

# **CBSE & State Boards**

## **UNSOLVED PAPERS**

# **BIOLOGY**

### **CHAPTER WISE & SUB- TOPICWISE**

## **Question Bank**

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# 01.

## Sexual Reproduction In Flowering Plant

1.

### Pre-Fertilization: Structure and Events

#### Section-A (Multiple Choice Questions)

1. How many meiotic divisions are required to produce 112 microspores from microspore mother cells ?  
(a) 56 (b) 28  
(c) 112 (d) 224

UP Board-2022

Ans. (b)

2. Removal of anther to prevent self-pollination is called.  
(a) Anthesis (b) Emasculation  
(c) Fermentation (d) None of these

Jharkhand Board-2019

Ans. (b)

3. Statement-A : The intine of pollen develops as a pollentube and comes out of a germ pore.

Statement-R : The exine of the pollen which has prominent aperture where sporopollenin is present.

- (a) Statement A and R both are correct. R is the explanation of A.  
(b) Statement A and R both are correct. R is not the explanation of A.  
(c) Statement A is correct and R is wrong.  
(d) Statement A and R both are wrong.

Gujarat Board- March, 2018

Ans. (c)

4. Which layer of microsporangium shows cells with dense cytoplasm and conspicuous nuclei?  
(a) Epidermis (b) Fibrous layer  
(c) Middle layer (d) Tapetum

Gujarat Board- July, 2018

Ans. (d)

#### Section-B (Very Short Answer)

5. Draw a labelled diagram of the T.S. of a mature anther.  
ISC-2019
6. Draw the given diagram and lable the following parts.  
(a) Exine  
(b) Tube nucleus



Tamil Nadu Board-2017

7. Draw the structure T.S. of mature anther and label its parts.

Tamil Nadu Board-2020

#### \*Section-C (Short Answer)

8. Name outer layer of the wall of a pollen grain of an angiosperm. What is it chemically made up of ? How is it useful to the pollen grain?  
CBSE-2020

9. Draw a T.S. of a young anther of an angiosperm. Label the different layers of the wall and write their functions.  
CBSE-2019

10. Describe the structure of pollen grain.  
Gujarat Board- July, 2016

#### Section-D (Long Answer)

11. What are the different events that take place in the process of sexual reproduction in plants? Describe briefly with necessary diagrams.  
Assam Board-2013

12. (a) Name the cells and the process involved in the production of pollen grains.  
(b) Describe the detailed structure and functions of the different parts of a pollen grain.  
CBSE-2019

13. Draw a labeled diagram of longitudinal section of a typical flower.  
MP Board-2019

14. Draw the L.S. of flower and explain the stamen.  
Gujarat Board- July, 2016

2.

### Stamen, Microsporangium and Pollen grain

#### Section-A (Multiple Choice Questions)

15. Name the tissue that occupies the centre of each microsporangium.  
(a) Tapetum (b) Connective  
(c) Sporogenous (d) Endothecium  
CBSE-2020

Ans. (c)

16. Which of the following option is not correct for pollen grain?

- (a) When pollen grain is mature it contains two cells, the vegetative cell and male gamete
- (b) Pollen grain is measuring about 25-50 micrometers in diameter
- (c) Pollen grain exine has prominent apertures called germ pore
- (d) Exine is made up of sporopollenin

Gujarat Board- March, 2023

Ans. (a)

17. Choose the correct option for showing right arrangement of different wall layers from sporogenous tissue to peripheral are in T.S of young anther.

- (a) Tapetum, Middle layer, Endothecium, Epidermis
- (b) Tapetum, Endothecium, Middle layer, Epidermis
- (c) Epidermis, Endothecium, Middle layer, Tapetum
- (d) Epidermis, Middle layer, Endothecium, Tapetum

Gujarat Board- March, 2023

Ans. (c)

18. The hard outer layer of pollen grain is called

- (a) intine
- (b) germ pore
- (c) exine
- (d) tapetum

Meghalaya Board-2023

Ans. (c)

19. From the following which one is the column of sterile tissue surrounded by the anther lobe;

- (a) periplasmodium
- (b) pollen chamber
- (c) connective tissue
- (d) tapetum

Tamil Nadu Board-2020

Ans. (c)

20. Sporopollenin occurs in the wall of

- (a) egg cell
- (b) Pollen grain
- (c) synergids
- (d) antipodal cells

Meghalaya Board-2019

Ans. (b)

