



பள்ளிக் கல்வித் துறை

10ஆம் வகுப்பு

**அறிவியல்
ஆங்கில வழி**

பயிற்சிக் கட்டகம்

Biology

I Answer the following:- (1 mark qns):-

- Primitive man evolved in _____.
Ans : Africa.
- Which of the following is inheritable?
a. an altered gene in sperm
b. an altered gene in testes
c. an altered gene in zygote
d. an altered gene in udder cell
Ans : a. an altered gene in sperm
- Theory of natural selection was proposed by _____.
a. Charles Darwin
b. Gregor Johann Mendel
c. Hugo de vries
d. Jean Baptise Lamarck
Ans : a. Charles Darwin
- Somatic Gene Therapy
a.Affects sperm b.Affects egg c. Affects progeny d. Affects body cells
Ans: d.Affects Body Cells
- The most serious form of malaria is caused by _____.
a. plasmodium ovale
b. plasmodium malaria
c. plasmodium falciparum
d. plasmodium vivax
Ans : c. Plasmodium falciparum
- The first vaccine injected into a just born baby is _____.
a. oral polio b. DPT c. DPT and oral polio d. BCG
Ans : BCG
- Pick out the bacterial Disease
A. Meningitis B. Rabis C. Tetanus D. Smallpox
Ans : C.Tetanus
- One of the following transmitted trough air . find out
A.Tuberculosis B. Meningitis C.Typhoid D.Cholera
Ans : A.Tuberculosis
- Normal Blood glucose level in 100 ml of blood is _____.
Ans : 80 - 120 mg
- An Endocrine gland which is both exocrine and endocrine is _____.
A.Pancreas B.Pititutory C.Thyroid D.Adrenal
Ans. A.Pancreas
- In sexual reproduction of flowering plants, the first event involved in this is_____.
a. fertilization b. germination c. regeneration d. pollination
Ans :d. Pollination

12. If a water soaked seed is pressed, a small drop of water comes out through_____.
- a. stomata b. lenticle c. microphyle d. radicle
- Ans : c. micropyle
13. The product of triple fusion which acts as nutritive tissue for the development of embryo is
- a. zygote b. scutellum c. placenta d. endosperm
- Ans : d. endosperm
14. The fruit develop[ps from a single flower with multi carpellary apocarpous and superior ovary is ____.
- A. Aggregate Fruit B.Composite Fruit C.Simple Fruit D.Multiple Fruit
- Ans A. Aggregate Fruit
15. The mango fruit is called as stone fruit because it has_____
- A.Skinny Epicarp B.Stony Mesocarp C. Fleshy Endocarp D.Hard Endocarp
- Ans :B.Hard Endocarp
16. Sensitive whiskers are found in _____.
- a. Bat b. Elephant c. Deer d. cat
- Ans : d. cat
17. The tusks of elephants are modified _____.
- Ans : Incisors.
18. Normal body temperature of man is ____.
- a. 98.4°f - 98.6°F b. 94.4°F - 98.6°F c. 96.6°F - 96.8°F d. 98.4°F - 99.6°F
- Ans : 98.4°F - 98.6°F
19. The xylem in the plants are responsible for
- a. transport of water b. transport of food
c. transport of amino acids d. transport of oxygen
- Ans : transport of water
20. The product obtained in the Anaerobic Respiration of yeast
- A. Lactic Acid B. Pyruvic Acid C. Ethanol D.Acetic Acid
- Ans C. Ethanol
21. The Autotrophic Nutrition requires
- A. CO₂ and water B. Chlorophyll C. Sunlight D. All the above
- Ans. D. All the above
22. What is called as 'black gold'?
- a. hydrocarbons b. coal c. petroleum d. ether
- Ans : c. petroleum
23. Example for fossil fuel is _____.
- a. copper b. iron c. magnesium d. coal
- Ans : d. coal

24. Example for product of green Chemistry
 a. Plastic paper b. bio plastics c. Halogen flame retardents
 Ans. b. bio plastics
25. Which is a non-renewable resource?
 a. coal b. petroleum c. natural gas d. all the above
 Ans : all the above
26. _____ is the chief component of natural gas.
 a. ethane b. methane c. propane d. butane
 Ans : b. methane

