

SSC PUBLIC EXAMINATIONS : 2021

MODEL PAPER - 1

BIOLOGY (N.S)

Class : X

Max.Marks : 50

Time : 2.45 Hrs.

Instructions :

1. First 15 minutes are meant for reading the question paper and remaining 2.30 minutes are for writing the exam.
2. Answer all questions in the booklet given
3. The question paper contains four sections.
4. Only section four has internal choice.

SECTION - I

$12 \times \frac{1}{2} = 6M$

Note : Answer all the questions each question carries $\frac{1}{2}$ mark.

1. Roots always grow away from walls and rocks and towards the places where water is available.
2. Identify the given logo



3. Find the wrong matched
 - a) Gibberellins – germination of seeds
 - b) Ethylene – Ripening of fruits
4. Haemoglobin : Iron :: Chlorophyll : _____ (Fillup the blank)
5. Write the missing part from the equation
Fibrinogen $\xrightarrow{\text{Thrombin}}$
6. Expand A.T.P. ?
7. Group A : Vitamins A, D, E, K
Group B : Vitamins B Complex and C
Identify the water soluble vitamins.
8. Which is the alkaloid present in Tobacco plant ?
9. Dialysis machine is used to filter the urine of a person when both kidneys are damaged.
Rewrite the sentence by making necessary correction.

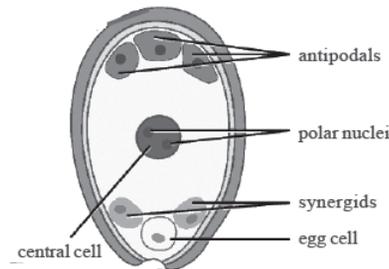
10. I am an anticoagulant of blood I can stop the clotting of blood inside the blood vessels. Who am I?
 11&12. The normal blood pressure in man is _____ (11)
 It is measured with an instrument called _____ (12)

SECTION - II

8 × 1 = 8M

Note : Answer all the questions each question carries 1 mark.

13. Prepare any two questions to ask about fuel consumption from petrol vendor ? (AS-2)
 14. Identify and write the name of the given diagram (AS-5)



15. Write the slogans on consumption of water? (AS-6)
 16. (AS-4)

♀	♂	y	y
Y	YY	Yy	
y	yY	yy	

What is the phenotypic and Genotypic ratios according to this table ?

17. In the year 1879, he examined many kinds of animal and plant cells and identified mitotic cell division. identify the scientist related to the paragraph? (AS-1)
 18. On the lower side of fern, the cluster of dot like structures are seen. Can you name these structures? (AS-2)



19. In this department where does the heat come from ? (AS-3)
 20. Complete the following table (AS-4)

S.No.	Name the Enzyme	Acting on
1	Pepsin	?
2	?	Fats

SECTION - III

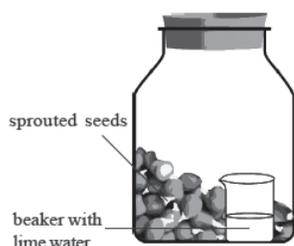
8 × 2 = 16M

Note : Answer all the questions each question carries 2 marks.

21. What is flurosis ? What are its symptoms ?
22. Write a note on the process of budding ?
23. Prepare a questionnaire to ask a Nephrologist about the daily habits to retain your kidney healthy.
24. Which parts of plants are used for extraction of alkaloids ?

Alkaloid	Part of the plant	Uses
Quinine	Bark	Anti malarial drug
Nicotine	Leaves	Insecticide
Caffeine	Seeds	Central nervous system stimulant
Morphine	Fruits	Pain killer

- a) Which part of the plants are used as alkaloid ?
 - b) Name the alkaloid which is used to prevent Malaria ?
 - c) The alkaloid "Nicotine" is present in which part of the plant ?
 - d) Which alkaloid is used to stimulate the central nervous sytem?
25. A person is injured while playing on the ground. Blood is flowing continuously. What might be the reasons? (AS-6)
26. Observe the given Experiment and answer the questions given below ? (AS-3)



- 1) What is the aim of the Experiment?
- 2) Why lime water turns into milky white ?

27. How will you appreciate call division that helps in perpetuation of life ? (AS-6)
28. Draw a neatly labelled diagram showing a peristaltic movement in oesophagus ? (AS-5)

SECTION - IV

5 × 4 = 20M

Note : Answer all the questions each question carries 4 marks.