21. Which of the following gives nutrition to developing pollen grains is-

- (a) Ectodermis
- (b) Middle layer
- (c) Tapetum
- (d) Filament

MP Board-2023

Ans. (c)

22. The wall of pollen grain is

- (a) Single layered
- (b) Double layered
- (c) Triple layered
- (d) Multi-layered

Bihar Board-2021

Ans. (b)

23. Pollen grains are well preserved as fossils because of the presence of \_\_\_\_\_.

- (a) Pectin
- (b) Cellulose
- (c) Lignin
- (d) Sporopollenin

Gujarat Board- March, 2020

Ans. (d)

24. The hard outer layer of pollen is composed of

- (a) Exine
- (b) Intine
- (c) Integument
- (d) Sporopollenin

Kerala Board-2016

Ans. (d)

25. The development of pollen grains in Angiosperms is called

- (a) Microsporogenesis
- (b) Embryogenesis
- (c) Megasporogenesis
- (d) Gametogenesis

Kerala Board-2016

Ans. (a)

26. \_\_\_\_\_ in pollen grains are long and ribbon like.

- (a) Seagrasses (Zostera)
- (b) Vallisneria
- (c) Commelina
- (d) Hibiscus

Gujarat Board- May, 2021

Ans. (a) :

27. \_\_\_\_\_ Pollen grains causes allergy.

- (a) Water hyacinth
- (b) Common Pansy
- (c) Oxalis
- (d) Parthenium

Gujarat Board- May, 2021

Ans. (d) :

28. Innermost wall layer of Micro-sporangium is

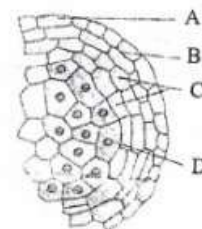
- (a) Middle layer
- (b) Epidermis
- (c) Tapetum
- (d) Endothecium

Kerala Board-2022

Ans. (c)

### Section-B (Very Short Answer)

29. Observe the following diagram and label A, B, C and D.



Kerala Board-2016

30. Explain the structure of microsporangium.

Gujarat Board- March, 2022

31. Explain the formation of primary endospermic cell with the help of germinated pollen grain established on stigma.

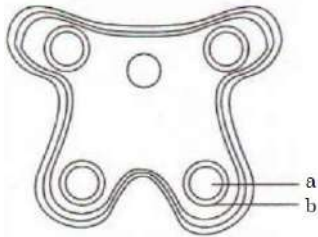
Gujarat Board- March, 2023

32. State the reason why pollen grains lose their viability when the tapetum in the anther is malfunctioning.

CBSE-2019



33. In the T.S. of a mature anther given below, identify ‘a’ and ‘b’ and mention their functions.



CBSE-2019

34. How many cells are present in the pollen grain at the time of their release from Anther? Name the cells.

J&K Board-2020

35. Removal of Anthers from a bisexual flower to make it female flower

(Give the technical one word)

J&K Board-2021

36. Differentiate between microsporogenesis and Megasporogenesis.

Goa Board-2023

### Section-C (Short Answer)

37. Where are the following structures present in a male gametophyte of an angiosperm? Mention the function of each one of them.

- (a) Germ pore  
(b) Sporopollenin  
(c) Generative cell

CBSE-2019

38. Draw a labelled diagram of a germinating pollen grain with at least four labellings.

ISC-2020

39. Draw a labelled diagram of a mature male gametophyte of an angiosperm.

CBSE-2019

40. Draw a schematic transverse section of a mature anther of an angiosperm. Label its epidermis, middle layers, tapetum, endothecium, sporogenous tissue and the connective.

CBSE-2020

41. Mention the advantages of emasculation and bagging in artificial hybridization in plants bearing unisexual and bisexual flowers.

CBSE-2020

42. Draw a labeled diagram of the pollen grain.

MP Board-2015

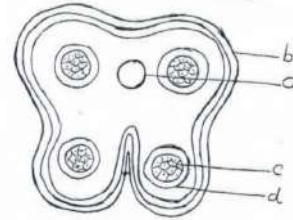
43. Explain the structure of pollen grain.

Gujarat Board- March, 2020

44. Describe the development of male gametes from microspore in flowering plants.

J&K Board-2023

45. (a) The diagram given below shows the transverse section of a young anther. Identify the parts a, b, c, and d.