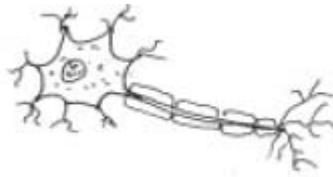
II Answer the following:- (2marks questions)

1. Here is a certain important hereditary jargons, fix a suitable one from the list given below.
 (alleles, variation, speciation, gene, allelomorph)
 a. _____ are the factors which form the physical basis of inheritance.
 Ans : gene
 b. _____ is alternate expression of same gene. Ans. : alleles
 c. _____ are contrasting pairs of alleles. Ans : allelomorph
2. Sequentially arrange the different species of man from primitive to modern man.
 (Neanderthal man, Homohabilis, Homo erectus, Homo sapiens)
 Ans : Homo habilis , homo erectus Neanderthal man , Homo sapiens.
3. Identical twins are syngenic with similar chromosomal contents. Natural clones are those who possess identical chromosomes. Fill up with suitable word given in brackets.
 a. Identical twins are _____. (natural clones / induced clones)
 Ans : natural clones
 b. Identical twins are _____. (dissimilar to each other / similar to each other)
 Ans : similar to each other
4. Match the columns B, C with A :

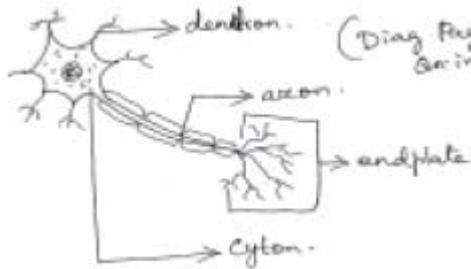
	A	B	C
Vitamin B		Scurvy	Nervous disorder
Vitamin C		Rickets	Bleedin Gum
Vitamin D		Haemorrhage	Defective calcification of bones
Vitamin K		Beri - Beri	Profuse loss of blood
Ans	A	B	C
	Vitamin B	Beri - Beri	Nervous disorder
	Vitamin C	Scurvy	Bleedin gum
	Vitamin D	Rickets	Defective calcification of bones
	Vitamin K	Haemorrhage	Profuse loss of blood

5. Kavitha is suffering from common cold. What are the questions you will put forth to Kavitha to confirm the disease?
 a. Is mucous is flowing from the nose? b. Are you having headache?

6. Copy the diagram and label any two parts in the group given.
(cyton, axon, dendron, endplate)



Ans :



7. This diagram is human brain and the functions of different parts are given below. A. seat of smell B seat of vision

Mark A and B in the parts of the brain corresponding with the function.



Ans :



8. Based on the relationships, fill in the blanks:-

Thyroxine : Personality hormone

Adrenaline : _____.

Ans : Emergency hormone.

9. Correct the statements if they are wrong.

a. alpha cells produce insulin and beta cells produce glucagon.

b. Ovary produces eggs and androgen

Ans : a. alpha cells produce glycogen and beta cells produce insulin.

b. Ovary produces eggs and estrogen.

10. Pick out the item which has sequential arrangements.

a. zygote Leptotone Pachytene diplotene Diakinesis

b. Diakenesis zygotene leptotene pachytene diplotene

c. Leptotene zygotene pachytene diplotene diakinesis

Ans :

c. Leptotene zygotene pachytene diplotene diakinesis

11. The important event of meiosis is the crossing over .It occurs during _____
 a.Lyptotene b.Pachytene c.diplotene d.zygotene Ans.Pachytene

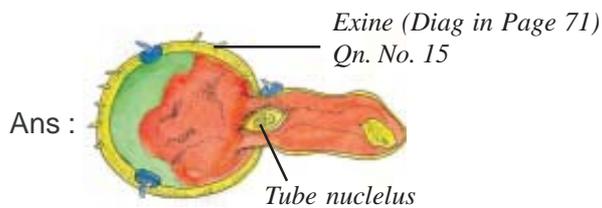
12. a. Identify the given figure A and B. (Diagram in page 70 Q. No. 11)
 b. Which part of the A is modified in to B.
 a. A - Gynoecium b. Fruit c. Ovary is modified into fruit Ans : a. A - Gynoecium

13. The methods of reproduction and the organisms are given below. Match the type of reproduction to suitable organisms.

fission spirogyra yeast budding protozoans flatworms fragmentation
 bryophyllum bacteria

Ans fission protozoans bacteria
 budding bryophyllum yeast
 fragmentation spirogyra flatworms

14. Redraw the diagram and label the following parts:-
 a. exine b. tube nucleus



15. Based on relationship, fill up :
 Whale : Baleen plates

Bat : _____.

