BIOLOGY - IMPORTANT QUESTIONS FOR SLOW LEARNERS

1. NUTRITION

1. Write differences between: (AS_1)
   a) Autotrophic nutrition - Heterotrophic nutrition
   b) Ingestion - digestion
   c) Light reaction - dark reaction
   d) Chlorophyll – chloroplast
2. With the help of chemical equation explain the process of photosynthesis in detail with the help of a flowchart. (AS_1)
3. What is malnutrition? Explain some nutrition deficiency diseases. (AS_1)
4. Differentiate between light dependent and light independent reactions. (AS_1)
5. Differentiate between bolus and chyme. (AS_1)
6. What happens to plant if the rate of respiration becomes more than the rate of Photosynthesis? (AS_2)
7. How do fungi and bacteria obtain their nourishment ? (AS_2)
8. If we keep on increasing CO_2 concentration in air what will be the rate of photosynthesis? (AS_2)
9. How would you demonstrate that green plants release oxygen when exposed to light? (AS_3)
10. How do you prove that carbon dioxide is essential for photosynthesis? (AS_3)
11. How do you prove that light is essential for photosynthesis? (AS_3)
12. How can test the presents of starch in leaves? (AS_3)
13. Tabulate the information showing different enzymes and digestive juices and their functions. (AS_4)
14. Complete the table with appropriate answers. (AS_4)

Vitamin	Chemical name	Deficiency disease	Symptoms
B_1	(i)	Beri-beri	(ii)
(iii)	Ascorbic acid	(iv)	Delay in healing of wounds
D	(v)	(vi)	Weak bones
(vii)	Phylloquinone	(viii)	Over bleeding

15. Draw a neatly labelled diagram of chloroplast found in leaf. Explain its role in Photosynthesis. (AS_5)
16. If there were no green plants, all life on the earth would come to an end! Comment. (AS_6)
17. Ravi is suffering from indigestion and Constipation. Give reasons and suggestions. (AS_6)
18. What facts about the green plants do you appreciate ? (AS_6)
19. What food habits you are going to follow after reading this chapter? Why? (AS_7)

2. RESPIRATION

1. Distinguish between: (AS_1)
   a) inspiration and expiration
   b) aerobic and anaerobic respiration
   c) respiration and combustion
   d) photosynthesis and respiration
2. Explain the mechanism of respiration. (AS_1)
3. Write differences between the respiration in plants and animals. (AS_1)
4. What happen if diaphragm is not there in the body? (AS_2)
5. If you have a chance to meet pulmonologist what questions are you going to ask about pulmonary respiration? (AS_2)
6. What procedure do you follow to understand anaerobic respiration in your school laboratory? (AS_3)
7. Write an experiment to observe changes during combustion of sugar. (AS_3)
8. How can you prove that carbon dioxide is evolved during respiration? (AS_3)

9. How can you prove that heat is liberated during respiration? (AS_3)
10. What procedure do you follow to prove that the presence of CO_2 in exhaled air ? (AS_3)
11. Complete the following table. (AS_4)

Respiratory organ	Type of respiration	Organisms
Trachea		
Gills		
Skin		
Lungs		

12. Study the following table and answer the questions that follow. (AS_4)

Gas	% in inhaled air	% in exhaled air
Oxygen	21	16
Carbon dioxide	0.03	4.4
Nitrogen	78	78

i. Why does the amount of Oxygen vary between exhaled and inhaled air?
ii. What has raised the percentage of carbon dioxide in exhaled air?
iii. Why there is no change in the percentage of Nitrogen in exhaled and inhaled?