- (b) The developmental stages of male gametes in plants consist of microsporogenesis and male gametophyte. Arrange the following terms in their correct developmental sequence.

Pollen grain  
Sporogenous tissue  
Anther  
microspore tetrad  
pollen mother cell  
male gamete.

Kerala Board-2014

### Section-D (Long Answer)

46. Trace the development of a 2-celled pollen grain of an angiosperm within an anther. Draw a labelled diagram to substantiate your answer.

CBSE-2020

47. (a) Where does microsporogenesis occur in an angiosperm? Describe the process of microsporogenesis.

- (b) Draw a labelled diagram of the two-celled male gametophyte of an angiosperm. How is the three-celled male gametophyte different from it ?

CBSE-2020

48. Explain the structure of microsporangium and write the functions of its different layers. Draw diagram of microsporangium showing wall layers.

Rajasthan Board-2017

49. Microsporangium with diagram. Also explain the functions of each part.

Jharkhand Board-2018

50. Describe the development of male gametophyte of an angiospermic plant with the help of diagrams.

UP Board-2022

51. Why meiosis is essential at the time of sporogenesis in angiosperms? Explain the process of development of male gametophyte in angiosperms with suitable diagrams.

Assam Board-2019

52. Draw a labeled sketch of a mature pollen grain and write one main function of the following

- (a) Exine  
(b) Germ pore  
(c) Generative cell

Chhattisgarh Board-2021

53. A typical microsporangium is surrounded by four wall layers. Name the wall layers and state the function of the innermost wall layer.

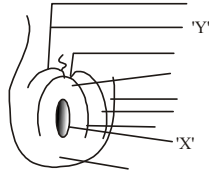
Kerala Board-2021

## 3.

## The Pistil, Megasporangium (Ovule) and Embryo Sac.

### Section-A (Multiple Choice Questions)

54. What do "X" and "Y" indicate in the given figure?



- (a) X = Embryo sac, Y = Funicle  
 (b) X = Hilum Y = Embryo sac  
 (c) X = Nucellus Y = Micropyle  
 (d) X = Funicle, Y = Embryo sac

Gujarat Board- March, 2022

Ans. (a)

55. During female gametophytic development in embryosae of flowering plants, which cells are found towards micropyle?

- (a) One antipodal cell, Egg cell and synergids  
 (b) Two synergid cells and Egg cell  
 (c) Two Synergid cells  
 (d) Two antipodal cells

Gujarat Board- March, 2018

Ans. (b)

56. Abundant reserve food material enclosed in the mass of cells within the integument is

- (a) Tapetum (b) Endosperm  
 (c) Nucellus (d) Chalaza

Goa Board-2018

Ans. (c)

57. Ploidy occurs in Egg Cell is \_\_\_\_\_ and in Endosperm is \_\_\_\_\_

- (a) Haploid Diploid (b) Diploid Haploid  
 (c) Diploid Triploid (d) Haploid Triploid

Gujarat Board- March, 2022

Ans. (d)

58. Which one of the following is not found in a female gametophyte of an angiosperm?

- (a) Germ pore (b) Synergids  
 (c) Filiform apparatus (d) Central cell

CBSE-2020

Ans. (a) :

59. Chalaza is found in

- (a) Pollen grain (b) Ovule  
 (c) Endosperm (d) All of these

UP Board-2020

Ans. (b)

60. The point where the funicle is attached to the body of the ovule is called.

- (a) Micropyle (b) Chalaza  
 (c) Hilum (d) Egg cell

UP Board-2023

Ans. (c)

61. In angiosperms, functional megaspore develops into

- (a) Endosperm (b) Pollen sac  
 (c) Embryo sac (d) Fruit

J&K Board-2022

Meghalaya Board-2018

Ans. (c)

62. Entry of pollen tube into the ovule through micropyle is called

- (a) Mesogamy (b) Pseudogamy  
 (c) Porogamy (d) Chalazogamy

Manipur Board-2018

Ans. (c)

### Section-B (Very Short Answer)

63. Describe the various parts of an orthotropous ovule

J&K Board-2023

64. In flowering plants male flower is called \_\_\_\_\_ flower and female flower is known as \_\_\_\_\_ flower.

Kerala Board-2017

65. Name the structure to which the ovules are attached in the ovary of a flower.

CBSE-2019

66. Show the well labelled diagram of an angiospermic 8-nucleate

Bihar Board-2023

67. (a) You are given castor and bean seeds. Which one of the two would you select to observe the endosperm?