Ans : Forelimbs modified to wings

16. Master chemists of our body are kidneys. Justify.
 a. Kidneys acquire all chemicals taken in the body.
 b. Maintain the chemical composition of blood.
 c. Kidneys send out all chemicals taken in the body.
 d. Kidneys store the various chemicals taken in the body.

Ans : b. Maintain the chemical composition of blood.

17. Name the types of vascular tissues in the plant stem which are labelled as A and B.
 (Diagram in page 103 Qn. No. 6)

a. Name A and B

Ans : A - xylem B - Phloem

b. What are the materials transported through A?

Ans : Water and minerals

c. What are the materials transported through B?

Ans : Food particles or starch storage.

d. How do the materials in A move upwards to leaves?

Ans : xylem vessels

18. Observe the diagram (Diagram in Page 103 Q. No. 7)
 a. Mention the type of movements shown in fig A and B.

Ans : A - Geotropism or hydrotropism

B - phototropism or negative geotropism

b. How does the movement differ from the movement of mimosa?

Ans : i. Movement is independent of growth.

ii. Immediate response to stimulus

19. Sugar is converted into alcohol. From the above statement.

1. What kind of process takes place?

Ans : Anaerobic respiration

2. Which microorganism is involved?

Ans : yeast

20. In human beings air enters into the body through (a) and moves into (b). In fishes water enters into the body through (c) and the dissolved oxygen of water diffuses into (d). Find a, b, c, d

Ans : a. nose b. lungs c. mouth d. blood through gills

21. Fill in the blanks:-

Plasma : Fibrinogen

RBC : Carriage of oxygen

WBC : _____.

Ans : Production of antibodies.

22. Study the food chain below correct it and convert into a pyramid of energy.

mulberry → sparrow → caterpillar → kite.

Ans :

mulberry → caterpillar → sparrow → kite



23. Match the suitable renewable and non renewable sources.

Sources	A	B	C
renewable	coal	wind	petroleum
non-renewable	hydrogen	natural gas	solar energy

Ans :

sources	A	B	C
renewable	hydrogen	wind	solar energy
non-renewable	coal	natural gas	petroleum

24. Find the odd one out:

a. bio alcohol, green, diesel, bioether, petroleum.

Ans : petroleum

b. cholera, typhoid, scabies, dysentery

Ans : scabies

25. Pick out the suitable appliances to conserve electric energy.

(Fluorescent bulbs, copper choke, solar water heater, electric water heater, tungsten bulbs, electronic choke.)

Ans : Fluorescent bulbs, Solar water heater, electronic choke.

Chemistry

I Answer the following:- (1 mark questions)

1. When sunlight passes through window of the classrooms, its path is visible. This is due to _____ of light. (reflection, scattering)

Ans : scattering

2. The mixture of gases used by deep. Sea divers is _____.

(Helium - oxygen, Oxygen - nitrogen)

Ans : Helium - oxygen

3. If two liquids are mutually soluble they are called _____ liquids

A. Miscible B. Immiscible

Ans. A. Miscible

4. $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$ The above reaction is an example of

a. combination reaction

b. double displacement reaction

c. displacement reaction

d. decomposition reaction

Ans : c. Displacement reaction

5. Vinegar is present in acetic acid. Curd contains _____ acid. (Lactic acid / Tartaric acid)

Ans : lactic acid

6. $\text{pH} = -\log_{10}[\text{H}^+]$. The pH of a solution containing hydrogen ion concentration of 0.001 M solution is _____. (3 / 11 / 14)

Ans : 3

7. Chemical volcano is an example of _____.

A. Combination Reaction

B. Decomposition Reaction

Ans. B. Decomposition Reaction

8. In the modern periodic table, periods and groups are given. Periods and groups indicate _____.

a. Rows and columns. b. columns and rows.