13. Draw a neat labelled diagram of human respiratory system. (AS_5)
14. Draw a neat labelled diagram of mitochondria. (AS_5)
15. Write few slogans against the tobacco. (AS_6)
16. How do you appreciate the mechanism of respiration in our body ? (AS_6)
17. How respiration helps for the survival of organisms? (AS_7)

3. TRANSPORTATION

1. Write differences between: (AS_1)
   a) systole - diastole b) veins - arteries c) xylem – phloem d) Atria and ventricles
2. What is cardiac cycle? Explain the stages of it. (AS_1)
4. Differentiate between blood and lymph. (AS_1)
5. Differentiate between : (AS_1)
   a) Plasma and serum b) Active transport and passive transport
6. If the valves in veins of the legs fail to stop the flow of blood, what could be the consequences of this failure ? (AS_2)
7. What will happen if cell sap of root hair cells contain high concentration of ions ? (AS_2)
8. If you get a chance to meet cardiologist, what questions you will ask about the problems related to heart? (AS_2)
9. How do you observe internal and external features of mammalian heart? (AS_3)
10. How is root pressure help the plants? Explain with the help of an experiment. (AS_3)
11. How would you demonstrate transportation by an experiment? (AS_3)
12. A table with different pulse rates have given here. Observe the data and answer the questions. (AS_4)

Newborn (0-3 months)	Infants (3-6 months)	Infants (6-12 months)	Children (1-10 years)	Children over 10 years & adults including senior citizens	Well - trained athletes
100-150	**90-120**	**90-120**	**70-130**	**60-100**	**40-60**

i) What is the pulse rate of newborn child ?

ii) What is the pulse rate of infants with the age between 3 - 6 months ?

iii) Define pulse.

iv) Where do you feel the pulse ?

13. Analyse the table given below. (AS_4)

Name of the animal	Weight of the body	Weight of the heart	No. of beats / min
Blue Whale	1,50,000 kg	750 kg	7
Elephant	3000 kg	12 - 21 kg46	46
Man	60 -70 kg	300 gm	76
Coaltit bird	8 gm	0 - 15 gm	1200

i. What is the relation between weight of the body and rate of the heart?

ii. Why rate of heart beat is more in animals with less weight?

iii. Why rate of heart beat is less in animals with more body weight?

iv. What is the relationship between weight of the heart and its number of heart beats?

14. Complete the following table. (AS_4)

S.No	Name of the valve	Location	Function

15. Complete the following table. (AS_4)

S.No	Name of the phylum / Organism	Type of transport system

16. Draw a neat diagram of internal structure of heart and label the parts. (AS_5)

17. What do you want to compare with the transportation in blood vessels in man? (AS_6)

18. How do you feel about transportation of water in huge trees? (AS_6)

19. Prepare a cartoon on heart beating. (AS_7)

20. After reading this lesson what precautions you would suggest to your elders about oedema. (AS_7)

4. EXCRETION

1. Write differences between: (AS_1)

A) Functions of PCT and DCT B) Kidney and artificial kidney

C) Excretion and secretion D) Primary metabolites and secondary metabolites

2. Explain various stages in the formation of urine. (AS_1)

3. What is meant by haemodialysis? Explain the functioning of artificial kidney machine. (AS_1)

4. To keep your kidneys healthy for long period what questions will you ask a nephrologist/ urologist? (AS_2)

5. What questions you will ask about 'Organ donation - A gift for life'? (AS_2)

6. Imagine what happens if waste materials are not sent out of the body from time to time ? (AS_2)

7. How do you study the external and internal features of a kidney? (AS_3)

8. A table is given with different phyla / classes and with their excretory systems. Complete it with suitable answers. (AS_4)

S.No.	Name of the phylum / class	Excretory system
1	Platyhelminthes	(i)
2	(ii)	Nephridia
3	(iii)	Metanephridia
4	Echinodermata	(iv)

9. Analyse the following information and answer the questions. (AS_4)

Alkaloid	Part of the plant	Uses
Quinine	Bark	Anti malarial drug
Nicotine	Leaves	Insecticides
Morphine	Fruits	Pain killer, sedative
Caffeine	Seeds	Central Nervous system stimulant
Pyrethroids	Flowers	Insecticides
Scopolamine	Fruits, flowers	Sedative

   i. Which parts of the plants are used as alkaloids ?
   ii. What are the alkaloids which are used to control the diseases that occur in plants ?
   iii. Name the parts of the plant from which we get alkaloid used as sedative.
   iv. Name the alkaloid which is used to prevent malaria.