29. Write the differences between Areteries and Veins ? (AS-1)

(Or)

Suggest any three programmes for prevention of soil polution in view of avoiding pesticides? (AS-6)

30. What is the role of diaphragm and ribs in respiration? Are both active in Man and Woman?(AS-2)

(or)

Write about the 4'R's needed for the protection and conservation of environment? (AS-7)

31. Write the experiment you have performed in your school laboratory to know the action of saliva on flour ? (AS-3)

(Or)

Answer the following questions by observing the diagram showing the experiment? (AS-3)

- a) What will you prove by this experiment ?
 - b) What apparatus do you use in this experiment? Fig Page No. 7
 - c) What would be the result if the experiment is done in shadow?
 - d) What will you do to obtain result from the experiment ?
32. One student wants to cross pure tall plant (TT) with pure dwarf plant (tt) what would be the F₁ and F₂ generations ? (AS-4)

(Or)

S.No.	Name of the gland	Location	Hormone Secreted	Response of the body to hormone
1.	Pituitary	Floor of brain	Somato tropin Gonadotropin	Growth of bone Activity of ovary and testis
2.	Thyroid	Neck	Thyroxine	General growth rate and metabolic activity.
3.	Ovary	Lower abdomen	estrogen	growth of the uterus and skeleton of the Pelvis
4.	Testis	Scrotal Sac	Testosterone	Growth of male secondary sexual characters

Observe the above table and answer the question. (AS-4)

- a) Write the importance of hormones?
 - b) Which hormone is responsible for growth of bone?
 - c) What happens if testosterone is not secreted ?
 - d) What glands are common in male and female ?
33. Draw a neat labelled diagram to explain plant fertilisation. Write a few points on pollen grain? (AS-5)

(Or)

Which diagram do you draw to label given parts?

- 1) Bowman's capsule 2) Loop of henle 3) Collecting duct 4) glomerulus

Draw the diagram showing above parts.

ANSWERS

SECTION - I

1. Hydrotropism.
2. Sustainable development.
3. b) Ethylene –Ripening of fruits.
4. Hemoglobin : Iron : : Chlorophyll : Magnesium.
5. Fibrin.
6. Adenosine Tri Phosphate.
7. B Complex and C.
8. Nicotine.
9. Dialysis machine is used to filter the **blood** of a person when both kidneys are damaged.
10. Heparin.
11. 120/80.
12. Sphygmomanometer.

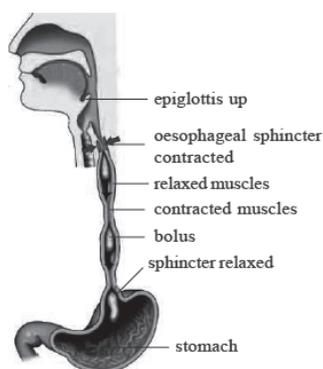
SECTION - II

13. 1) From where these fuels are coming to this petrol station?
2) Why the prices of petrol and diesel raise day by day in a continuous process?
3) What is the change in the number of customers from the past five years, does the number decreased?
4) Is there any fuel that emits less pollutants from vehicles?
14. Female gametophyte / Embryo sac,
15. 1) Water is scarce – use in spare.
2) Save water – Save lives.
3) You never know the worth of water until the well runs dry.
4) A drop of water is worth more than a sack of gold to a thirsty man.
16. Phenotypic ratio – 3: 1 Genotypic ratio – 1 : 2 : 1.
17. Walther Fleming.
18. Sporangia.
19. From germinating seeds.
20. **Complete the following table.**

