —

$$\mu_{ag} = \frac{\lambda_a}{\lambda_g}$$

$$\lambda_g = \frac{\lambda_a}{\mu_{ag}}$$

$$= \frac{4800\text{Å}}{1.5} = 3200\text{Å}$$

So the answer will be A.

4. Diffraction of light is produced due to —
- A. Reflection                      B. Interference ✓  
C. Polarisation                      D. Refraction

Exp :

When light is fall on a sharp edge it means a wave front is present there. Many subwaves are formed from each free point of the wave front close to the edge. This sub waves spread towards different direction along with main direction. So some light comes to the dark area. Diffraction is produced by the interference of this subwaves.

05. Relating to electricity which equation is wrong?

- A.  $E = \frac{\sigma}{\epsilon}$                       B.  $F = 9E$   
C.  $F = \frac{1}{4\pi\epsilon_0} \times \frac{q_1 q_2}{r^2}$                       D.  $F = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{d}$  ✓

Exp :

According to coulombs law the force between two charges is directly proportional to the product of their multiplication and inversely proportional to the square of distance between them.

$$\text{So } F \propto \frac{q_1 q_2}{d^2}$$

$$\text{or } F = \frac{1}{4\pi\epsilon_0} \frac{q_1 q_2}{d^2} \quad \left[ \frac{1}{4\pi\epsilon_0} = \text{constant} \right]$$

So equation of D option is not correct. Other equations are right. So the answer will be D.

06. In respect of charge which of the following is not true?
- A. charge is produced by friction. ✓  
B.  $e = 1.6 \times 10^{-19}\text{C}$  ✓  
C. shortage of electrons means positively charged.  
D.  $q = \pm ne$

Exp :

Charge can not be generated or destroyed. It means no charge is produced during friction. Charge is simply transferred from one object to another by friction. So the statement of A option is not correct.

The value of charge of electron is equal to that of proton but it is negative.

So  $e = -1.6 \times 10^{-19}\text{C}$ . The value of B option is wrong.

Deficiency of electron means positively charged and charge  $q = \pm ne$  are correct.

So the answer will be A & B.

07. For the change of potential difference 0.1V in a p-n junction, the change of current is 400 mA. What is its dynamic resistance in Ohm's ( $\Omega$ )?

- A. 0.25 ✓                      B. 2.5  
C. 25                              D. 250

Exp :

Here.

Potential difference change  $\Delta v = 0.1\text{v}$   
change in current  $\Delta I = 400\text{mA} = 0.4\text{A}$   
Dynamic resistance  $R = ?$

We know

$$R = \frac{\Delta v}{\Delta I}$$

$$= \frac{0.1}{0.4} = 0.25\text{ohm}$$

$= 0.25\Omega$  So the answer will be A.

8. An astronaut at the age of 35 years went to observe the galaxy with a velocity of  $2.4 \times 10^8 \text{ms}^{-1}$  spaceship and returned to earth after 50 years (as per earth's calendar). What is the age of astronaut?

- A. 85 years                      B. 65 year ✓  
C. 60 year                      D. None is true.

Exp :

Here

$t =$  time measured in earth = 50 years

$v =$  velocity of the spaceship =  $2.4 \times 10^8 \text{ms}^{-1}$

$C =$  velocity of light =  $3 \times 10^8 \text{ms}^{-1}$

$t_0 =$  time elapsed in spaceship = ?

We know

$$t = \frac{t_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

$$\therefore t_0 = t \sqrt{1 - \frac{v^2}{c^2}}$$





$$= 50 \sqrt{1 - \left(\frac{2.4 \times 10^8}{3 \times 10^8}\right)^2}$$

$$= 50 \times 0.6y$$

$$= 30y$$

So the present age of astronaut = (35 + 30)y  
= 65 year.

So the answer will be B.

09. Which is not true about quantity of charge of  $\alpha$ ,  $\beta$ ,  $\gamma$  & x-ray?

Ray	Amount of charge
A. $\alpha$ -ray	$3.2 \times 10^{-19}C$
B. $\beta$ -ray	$1.6 \times 10^{-19}C$
C. $\gamma$ -ray	No charge
D. X-ray	$1.6 \times 10^{-20}C \checkmark$

Exp :

Properties of X-ray—

- X-ray goes straight forward and in the vacuum its velocity is equal to the velocity of light.
  - it can not be diverted by any electric or magnetic field. It is proved that x-ray is not a flow of charged particle. X-ray is formed by chargeless photon.
  - It is an electromagnetic wave. But its wave length is very short than that of visual light (approx 1000 times). Frequency of X-ray is 1000 times greater than that of visual light.
  - Reflection, Refraction, Interference, diffraction and polarisation occur in X-ray.
  - It has gas ionizing property.
  - It reacts with photographic plate.
  - Can produce fluorescence in some object.
  - It can pierce the skin, muscle etc.
- \* X-ray is a chargeless electromagnetic ray composed of photon. So charge of X-ray  $1.6 \times 10^{-20} C$ . mentioned in the question is wrong.

So the answer will be D.

45. Which is the correct expression of the mass energy related equation of Einstein?

- A.  $e = mc^2$                       B.  $E = MC^2$   
C.  $E = mc^2 \checkmark$                     D.  $e = Mc^2$

Exp :

Symbols used in this questions means as follows —

Symbol	meaning
e	electron/1 electron charge.
m	mass of object
c	velocity of light
E	energy
M	weight of earth

$\therefore$  Einsteins law was —

Energy = mass of object  $\times$  (velocity of light)<sup>2</sup>

$$E = mc^2$$

So the answer will be C.