10. Draw a neat labelled diagram of nephron. Explain its structure. (AS_5)
11. Draw a neat labelled diagram of L.S of kidney (Internal structure of kidney). (AS_5)
12. Draw the diagram of human excretory system and label the parts. Explain various parts of it. (AS_5)
13. What discussion would you like to have about 'Brain dead' why you think so? (AS_6)
14. List out the things that makes you amazing in excretory system of human being. (AS_6)
15. We people have very less awareness about organ donation, to motivate people write slogans about organ donation. (AS_7)
16. After learning this chapter what habits you would like to change or follow for proper functioning of kidneys? (AS_7)

5. COORDINATION

1. Distinguish between: (AS_1)
   a) Stimulus and Response
   b) Afferent and Efferent nerves
   c) Central nervous system and Peripheral nervous system
   d) Receptor and Effector
2. Differentiate between Hormones and pheromones. (AS_1)
3 Write the differences between : (AS_1)
   i) Auxins - ABA
   ii) Auxins – Gibberellins
4. What will happen to the potted plant kept near window in the room ? (AS_2)
5. What happens if all functions of the human body is controlled only by brain ? (AS_2)
6. If you visit a doctor what doubts you would like to clarify about pancreas ? (AS_2)
7. What procedure you follow to understand the effect of plant growth hormones (in agar medium) in the terminal portion of the tip of stem (coleoptile)? (AS_3)
8. Suggest an experiment to show how shoots grow towards light in most plants. (AS_3)
9. Complete the following table. (AS_4)

S.No	Name of the phytohormone	Function

10. Complete the following table. (AS_4)

Name of the gland	Location	Hormone secreted	Response of body to hormone
Thyroid	A	Thyroxine	General growth rate and metabolic activity.
Ovary	Lower abdomen	B	Growth of the uterus and skeleton of the pelvis. Control of the 28 days menstrual cycle in females.
Testis	C	Testosterone	Growth of hair on face, muscular, development, deepening of voice, normal sexual behaviour and development of male sex organs.
Adernal	Attached to kidneys	Adrenalin	D

11. Study the table and answer the questions. (AS_4)

Name of the gland	Location	Hormone secreted	Response of body to hormone
Pituitary	Floor of brain	1. Somatotropin	Growth of bones
		2. Thyrotropin	Activity of thyroid gland
		3. Gonadotropin	Activity of ovary and testes
		4. Adrenocorticotrophic hormone	Stimulates secretion from adrenal cortex
		5. Lutenising hormone	In males - secretion of testosterone
			In female - Ovulation, development of corpus luteum and secretion of progesterone
		6. Follicle stimulating hormone	In male - spermatogenesis
			In female - growth of graffian follicles, oestrogen secretion, milk production and secretion

i. Which hormone regulates the absorption of water from kidney tubules?

ii. Name the hormone which activates reproductive organs.

iii. Release of ovum from graffian follicle is under the control of which hormone?

iv. Which hormone initiates spermatogenesis?

v. Name the other functions of the hormone which initiates ovulation.

12. Write various parts of the brain and their functions in a tabular column. (AS_4)

13. Draw a neat labelled diagram of structure of brain. (AS_5)

14. Draw a neat labelled diagram of structure of neuron. (AS_5)

15. It is very interesting to watch a creeper entwining its tendril to the support. Is not it? How do you express your feelings in this situation? (AS_6)

16. What may happen if anger persists for a longer period? (AS_7)

6. REPRODUCTION

1. Write differences between. (AS_1)

   a) grafting – layering b) stamen-carpel

2. Differentiate between sexual reproduction and asexual reproduction. (AS_1)

3. Write the differences between mitosis and meiosis. (AS_1)
4. How does binary fission differ from multiple fission? (AS_1)
5. What would be the consequences if there is no meiosis in organisms that reproduce sexually? (AS_2)
6. "All unicellular organisms undergo only mitotic cell division during favourable conditions"- Do you support this statement ? Why ? (AS_2)
7. Explain with the help of an experiment the growth of Rhizopus on bread. (AS_3)
8. What is meant by seed germination? How do you observe the process of seed germination? (AS_3)
9. How can you observe the germination of pollen grain under microscope? (AS_3)
10. Complete the following table. (AS_4)