S.No.	Name of the enzyme	Acting on
1.	Pepsin	Proteins
2.	Lipase	Fats

SECTION - III

21. 1) Fluorosis is the adverse condition caused by higher dissolution of fluorine in underground water.
2) Consuming of more amounts of Fluorine through food and water leads to the condition.
3) Fluorosis is symptomized by discoloration and distortion of teeth and even deformity in bones in severe conditions.
4) Removal of excess of Fluorine from drinking water is the only way to prevent Fluorosis.
22. 1) Budding is the mode of asexual Reproduction seen in Yeast cells.
2) Budding is characterized by a bud like structure arises from parent organism/cell to grow a full form of organism which gets separated from parent organism and live independently.
23. 1) What are the adverse effects caused to kidneys by daily intake of high protein?
2) How much of water sufficient to take per a day to retain our kidneys healthy?
3) Does consumption of alcohol effects kidney functioning?
4) What precautions one has to take if he is diagnosed by mal functioning of a kidney?
5) What causes appearance of stones in kidneys?
6) Why diabetes causes malfunctioning of kidneys? [any four questions can be written]
24. a) Bark, roots, leaves, seeds and fruits from various plants can be used for alkaloids.
b) Quinine.
c) Leaves.
d) Caffeine.
25. 1) The person may suffer from Hemophilia.
2) He may suffer from Vitamin K deficiency.
26. 1) To prove that Carbon Di Oxide (CO_2) is evolved during Respiration.
2) By the evolution of Carbon Di Oxide.
27. 1) The old and worn out cells are replaced by mitotic cell division.
2) Cell division helps in the retention of chromosomal number from parent to offspring.
- 28.



Peristaltic movement of bolus

SECTION - IV

29.a) S.No.	Arteries	Veins
1.	Blood vessels those carry blood to body parts.	Blood vessels those carry blood to the heart.
2.	Carry blood from the heart.	Carry blood from body parts.
3.	Blood flows away from heart.	Blood flows towards heart.
4.	Carry oxygenated blood.	Carry deoxygenated blood.
5.	Thick walled blood vessels.	Thin walled blood vessels.
6.	Blood flows in waves.	Blood flows continuously.
7.	Valves are absent in these blood vessels.	Valves are present in these blood vessels.
8.	Blood vessels have to tolerate the pressure applied by the Heart.	Blood vessels have negligible effect of pressure applied by the heart.

b) Here are some methods to reduce usage of harmful pesticides.

- 1) **Rotation of crops:** Growing different crops on a particular piece of land in successive years reduces the occurrence of pests and damage to the crops from year to year in that area.
- 2) **Biological control:** Introducing natural predator or parasite of the pest.
- 3) **Sterility:** Rendering the males of a pest species sterile
- 4) **Genetic strains:** The development of genetic strains (genetically modified plants) which are resistant to certain pest.
- 5) **Environmental ethics:** This is concerned with morality of human activities as they affect the environment. People need to know besides laws regarding environment there are some basic ethics what is right and what is wrong in view of environment.

[Write any three points]

- 30.a) 1) Flattened muscle that separated chest cavity and abdominal cavity is called diaphragm.
- 2) Rib cage is a bony structure formed by 12 pairs of rib bones that surrounds chest cavity and protects vital organs heart and lungs.
 - 3) The movements of Diaphragm and rib cage help in respiratory phases inhalation and exhalation.
 - 4) When the diaphragm contracts, it becomes flattened and the volume of the chest cavity is increased, its internal pressure decreases and the air from the outside rushes into the lungs. This is inspiration (inhalation).
 - 5) When the diaphragm expands to appear as a dome and the volume of the chest cavity is decreased, its internal pressure increases. Then the air from the outside rushes into the lungs. This is expiration (exhalation).
 - 6) Along with diaphragm, ribcage moves outwards and inwards to help increasing and decreasing volume in chest cavity.

7) In males activity of diaphragm is more prominent while in case of females, ribcage Moves thoroughly. (Or)

b) Reduce: Rather than to say that save water repeatedly, we can reduce the usage of resources like water and electricity by repairing leaky taps and avoiding a shower or switching off unnecessary lights and fans.

Reuse: Rather than using things that we often tend to throw away, like paper and wrapping papers, plastic and polythene, prefer to use the things again and again that would save plants and minimise pollution things in order to reduce the usage of raw materials in production. This method will save trees to be cut and metals to be mined and also reduces soil pollution.

Recover : To fulfil the gap arised by using resources, we have to implement proper conservation methods to recharge with the same. For example, to recover the trees those were cut due to deforestation, we have to implement afforestation methods.

31. Aim : To prove the action of saliva on flour.

Materials required: Test tubes, water, flour, Iodine, watch glass, dropper.