Ans : Rows and Columns

9. A process employed for the concentration of sulphide ore is _____.

(froth floatation / gravity separation)

Ans : froth floatation

10. Any metal mixed with mercury is called amalgam. The amalgam used for dental filling is _____.
(Ag-sn amalgam / cu - Sn amalgam)

Ans : Ag-sn amalgam

11. Gold does not occur in the combined form. It does not react with air or water. It is in _____ state.
A. Native State B. Combined State

Ans. A. Native State

12. Coating the surface of iron with other metal prevents it from rusting. If it is coated with a thin layer of zinc, it is called _____.

a. galvanization b. painting c. cathodic protection

Ans. a. galvanization

13. IUPAC name of first member of alkyne is _____. (ethene / ethyne)

Ans : ethyne

14. Buckminsterfullerene is the allotropic form of _____

a. Nitrogen b. carbon c. sulphur

Ans. b. carbon

II Answer the following:- (2 mark question)

1. From the table given below, furnish your point of inferences.

substance	solubility at 25°C
NaCl	36g
NaBr	95g
NaI	184g

Ans : 1. 100ml of water can dissolve 36g of NaCl at 25°C, to attain saturation

2. 100ml of water can dissolve 95g of NaBr at 25°C to attain saturation.

3. 100 ml of water can dissolve 184g of NaI at 25°C to attain saturation.

2. Molecular mass of nitrogen is 28. Its atomic mass is 14. Find the atomicity of nitrogen.

$$\text{Ans. Atomicity} = \frac{\text{molecular mass}}{\text{atomic mass}} = \frac{28}{14} = 2 =$$

3. Cl represents chlorine atom. Cl_2 represents chlorine molecule. List out any two differences between atoms and molecules.

Ans Atom Molecule

a. The smallest particle of an element that can take part in a chemical reaction The smallest particle of an element or a compound that can exist freely.

b. An atom is a non-bonded entity A molecule is a bonded entity.

4. The pH values of certain familiar substances are given below:-

Substance	pH value
blood	7.4
baking soda	8.2
vinegar	2.5
Household Ammonia	12

Analyse the data in the table and answer the following questions.

a. which substance is acidic in nature? Ans : vinegar

b. Which substances are basic in nature?

Ans : Blood, Baking soda, House hold ammonia

5. The hydroxyl ion concentration of a solution is 1.0×10^{-8} m. What is the pH of the solution?

Ans : $[\text{OH}^-] = 1.0 \times 10^{-8}$ m.

$$\begin{aligned} \text{POH} &= -\log_{10}[\text{OH}^-] \\ &= -\log_{10}(1 \times 10^{-8}) = 8 \\ \text{PH} + \text{POH} &= 14 \\ \text{therefore PH} &= 14 - 8 \\ \text{PH} &= 6 \end{aligned}$$

6. Can rusting of iron nail occur in distilled water. Justify your answer.

Ans : 1. yes. Rusting iron nail occur in distilled water.

2. Rusting of iron nail is due to the presence of air and water.

7. To design the body of the aircraft aluminium alloys are used. Give your reason.

Ans :

1. aluminium alloys are light and have high tensile strength.

2. These are corrosion resistant.

8. Acetic acid is heated with a solid 'x' kept in a test tube. A colourless and odourless gas (y) is evolved. The gas turns lime water milky when passed through it. Identify x and y.