- (b) The development of endosperm precedes that of embryo in plants.

Justify.

CBSE-2019

68. Name the structure to which the ovules are attached in the ovary of a flower.

CBSE-2019

69. Draw the diagram of a normal embryo-sac?

UP Board-2019

70. Draw labeled diagram of L.S. of an angiospermic ovule showing different nuclei presents in it.

Assam Board-2012

71. Draw the L.S. of a pistil of angiosperms which is ready to take part in the process of fertilization.

Assam Board-2016

72. Draw a neat diagram of L.S. of a flower.

Goa Board-2023

73. Draw a neat diagram of an anatropous ovule.

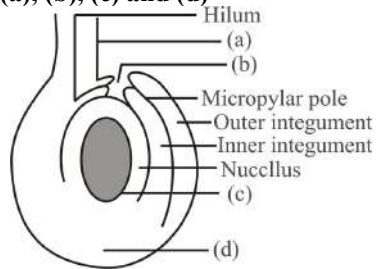
Goa Board-2019

**Section-C (Short Answer)**

74. Draw a labelled diagram of longitudinal section of an ovule of angiosperms.

Meghalaya Board-2021

75. Observe the given figure of ovule and label the parts (a), (b), (c) and (d)



Kerala Board-2023

76. When and where do tapetum and synergids develop in flowering plants? Mention their functions.

CBSE-2019

77. (a) Draw an L.S. of pistil showing pollen tube entering into the embryo sac. Label the following :

- (i) Nucellus
- (ii) Antipodals
- (iii) Synergids
- (iv) Micropyle

(b) Write the functions of the following :

- (i) Synergids
- (ii) Micropyle

CBSE-2019

78. Draw a diagram of L.S. of an embryo of grass and label any six parts.

CBSE-2019

79. Draw a diagram of a mature anatropous ovule of an angiosperm, indicating the chalazal end. Label any three parts of the ovule and two parts of the embryo sac.

CBSE-2020

80. With a neat diagram explain the development of 7-celled, 8 nucleate female gametophyte in angiosperms.

Jharkhand Board-2020

81. Write short notes  
Development of female gametophyte

UP Board-2019

82. Explain structure of ovule in plants.

Gujarat Board- July, 2018

83. Describe the development of a mature embryo sac from a megaspore mother cell in angiosperms.

J&K Board-2023

84. With the help of well labelled diagrams explain the structure of an unfertilized and a fertilized embryo sac.

J&K Board-2022

85. Reeja a science student observed the structure of mature embryosac comprising antipodals. Central cells and egg apparatus. Explain each one of them.

Kerala Board-2015

**Section-D (Long Answer)**

86. Explain the development of female gametophyte in angiosperm by well labelled diagram only.

MP Board-2016

87. Where does megasporogenesis occur in the ovule of an angiosperm ?

Describe the process up to the development of a mature embryo sac.

CBSE-2020

88. Describe the process of megasporogenesis upto fully developed embryo sac formation in an angiosperm.

CBSE-2019

89. (a) Describe the process of megasporogenesis, in an angiosperm.

(b) Draw a diagram of a mature embryo sac of angiosperm, label its any six parts.

CBSE-2020

90. Describe the process of development of female gametophyte in Angiosperm with suitable diagram.

J&K Board-2013

Rajasthan Board-2017

Punjab Board-2018

Assam Board-2022

91. Explain the different types of Ovule with suitable diagram.

Tamil Nadu Board-2020

92. Describe the structure of Anatropous ovule with diagram.

Rajasthan Board-2019

93. Describe the stages of embryo sac formation in angiosperm with suitable diagram.

Assam Board-2013

94. Describe the development of female gametophyte with the help of suitable diagrams:

J&K Board-2021

95. Draw a labelled sketch of a Typical Ovule and write one main function of the following :

- (a) Funicle
- (b) Integuments
- (c) Embryosac

Chhattisgarh Board-2023

**Section-E (Case-Based Questions)**

96. (a) Draw a diagram of a fully developed embryo sac of an angiosperm. Label its chalazal end and any other five parts within the embryo sac.

(b) Why does the development of an endosperm precede that of the embryo in angiosperm ?