Procedure :

- 1) Take a test tube half filled with water and add a pinch of flour to it.
- 2) Shake the test tube well till the flour gets mixed. Take a few drops of this in a watch glass and test for the presence of starch by putting a drop of diluted tincture iodine in it.
- 3) A blue black color confirms the presence of starch. Now again dissolve a pinch of flour into half filled water in a test tube.
- 4) Now divide the mixture into two equal halves by transferring it to another test tube.
- 5) Add a teaspoon of saliva to one of the test tube and mark it. Do not add anything in the other test tube.
- 6) After some time (45 minutes) add a drop of dilute Tincture Iodine solution to test tubes containing the solution.

Observation : Flour turns blue black in colour in the second test tube while no colour change occurs in the test tube that is added with saliva.

Conclusion : As saliva acts on flour to turn starch into sugars, the solution does not turn to blue black. Saliva action on flour is thus proved.

(Or)

- a) Oxygen is released during Photosynthesis.
- b) Glass beaker, Test tube, Hydrilla plants, Glass funnel, Water.
- c) Very few amount of oxygen is released.
- d) Sodium bicarbonate/

- 32.** 1) If pure tall plant (TT) is cross pollinated with pure dwarf plant (tt), all the plants appeared are tall plants in F₁ generation.
- 2) These plants are heterozygous tall plants (Tt).
 - 3) The plants appeared in F₁ generation are self pollinated in accordance with mono hybrid cross experiments, 75% of the plants appeared are tall and 25% of dwarf plants will be observed.

4) This can be described by punnet square.

♀ \ ♂	T	t
T	TT	Tt
t	Tt	tt

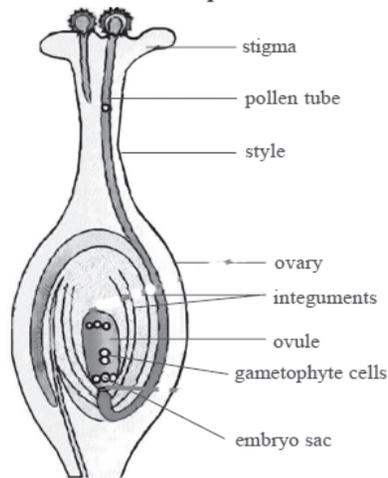
Phenotypic ratio = 3 : 1

Genotypic ratio = 1 : 2 : 1

(Or)

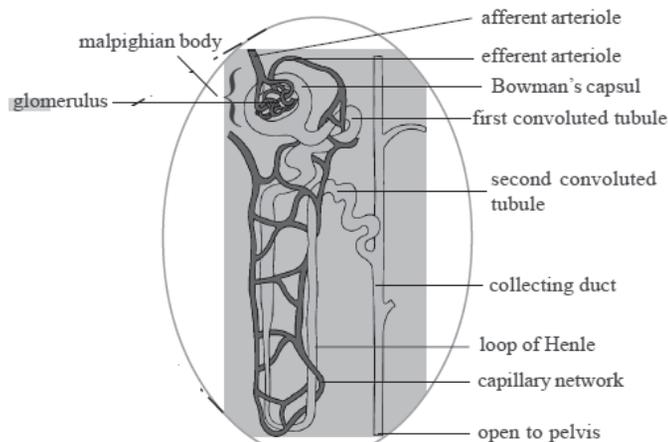
- a) Hormones promote growth, maintain biological activities and sexual health.
- b) Somatotropin.
- c) Growth of male secondary sexual characters will be ceased.
- d) Pituitary and Thyroid glands.

33.



(Or)

34. 1) Bowman's capsule 2) Loop of Henley 3) Collecting tubule 4) Glomerulus



Structure of a nephron

SSC PUBLIC EXAMINATIONS : 2021

MODEL PAPER - 2

BIOLOGY (N.S)

Class : X

Max.Marks : 50

Time : 2.45 Hrs.