Ans : x - sodium carbonate (or) sodium bicarbonate y - carbon di - oxide

X Std Physics - Study Material for slow learners

I. Choose the best answer:-

1. The momentum of massive object at rest is _____.

a. very large b. very small c. zero d. infinity

Ans : c. zero

2. From the following statements, write down that which is not applicable to mass of an object.

a. It is a fundamental quantity

b. It is measured using physical balance

c. It is measured using spring balance

Ans : c. It is measure using spring balance

3. The weight of 50kg person at the surface of earth is _____

a.50N b.35N c.380M d.490N

ans. d.490N

4. The freezing of bio-technology products like vaccine require _____ freezing systems

a.Helium b.nitrogen c.ammonia d.chlorine

ans.b.nitrogen

5. The potential difference required to pass a current 0.2A in a wire of resistance 20 ohm is —.

a. 100v b. 4v c. 0.01v d. 40v

Ans : b. 4v

6. Kilowatt hour is the unit of _____.

a. potential difference b. electric power c. electric energy d. charge

Ans: c. electric energy

7. _____ surface absorbs more heat than any other surface under identical conditions

a.white b.rough c. black d.yellow

ans. c.black

8. The atomic number of natural radio active element is _____

a.>82 b.<82 c.Not defined d.atleast 92

ans.a>82

9. The magnification produced by the mirror is 1/3, then type of mirror is _____.

a. concave b. convex c. plane

Ans. b. convex

10. An electric current through a metallic conductor, it produces — around it.

a. heat b. light c. magnetic field d. mechanical force

Ans : c. magnetic field

11. The field of view is maximum for _____.

a. plane mirror b. concave mirror c. convex mirror

Ans : c. convex mirror

12. An object is placed 25cm from a convex lens whose focal length is 10cm. The image distance is —.

a. 50cm b. 16.66cm c) 6.66cm d) 10cm

Ans : b. 16.66cm

TWO MARKS:

II. Fill in the blanks:-

1. Force = mass x acceleration, the momentum = _____ x _____.

Ans : mass x velocity

2. Liquid hydrogen for rocket, then _____ for MRI.

Ans : liquid helium.

III. Correct the mistakes in the following statements:-

1. One newton is the force that produces an acceleration of 1m/s^2 in an object of 1kg mass.
2. Action and reaction is always acting on the same body.

Ans : One Newton is the force that produces an acceleration of 1m/s^2 . In an objects of 1 Kilogram mass.

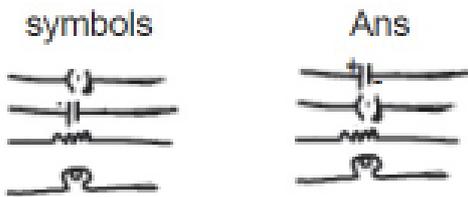
2. Action and reaction is always acting on the two different objects.

IV. 1.Potential difference : Voltmeter, then current :

Ans : Ammeter

Power plant : conventional source of energy, then solar energy : Non conventional source of energy.

2. Component



- a. an electrical cell b. closed plug key c. a resistor d. a bulb

V. Fill in the blanks:-

a. For a motor :

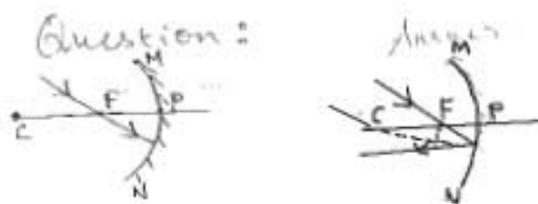
A permanent magnet, then commercial motor :

Ans : Electro magnet

b. Focal length of a lens : Meter, then power of a lens :

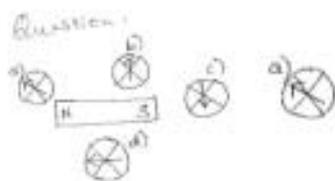
Ans : Dioptre

VI. Identify the mistake in the following rays diagram and draw the correct diagram:



VII. Which of the compass needle orientations in the following diagram might correctly describe the magnets field at that point :

Answer



5 Marks Questions :

1. a) What is Genetic engineering?
b) What are the uses of Genetic engineering?

Ans : a) Genetic engineering is the modification of the genetic information of living organism by manipulation of DNA by adding, removing or repairing part of genetic material (DNA) and changing the phenotype of the organism. It is also known as gene manipulation.

b) The benefits derived through the Genetic Engineering include :

(1) Understanding of the gene structure and function through basic research.

(2) Production of large quantities of insulin, interferon (Anti-viral protein produced by virus infected cells) human growth hormones, proteins and vaccines for foot and mouth for foot and mouth disease of cattle.