Type / Method of reproduction	Examples
1	Bacteria, *Paramoecium*, etc.
Budding	Yeast, *Hydra*
Fragmentation	2
Parthenogenesis	Bees, Ants and Wasps.
3	*Planaria*, Earthworm
Vegetative propagation through Leaves	*4*
Vegetative propagation through Stem.	Stolons (Strawberry), Corms, (Colacasia), Bulbs (Onion), tuber (potato), Rhizome (Ginger)
5	Radish, Carrot, Murraya, etc.
Cutting	6
7	Nerium, Jasmine
Grafting	8

11. Draw a neat labelled diagram of male human reproductive system. Explain the parts of it. (AS_5)
12. Draw a neat labelled diagram of female human reproductive system. Explain the parts of it. (AS_5)
13. Draw a neat labelled diagram of typical flower. Explain the parts of it. (AS_5)
14. Draw a neat labelled diagram of the process of fertilisation in plants. Explain the various events of it. (AS_5)
15. Draw a neat labelled diagram of structure of ovule. Write the functions of its parts. (AS_5)
16. Draw a labelled diagram of spermatozoan. Write the functions of its parts. (AS_5)
17. Draw the diagram of life cycle of flowering plant and label the parts. (AS_5)
18. How will you appreciate cell division that helps in perpetuation of life? (AS_6)
19. What precautions will you take to keep away from various sexually transmitted diseases? (AS_7)
20. What slogans will you give to prevent child marriages? (AS_7)

7. COORDINATION IN LIFE PROCESSES

1. Write the differences between the following. (AS_1)
   a) bolus - chyme
   b) small intestine - large intestine
   c) mastication - rumination
   d) propulsion - retropulsion
2. What is mastication? Explain the role of different sets of teeth in this process. (AS_1)
3. List out the sphincter muscles of the food canal you have observed and give a brief description. (AS_1)
4. What happens if salivary ducts are closed ? (AS_2)
5. If size and shape of small intestine is like oesophagus, what will happen ? (AS_2)
6. Prepare a questionnaire to understand nervous coordination in digestion process. (AS_2)

7. What experiment should you perform to understand action of saliva on flour ? Explain it's procedure and apparatus that you followed. (AS_3)
8. Suggest a simple experiment to prove the role of palate in recognizing taste. (AS_3)
9. Write about the experiment conducted by Ivan Pavlov on conditional reflexes. (AS_3)
10. Write the procedure involved in the acid and leaf experiment. (AS_3)
11. Write an activity to show peristaltic movements in oesophagus / movement of bolus in oesophagus. (AS_3)
12. Draw a schematic diagram of villus in small intestine. Explain how digestive system coordinates with circulatory system. (AS_5)
13. Prepare a cartoon on Pavlov's experiment with a suitable caption. (AS_6)
14. How do you appreciate stomach as a churning machine. How does this coordination go on ? (AS_6)
15. Suggest any two important habitual actions to your friend while eating food, keeping in view of this chapter. (AS_7)

8. HEREDITY

1. How sex determination takes place in human? Explain with an example. (AS_1)
2. State the differences between autosomes and sex chromosomes. (AS_1)
3. Explain monohybrid experiment with an example, which law of inheritance can we understand ? Explain. (AS_1)
4. What is the law of independent assortment ? Explain with an example. (AS_1)
5. Write a brief note on evidences of evolution. (AS_1)
6. Mendel selected a pea plant for his experiments. Mention the reasons in your point of view. (AS_2)
7. If the theory of inheritance of acquired characters proposed by Lamarck was true how will the world be? (AS_2)
8. With the help of given information write your comment on evidences of evolution. (AS_4)