I. Choose the correct answer and put it in brackets.

$12 \times \frac{1}{2} = 6M$

- The end product of photosynthesis ()
a) C_2H_5OH b) CO_2 c) $C_6H_{12}O_6$ d) $C_{12}H_{22}O_{11}$
- Paramecium ingested food through _____ ()
a) Cell membrane b) cytostome c) cellia d) mouth
- Gaseous exchange take place in _____ during respiration. ()
a) nose b) Trachea c) lungs d) Alveoli
- An aphid pierces its proboscis into the _____ to get plant juice. ()
a) Vascular bundle b) cambium c) pholem d) xylem
- Urethra is _____ cm long in Human Male ()
a) 4cm b) 10cm c) 20cm d) 25cm
- Nerves that carry messages from brain to body parts. ()
a) Sensory b) Motor c) efferent d) Mixed
- The endocrine gland that is locted on Kidney ____ ()
a) Thyroid b) pituitary c) Adrenal d) Testis
- Yeast reproduce through _____ ()
a) fission b) Budding c) Fragmenttion d) Regeneration
- The Fertilized egg (Zygote) move towards uterus and attached to the walls of the uterus after somany divisions. This process is known as _____ ()
a) ovulation b) implantation c) Mitosis d) Fixation
- We conduct awareness programmes on AIDs on ____ day (World Aids day) ()
a) Feb 28 b) March 8 c) Nov 7 d) Dec 1
- Dental formula of human is $2 : 1 : 2 : 3$ Here '1' indicates? ()
a) Inscisors b) canines c) premolars d) Molars
- Phenotypic Ratio of Monohybrid cross is _____ ()
a) $3 : 1$ b) $1 : 2 : 1$ c) $9 : 3 : 3 : 1$ d) $70 : 30$

II. Answer the following in one sentence

$8 \times 1 = 8M$

- Expand IUCN ? (AS-1)
- What are Fossil Fuels ? (AS-1)

3. What do you understand by "producers" ? (AS-2)
4. Write your own food chain ? (AS-2)
5. Man hand, Cheetah Forelimbs, Whale forelimbs, bat wing are "Homologous organs" Why? (AS-3)
6. Who proposed "Evolution theory"? (AS-1)
7. What do you understand by the term "Inheritance"? (AS-3)
8. How our stomach protected from the action of HCl ? (AS-5)

III. Explain in Brief

8 × 2 = 16M

1. Why G.J. Mendel selected 'Pea' plant for his experiments ? (AS-1)
2. "Gut" is considered as "Second Brain" Give reasons? (AS-3)
3. Mention the different types of Birth Control method? (AS-1)
4. Write a brief notes on "Cell Cycle"? (AS-1)
5. Draw the diagram of spermatogenesis and label the parts/ (AS-5)
6. How will you perform the experiment that prove phototropism? (AS-5)
7. Write some slogans on organ donation to aware people? (AS-6)
8. When you meet a "pulmonologist" What questions do you ask to clarify your doubts? (AS-2)

IV. Explain in detail _____

5 × 4 = 20 M

1. A) How will you perform 'Mohr's' half leaf experiment in your laboratory? (AS-3)
(or)
B) Differentiate between Arteries and Veins? (AS-3)
2. A) CO₂ is released during anaerobic respiration in yeast Explain ? (AS-5)
(or)
B) Explain the process of root pressure in plants? (AS-3)
3. A) Explain the process of mechanism involved in Urine formation? (AS-5)
(or)
B) Differentiate between Primary metabolites and secondary metabolites with examples? (AS-1)
4. A) Explain the process of action of Saliva on flour (Ata) (AS-5)
(or)
B) Explain Monohybrid cross with the help of checkerboard? (AS-3)
5. A) Draw the diagram showing the following parts? (AS-5)
a) Cerebrum b) medulla c) Cerebellum d) Mid brain
(or)
B) Draw the labelled diagram of Datura flower. (L.S) (AS-5)

SSC PUBLIC EXAMINATIONS : 2021

MODEL PAPER - 3

BIOLOGY (N.S)

Class : X

Max.Marks : 50

Time : 2.45 Hrs.

SECTION - I

$12 \times \frac{1}{2} = 6M$

- $6CO_2 + 12 H_2O \xrightarrow[\text{Chl}]{\text{light}} \boxed{\text{?}} + 6H_2O + 6O_2$
- I am present in leaf and useful in gaseous exchange who am I ?
- Identify the normal BP
 - $\frac{80}{120}$
 - $\frac{120}{80}$
- Find out the mismatched pair
 - skin : Salts and water
 - liver : CO_2 , wter
 - large intestine : Faeces
- Heart : Cardiologist : : Kidneys :
-

Fig Page No. 124

Name the above structure 'A' shown in the figure.

- Complete the following blanks.