(iii) This technique is also employed in the transfer of genes involved in Nitrogen fixation [NiF - genes]. This will help the cultivation to increase productivity.

2. There is widespread outbreak of malaria in your area.
a) Suggest some controlling measures to the local authorities concerned.
b) Pick out the right symptom for malaria. [Chill and shiver and a rise in temperature / diarrhoea]

Ans : a) Controlling measures are

(i) sanitary measures include ground fogging with disinfectants.

(ii) Closure of stagnant pools of water and covering ditches is suggested.

(iii) Using mosquito nets and repellants.

b) Symptom for malaria

Chill and shiver and a rise in temperature.

3. a) Write the two events involved in the sexual reproduction of flowering plant.
b) Discuss the first event and write the types.
c) Give advantages and disadvantages of that event.

a) 1. Pollination 2. Fertilization

b) Pollination : Transfer of Pollen grains from the anther to the stigma is called pollination.

Types of Pollination : (i) Self pollination (ii) Cross pollination

Self Pollination (Autogamy)

Self Pollination is also known as autogamy. The transfer of pollen grains from the anther of a flower to the stigma of the same flower or another flower of the same plant is known as self pollination.

Advantages of self pollination

1. Self pollination is certain in bisexual flowers.
2. Flowers need not depend on agents of pollination.
3. There is no wastage of pollen grains.

Disadvantages of self pollination

1. The seeds are less in number.
2. Endosperm is minute. Therefore, the seeds produce weak plants.
3. New varieties of plants cannot be produced resulting in the degradation of the plant.

Cross Pollination (Allogamy)

The transfer of pollen grains of a flower to the stigma of another flower of a different plant of the same species is called cross pollination or allogamy.

Advantages of cross pollination

1. The seeds produced as a result of cross pollination develop, germinate properly and grow into better plants. i.e., cross pollination leads to the production of new varieties.
 2. More viable seeds are produced.
4. Smoke, smoke every where smoke. Do you agree this situation is good for health. List out the harmful effects of coal burning.

Ans : No

Harmful effects of coal burning.

(i) Generation of waste products which contain mercury, uranium, thorium, arsenic and other heavy metals which are harmful to human health and environment.

(ii) Sulphur particles present in the coal will cause acid rain.

(iii) Interference with ground water and water table levels.

(iv) Contamination of land and water ways.

(v) Dust nuisance.

5. State the findings of modern atomic theory.

Modern Atomic Theory

The findings of modern atomic theory are given as follows :

- * Atom is considered to be a divisible particle.
- * Atoms of the same element may not be similar in all respects. e.g. : isotopes ($_{17}\text{Cl}^{35}$, $_{17}\text{Cl}^{37}$)
- * Atoms of different elements may be similar in some respects. eg. Isobars ($_{18}\text{Ar}^{40}$, $_{20}\text{Ca}^{40}$)
- * Atom is the smallest particle which takes part in chemical reactions.
- * The ratio of atoms in a molecule may be fixed and integral but may not be simple. e.g. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ is not a simple ratio (Sucrose)
- * Atoms of one element can be changed into atoms of other element by transmutation.
- * The mass of an atom can be converted into energy. This is in accordance with Einstein's equation $E = mc^2$.

6. Write the common name and IUPAC name of the following :

Ans :

	<u>Molecular formula</u>	<u>Common Name</u>	<u>IUPAC Name</u>
a)	$\text{CH}_3\text{CH}_2\text{CHO}$	Propanaldehyde	Propanal
b)	CH_3COCH_3	Dimethyl ketone (Acetone)	Propanone
c)	$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_3 \\ \\ \text{OH} \end{array}$	Iso Propyl alcohol	2 - propanol
d)	CH_3COOH	Acetic acid	Ethanoic acid
e)	HCHO	Formaldehyde	Methanal

7.

- a. Redraw the above diagram
- b. This diagram represents A.C. generator
- c. Label the parts of the diagram.

Ans : N - S Two poles of a permanent magnet

ABCD rotating rectangular coil

S_1 and S_2 slip rings

B_1 and B_2 stationery brushes

- d. Write the principle of the name of the device denoted by this diagram.

Ans: electro magnetic induction.