(c) Number of chromosomes in an onion plant cell is 16. Name the cells of the embryo sac having 16 and 24 chromosomes formed after fertilisation.

CBSE-2020



**4.****Pollination****Section-A (Multiple Choice Questions)**

97. Match the following from Column A with Column B:

	Column-A		Column-B
a.	Water	i	Spermatogenesis
b.	Grasshopper	ii	Micro-organism
c.	Nucleotide	iii	Abiotic component
d.	Testis	iv	Consumer
e.	Decomposer	v	DNA

- (a) a-(iii), b-(iv), c-(v), d-(i), e(ii)  
 (b) a-(iv), b-(iii), c-(i), d-(v), e(ii)  
 (c) a-(ii), b-(v), c-(i), d-(iii), e(iv)  
 (d) a-(ii), b-(i), c-(v), d-(iv), e(iii)

**Jharkhand Board-2018**

**Ans. (a)**

98. Which aquatic plant pollinated by Insect or wind?

- (a) Vallisneria (b) Hydrilla  
 (c) Zostera (d) Waterlily

**Gujarat Board- March, 2022**

**Ans. (b)**

99. Which one is not a hydrophytic plant?

- (a) Acacia (b) Trapa  
 (c) Hydrilla (d) Nelumbo

**Bihar Board-2023**

**Ans. (a)**

100. Cleistogamous flowers are self-pollinated because

- (a) they are bisexual flowers which do not open at all.  
 (b) they are bisexual and open flowers.  
 (c) they are unisexual.  
 (d) their stigma matures before the anthers dehisce.

**CBSE-2020**

**Ans. (a)**

101. Self-pollination is fully ensured if

- (a) The flower is bisexual.  
 (b) The style is longer than the filament.  
 (c) The flower is cleistogamous.  
 (d) The time of pistil and anther maturity is different.

**CBSE-2020**

**Ans. (c)**

102. Nocturnal flowers like Nyctanthes attract insects by their \_\_\_\_.

- (a) colour (b) nectar  
 (c) scent (d) edible sap

**Odisha Board-2019**

**Ans. (c)**

103. Cross pollination in maize take place by means of

- (a) Antemophily (b) Zeophily  
 (c) Ornithophily (d) Anemophily

**Jharkhand Board-2019**

**Ans. (d)**

104. The name of the plant pollinated by water is

- (a) Hydrilla (b) Pea  
 (c) Citrus (d) None of these.

**UP Board-2022**

**Ans. (a)**

105. Transfer of pollen grains from the anther of flower of one plant to stigma of flower of another plant is called

- (a) Autogamy (b) Xenogamy  
 (c) Geitonogamy (d) cleistgamy

**Punjab Board-2019**

**Ans. (c)**

106. Emasculation is the process of removal of

- (a) stigma (b) stamen  
 (c) carpel (d) petals

**Meghalaya Board-2019**

**Ans. (b)**

**Section-B (Very Short Answer)**

107. Define pollination.

**Rajasthan Board-2023**

108. Define Xenogamy pollination.

**Rajasthan Board-2023**

109. What is the significance of dispersal of seeds? Give any two points.

**ISC-2019**

110. Comment on Self-incompatibility.

**Kerala Board-2022**

111. Differentiate monoecious and dioecious plants with an example for both.

**Kerala Board-2021**

112. State one point of difference between a Chasmogamous and a Cleistogamous flower.

**Manipur Board-2017**

113. Write an advantage and a disadvantage of cleistogamy as seen in viola (pansy) flowers.

**CBSE-2019**

114. Distinguish between self-pollination and cross-pollination.

**Meghalaya Board-2023**

115. Define cross-pollination with the help of suitable example.

**Bihar Board-2023**

116. What is Emasculation?

**ISC-2018**

**Haryana Board-2023**

117. Name and explain the technique that can be used in developing improved crop varieties in plants bearing female flowers only. 2

CBSE-2020

118. Give a reason for each of the following:  
Bagging is essential in artificial

ISC-2019

119. A certain flower uses 'sexual deceit' for its pollination. Identify the flower and describe this adaptation.

CBSE-2019

120. What is cleistogamy? Write one advantage and one disadvantage of it, to the plant.

CBSE-2019

121. Some flowers, selected for artificial hybridization, do not require emasculation but bagging is essential for them. Give a reason.