Union A one male nucleus with the egg cell forms ____ (1) and the second male nucleus with the fusion nucles forms ____ (2)
- Group A - Pepsin, Trypsin
Group B - Estrogen, Adrenalin
Identify the group with hormones.
- Write the name of the logo



10. Name the scientist with the help of this paragraph. He was a monk in a monastery he didn't do his experiments either in university or in a laboratory he discovered how variations were passed from generations
11. Expand CWSN
12. Choose the right one for the empty box ?

Producers → Primary consumers → secondary consumers →

SECTION - II

8 × 1 = 8M

Note : Answer all the questions each question carries 1 mark.

13. What will happen if there is no diaphragm in human body ?
14. Name the vitamin that causes sterility in males ?
15. List out the apparatus required to conduct Root pressure experiment in plants.
16. How do plants get rid of their wastes materials ?
17. Mention the functions of Afferent Neurons and efferent Neurons?
18. Write any two suggestions for the conservation of Biodiversity at your village?
19. What are the advantages of Vaccination?
20. What is your Dental formula

SECTION - III

8 × 2 = 16M

Note : Answer all the questions each question carries 2 marks.

21. What are the questions you asked the doctor who visited your school to know the contraceptive methods.
22. How can you say Digestive tract is nick named by second brain of human beings?
23. Why Mendel chosen garden pea plant for his experiments?
24. Describe briefly about 4R's need for protection and conservation of environment.
25. Draw well labelled diagram that place major role in photosynthesis?
26. How does gaseous exchange takes place on blood vessels of human lungs?
27. What are renewable and Non Renewable substances ?
28. How mitosis differs with meiosis ?

SECTION - IV

5 × 4 = 20M

Note : Answer all the questions each question carries 4 marks.

29. What process do you follow in year laboratory the study the presence of starch in leaves ?

(or)

How would you demonstrate that green plant release oxygen who exposed to sunlight.

30. Write the differences between Aerobic and Anaerobic respiration.

(or)

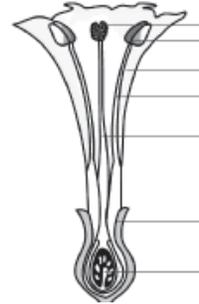
Explain with suitable examples of Alkaloids that release substances in plants.

31. Explain the phytohormones which controls the growth in plants?

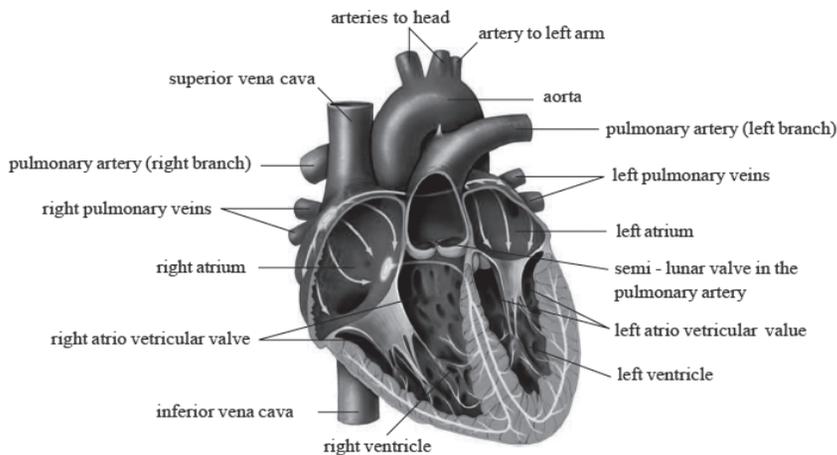
(or)

Explain monohybrid cross experiment with an example of pure yellow seeds with pure green pea seeds.

32. a) What are essential organs of that flower.
b) What are Non essential organs of that Flower.
c) Write the function of stigma?
d) Which part still remains after fertilization.



(or)



Internal struct of 'Heart'

- a) How many valves are there and what are they?
b) Write the function of pulmonary vein?
c) All the chambers of the same size if not why?
d) What is the shape of Heart?
33. Draw a neat labelled diagam of power houses of cell ?

(Or)

- a) Name the layers that surrounds the brain.
b) Which part coordintes voluntary movement?
c) Sensations to respond cold, heat pain and pressure are located in which part of the brain.
d) What is the location of cerebro spinal fluid on the given diagram.