   "Mammals have four limbs as do birds, reptiles and amphibians. The basic structure of the limbs is similar, though it has been modified to perform different functions".
9. Prepare a flowchart showing evolution of man through ages. (AS_5)
10. Nature selects only desirable characters. Prepare a cartoon. (AS_6)
11. What is your understanding about survival of the fittest. Give some situations or examples that you observe in your surroundings ? (AS_7)

9. OUR ENVIRONMENT

1. Write a note on the following pyramids with the help of diagrams. (AS_1)

   i) Pyramid of numbers ii) Pyramid of energy iii) Pyramid of biomass (AS_1)
2. If you want to know more about flow of energy in an ecosystem, what questions do you ask ? (AS_2)
3. What will happen if we remove predators from food web ? (AS_2)
4. Observe the data given in the following table. (AS_4)

Classes	Areas in 1967 (km^2)	Area in 2004 (km^2)
Lake - water spread area	70.70	62.65
Lake with sparse weed	0	47.45
Lake with dense weed	0	15.20
Lake - village to flood in rainy season	100.97	0
Aquaculture ponds	0	99.74
Rice fields	8.40	16.62
Settlements	0.31	1.37
Total	**180.38**	**180.38**

Answer the following questions :

i) In which year lake-water spread area is more ? Why ?

ii) How do you think weeds are more in the lake ?

iii) What are the reasons for decrease in lake area ?

iv) How do the above reasons lead to pollution ?

5. Draw schematic diagrams of a food chain and a food web. (Use only the names of the organisms) (AS_5)

6. Observe the following organisms.

i. Make a food chain by using the organisms given above.

ii. Name the producer and consumers in the above food chain.

iii. Try to guess what does the arrows marked by you indicate ?

iv. Identify at least four other food chains in your surroundings.

7. How do you appreciate the interdependency of animals and plants ? (AS_6)

8. Prepare slogans to promote awareness in your classmates about ecofriendly activities. (AS_7)

9. Suggest any three programmes on avoiding pesticides and preventing soil pollution (AS_7)

10. NATURAL RESOURCES

1. What is sustainable development? How is it useful in natural resource management ? (AS_1)

2. Write a detailed note on management of a natural resource. (AS_1)

3. Why should we conserve forests and wildlife ? Suggest some approaches towards the conservation of forests. (AS_1)

4. Natural resources are decreasing more rapidly. Guess what will be the consequences ? (AS_2)

5. Prepare a questionnaire to conduct interview in petrol filling station personnel about consumption of fossil fuels ? (AS_2)

6. Study the following table and answers the questions. (AS_4)

Village	Total Area (acres)	Percentage Area Irrigated	Number of wells	Sample size
Village -1	3791	25	155	25
Village - 2	2970	15	175	25

a) What is the total irrigated area in acres, in Village - 1 ?

b) If one needs to irrigate all the land in Village - 1, how many wells would be required ?

c) Though the number of wells is less in Village - 1, the area under irrigation is more as compared to Village - 2. How is this possible ?

d) Do you think the area under irrigation will change due to rise in population ?

7. Study the data given in the table. (AS_4)

Village	Percentage change in area under irrigation	Percentage decline in number of wells	Percentage change in area under crops					
			Paddy		Cotton	Gingelly	All crops	
			K	R			K	R
Village -1	–14	–39	–17	–17	163	86	11	–17
Village - 2	–30	–68	–22	–50	27	138	–05	–50

i. If the number of wells is 155 now, what was it 5 years back ?

ii. Which village do you think is more affected ?

iii. What do you think 'decline in number of wells' represent ?

iv. How would crops be affected due to decline in the number of wells ?

v. What is the change in types of crops grown in the villages ?

8. What do the following pictures represent ? (AS_5)

a) 

b) 

9. Proper utilisation of natural resources is the way to show gratitude to our nation. Can you support this statement? Give your argument. (AS_6)

10. State the reasons for the appreciation of the natural resources. (AS_6)

11. Crop selection and cultivation should be based on availability of water. Prepare slogans to make farmer aware of this. (AS_7)