CBSE-2019

122. Describe the characteristics of wind pollinated flowers.

CBSE-2020

123. Outbreeding devices

Odisha Board-2019

124. Write the name of the plant pollinated by insects.

UP Board-2022

125. Write two important characteristics of anemophilous flowers.

Meghalaya Board-2019

126. State any two differences between Self pollination and Cross-pollination.

MP Board-2019

127. Briefly explain any two out breeding devices with examples which promote cross pollination.

J&K Board-2020

Assam Board-2018

128. Differentiate between Autogamy and Xenogamy.

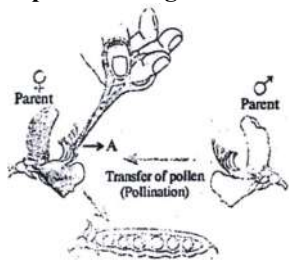
J&K Board-2022

129. Define geitonogamy.

Goa Board-2018

130. Observe the following diagram and answer the question:

(Hint : Steps in making a cross in pea plant)



(a) Name the process marked as A and write its significance.

(b) Diagrammatically represent a monohybrid cross between tall and dwarf pea plants.

Kerala Board-2017

### Section-C (Short Answer)

131. Name the term used for pollination by insects. Given an example of insect pollinated plant. Write any four characters of insect pollinated plant.

Punjab Board-2019

132. Mention the significant characteristics of plants pollinated by water.

Meghalaya Board-2023

133. What is meant by emasculation? How is it useful in plant breeding programme?

Punjab Board-2018

134. Write four peculiarities of insect pollinated flowers.

Kerala Board-2021

135. Wind pollinated flowers have many peculiarities. Write down any three such peculiarities?

Kerala Board-2023

136. What are chasmogamous flowers? Can cross pollination occur in cleistogamous flowers? Give reasons for your answer.

Haryana Board-2023

137. (a) Name the cells and the process involved in the production of pollen grains.

(b) Describe the detailed structure and functions of the different parts of a pollen grain.

CBSE-2019

138.(a) List any two characteristic features of wheat flowers that make it a good example of wind pollination.

(b) It is observed that plant breeders carrying out wheat hybridization often take pollen grains from the 'pollen banks'. Do you agree? Give one reason in support of your answer.

CBSE-2019

139. You are conducting artificial hybridization on papaya and potato. Which one of them would require the step of emasculation and why? However for both you will use the process of bagging. Justify giving one reason.

CBSE-2019

140. Explain 'floral rewards' as an adaptation in plants, with the help of any three examples.

CBSE-2019

141. Emasculation and bagging are the two important steps carried during artificial hybridisation to obtain superior varieties of desired plants. Explain giving reasons, in which types of flowers and at what stages are the two processes carried out.