### GENERAL KNOWLEDGE

- Which one of the following is correct?  
Government Head of the Government  
Country System  
A. India Federal Republic Prime minister  
B. Isreal Democracy Prime minister  
C. Czech Republic Democracy President  $\checkmark$   
D. Mexico Democracy Prime minister
- What is the name of first female poet in Bangla in Bangladesh?  
A. Begum Rokeya B. Ashapura  $\checkmark$   
C. Chadrabati D. Ferdous Ara
- What is the name of liberation war museum situated in Dhaka Cantonment?  
A. Bijoy Keton  $\checkmark$  B. Shadhinota Keton  
C. Shadhin Sundar D. Bijoy Bangla
- Which foreign mission was first hoist Bangladesh National Flag?  
A. Delhi B. Kolkata  
C. London  $\checkmark$  D. Katmandu
- Which one of the following is the percentage (%) of rainfall in rainy season of Bangladesh?  
A. 40 B. 60  
C. 80  $\checkmark$  D. 20
- Which one of the following is the correct name of the mentioned agricultural product?  
A. Shuktara — High quality orbajins  $\checkmark$   
B. Shumatra — Imprved quality cotton  
C. Delfose — High quality tobacco  
D. Agrani — Improved quality peanut
- What percentage of bangladeshi enjoys electricity facility?  
A. 70 B. 90  
C. 35 D. 45  $\checkmark$
- Which one of the following is correct riverside town or port?  
Town/Port Situated bank of which river  
A. Shilldaho Meghna  
B. Chalna Jamuna  
C. Sharda Padma  $\checkmark$   
D. Thakurgoan Poshur
- Who considered as the inventor of basic of cinematography?  
A. Jacquis Redet B. Abu All Hasan  
C. Henry Langloa  $\checkmark$  D. Black Maria Studio
- What is the percentage (%) of ice in Anterctica of total ice content of earth given below?  
A. 50 B. 70  
C. 90  $\checkmark$  D. 75





**ENGLISH**

1. Which of the following is emphasizing adjective?
  - A. Bright morning
  - B. Financial help
  - C. Blue Shirt
  - D. Positive Attitude
2. Which of the following phrase is having the correct meaning?
  - A. In the pink : In good health and ready to go.
  - B. Lock and load : To be less than fully prepared.
  - C. Drop the hammer : Get ready.
  - D. Loose cannon : Directly from the source.
3. Which of the following phrase is having the correct meaning?
  - A. Take a dive : Undecided until the end, at the last minute.
  - B. Straight and narrow : Accomplishment of three successes or wins.
  - C. Square Meal : A nutritious meal.
  - D. Under the water : If good luck is willing.
4. Which of the following set contain the correct meaning?
  - A. Antipathy : Strong Dislike
  - B. Bequeath : Determined to go
  - C. Collide : Indifferent
  - D. Devolve : without
5. Which of the following phrase is having correct Bangla meaning?
  - A. Down to the wire : প্রতিযোগিতার উদ্দেশ্য প্রণোদিতভাবে করা
  - B. Knock wood : ভাগ্য সুপ্রসন্ন হলে
  - C. pass the buck : কারো মতামত উল্লেখ করা
  - D. Drop the hammer : গুরোপুরি প্রকৃত না হওয়া
6. Which of the following phrase is having correct Bangla meaning?
  - A. At the end of my rope : অত্যন্ত যুদ্ধ করা
  - B. By the short hairs : অক্ষয়িতে বা লজ্জায় পড়া
  - C. One for the road : চলে যাওয়ার পর কোন মতামত বিবেচনা করা
  - D. Tongue in cheek : শিক্ষানবিশ হিসেবে গ্রহণ করা
7. Which of the following is a superlative sentence?
  - A. Hira is not so tall as Parvina.
  - B. Sadia is not so beautiful as Sumaya.
  - C. Very few subjects are so easy as this.
  - D. Nurul is the best boy in the class.
8. Which of the following is a positive sentence?
  - A. Body is taller than any other girl in the class.
  - B. Very few young men were so industrious as Murad.
  - C. Sabrina is as wise as Sagupta.
  - D. Sadheen was as active as Asad.
9. Which of the following idiom contain correct English meaning?
  - A. A rear bird : See a solution
  - B. In the twinkling of an eye : Eventually
  - C. Keep the flag flying : keep Surviving
  - D. A piece of cake : An integral part
10. Which of the following sentence use the word 'down' as adverb?
  - A. Try to down him.
  - B. Down went the Royal george
  - C. The down train has left the station.
  - D. She came down the hill.
11. Which of the following sentence use the word 'round' adjective?
  - A. A square peg in a round hole.
  - B. The boy played well in the first round.
  - C. They rounded the temple silently.
  - D. At last he came round to their belief.
12. Which of the following is the correct compound form of this sentence? "As he felt a great love for them, he blessed them from heart."
  - A. He felt a great love and blessed them from heart.
  - B. He fell great love for them and blessed them from heart.
  - C. He felt a great love for them and blessed them from heart.
  - D. He felt a great love for them and blessed from heart.
13. Which of the following is the correct direct form of this sentence? He said with joy that was a very nice thing.
  - A. He said, "A nice thing it is!"
  - B. He said, "What a nice thing it is!"
  - C. He said, "What a nice it is!"
  - D. He said, "Which a nice thing it is!"
14. Which of the following is the correct form of this sentence? She said, "Oh! How charming the scenery is!"
  - A. She exclaimed with wonder that the scenery was very charming.
  - B. she with wonder that the scenery was very charming.
  - C. She exclaimed wonder that the scenery was very charming
  - D. She exclaimed with wonder that the scenery very charming.