CBSE-2019

142. How does a bisexual flowering plant ensure cross pollination? Explain.

CBSE-2019

143. Differentiate between wind pollinated and insect pollinated flowers.

CBSE-2020

144. Explain three different modes of pollination that can occur in a chasmogamous flower.  
CBSE-2020
145. Give the structure of a typical pollen grain and its pre and post-pollination changes.  
Odisha Board-2019
146. What are chasmogamous flowers? Can cross-pollination occur in cleistogamous flower?  
MP Board-2021
147. Discuss the biotic and abiotic agents of Pollination with suitable examples.  
Assam Board-2018
148. What are the advantages of cross-pollination?  
Assam Board-2020
149. Explain any two types of pollination.  
Gujarat Board- May, 2021
150. Why is cross pollination considered to be superior to self pollination? Give two points.  
Manipur Board-2018
151. Illustrate any three disadvantages of self pollination.  
Manipur Board-2016
152. List three differences between self and cross pollination.  
J&K Board-2013
153. What are Chasmogamous Flowers? Why does a cleistogamous flower show autogamy only?  
J&K Board-2023
154. What is Anemophily? What are the characteristics of anemophilous flowers?  
J&K Board-2023
155. Sunflower is pollinated by insects while rice is pollinated by wind.  
(a) How these plants are adapted to their respective type of pollination method? (Hint-any 4 points)  
(b) Plants can be self or cross pollinated. Write any two mechanisms existing in nature to promote cross pollination.  
Kerala Board-2014
156. Self incompatibility is an outbreeding mechanism seen in plants. Explain self incompatibility.  
Kerala Board-2021
157. Write four peculiarities of insect pollinated flowers.  
ISC-2019  
Kerala Board-2021
158. Rose is a flower pollinated by insect while in paddy pollination is by wind. Give any three adaptations existing in these plants to facilitate their respective mode of pollination.  
Kerala Board-2017
159. ii) Artificial hybridization is one of the major approaches for crop improvement programme. In such crosses it is important to avoid unwanted pollen.  
(a) Explain how we can protect stigma from unwanted pollen  
(b) How artificial pollination can be performed?  
Kerala Board-2013
160. i) Flowering plants evolved an array of adaptations to achieve pollination.  
a) Explain pollination.  
b) Point out adaptations found in flowers for insect pollination and wind pollination.  
c) Illustrate pollination in Vallisneria.  
Kerala Board-2013
- Section-D (Long Answer)**
161. Three different flowers are given to you in the practical class.  
(i) Maize  
(ii) Vallisneria  
(ii) Rose  
You are asked to group them based on pollination agents. Describe the adaptations of each flower related with the agents of pollination.  
Kerala Board-2015
162. Pollen banks are playing a very important role in promoting plant breeding programme the world over. How are pollens preserved in the pollen banks? Explain. How are such banks benefitting our farmer? Write any two ways.  
CBSE-2019
163. Compare the characteristic features of insect pollinated and wind pollinated flowers. Explain how the respective features assist in pollination.  
CBSE-2019
164. Define pollination. Write any three characteristics of wind pollinated flowers.  
Punjab Board-2021
165. (a) Describe any four devices which have been observed in plants to achieve cross-pollination and discourage self-pollination.  
(b) State what would continued self-pollination result in.  
CBSE-2019
166. Explain the post pollination events up to double fertilisation, that occur in an angiosperm.  
CBSE-2019
167. Describe the process of Pollination in Vallisneria.  
CBSE-2020
168. Draw a longitudinal section of the pistil from a flowering plant, where pollination has occurred. Label the following :  
(a) Stigma showing germinating pollen grains  
(b) Style  
(c) Pollen tube reaching the micropyle of the ovule  
(d) Embryo sac  
(e) Components of the egg apparatus  
CBSE-2020



169. Define pollination. Explain wind and water pollination with example.

Rajasthan Board-2018

170. Give the characteristic features of anemophilous flowers.

Meghalaya Board-2018

171. 'Pollination is an important phenomenon in the life cycle of a flowering plant', Justify the statement and discuss the role of different agencies responsible for the event.

Assam Board-2012

172. Write five points of difference between wind pollinated flowers and insect pollinated flowers.

Manipur Board-2022

173. Pollination is an important mechanism found in flowering plants.

(a) Define Pollination.

(b) Write short note on :

(1) Autogamy

(2) Geitonogamy

(3) Xenogamy

Kerala Board-2022

## 5. Double Fertilization

### Section-A (Multiple Choice Questions)

174. In angiosperms, triple fusion is required for the formation of

(a) embryo (b) endosperm

(c) fruit (d) seed

Meghalaya Board-2023

Ans. (b)

175. Which of the following forms endosperm after fusion with male gamete?

(a) Antipodals (b) Synergides

(c) Secondary nucleus (d) Oospores

Bihar Board-2023

Ans. (c)

176. The female gametophyte of a typical dicot at the time of fertilization is

(a) 8-celled (b) 7-celled

(c) 6-celled (d) 5-celled

Punjab Board-2021

Ans. (b)

177. Double fertilization is fusion of

(a) Two eggs

(b) Two eggs and polar nuclei

(c) One male gamete with egg and other with synergid

(d) One male gamete with secondary nucleus

Punjab Board-2021

Ans. (d)

178. The process of double fertilization (triple fusion) was discovered by:

(a) Nawaschin (b) Leeuwenhoek

(c) Strasburger (d) Hafmeister

MP Board-2012

Ans. (a)

179. Which of the following is a diploid structure ?

(a) Ovum

(b) Endosperm

(c) Zygote

(d) All of these

Bihar Board-2021

Ans. (c)

### Section-B (Very Short Answer)

180. Explain double fertilisation.

Rajasthan Board-2023

181. In flowering plants during double fertilization two events take place in the embryo sac namely — and —.

Kerala Board-2014

182. What is triple fusion? Name the nuclei involved in triple fusion.

Jharkhand Board-2018

183. What do you understand by Triple fusion?

MP Board-2023

184. What is triple fusion? How does it take place?

Punjab Board-2019

185. What is double fertilization? Give its significance.

UP Board-2019, 2023

CBSE-2020

ISC-2020

Assam Board-2012, 2020

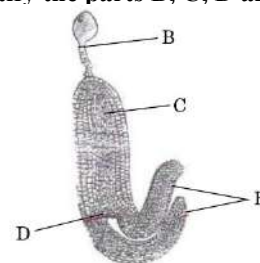
J&K Board-2020

Jharkhand Board-2019

MP Board-2012, 2013, 2014

### Section-C (Short Answer)

186. (a) Identify the figure given below and also identify the parts B, C, D and E.



(b) State the function of E.

CBSE-2020

187. What is double fertilization? Describe the process with diagrams from the stage of megaspore formation to zygote formation.

Assam Board-2019

188. What is double fertilization? Who discovered double fertilization in angiosperms? List the post fertilization changes in angiosperm ovule.

J&K Board-2013

189. Double fertilization and triple fusion are the two terms associated with angiosperm fertilization.

(a) What is double fertilization?

(b) Explain triple fusion.

(c) Give the ploidy level of

i) endosperm

ii) zygote

Kerala Board-2017

### Section-D (Long Answer)

190. (a) Explain the process of double fertilization in angiosperms.  
(b) Why does the development of endosperm precedes that of embryo?  
(c) List the parts of a typical dicot embryo.  
CBSE-2019
191. Discuss the process of development of a 3-celled pollen grain from microspore mother cell with the help of labeled diagram.  
Assam Board-2016
192. Describe fertilization in flowering plants.  
Bihar Board-2021

### Section-E (Case-Based Questions)

193. Why is fertilization in an angiosperm referred to as double fertilization? Mention the ploidy of the cells involved.  
Haryana Board-2017

6.

## Post-fertilization: Structure and Event.

### Section-A (Multiple Choice Questions)

194. In plants ovule is changed into which form?  
(a) In endosperm (b) In seed  
(c) In embryo (d) In fruit  
Gujarat Board- May, 2021

Ans. (b) :

195. Which of the following part in a flower is haploid?  
(a) Antherwall (b) Pollen mother cell  
(c) Synergid (d) Secondary nucleus  
Kerala Board-2016

Ans. (c)

### Section-B (Very Short Answer)

196. Draw a labelled diagram of L.S. of pistil showing path of pollen tube growth.  
Rajasthan Board-2023
197. The portion of embryonal axis above the level of cotyledons in dicot embryo is known as —.  
Kerala Board-2021
198. Where is occurred coleoptile?  
Assam Board-2023
199. Name the plant body where bisexual and both unisexual male and female flowers are present.  
Assam Board-2022

### Section-C (Short Answer)

200. (a) Explain the role of stigma in pollen-pistil interactions.  
(b) Describe the post-pollination events leading to double fertilization in angiosperms, starting with a two-celled pollen grain.  
CBSE-2019

## 7. Endosperm

### Section-A (Multiple Choice Questions)

201. Perisperm is remaining part of which of the following?  
(a) Nucellus (b) Embryo  
(c) Endosperm (d) Integument  
Jharkhand Board-2019

Ans. (a)

202. The primary endosperm nucleus formed in angiosperms is  
(a) haploid (b) diploid  
(c) triploid (d) tetraploid  
Jharkhand Board-2023

Ans. (c)

203. The number of chromosomes in endosperm is  
(a) 2 X (b) 3 X  
(c) X (d) None of these.  
UP Board-2022

Ans. (b)

204. Angiosperms have endosperm—  
(a) Diploid (b) Triploid  
(c) Heploid (d) Polyploid

Ans. (b)

205. Enclosed within the integuments is a mass of cells is called—  
(a) Chalaza (b) Nucellus  
(c) Embryosac (d) Ovule  
MP Board-2019

Ans. (b)

206. What is the ploidy level of chromosomes in endosperm of angiospermic plant ?  
(a) n (b) 2n  
(c) 3n (d) both (a) and (c)  
Bihar Board-2021

Ans. (c)

207. Which one forms endosperm after fusion with male gamete?  
(a) Oospores (b) Antipodals  
(c) Synergids (d) Secondary nucleus  
Bihar Board-2021

Ans. (d)

### Section-B (Very Short Answer)

208. What is Coleoptile?  
Haryana Board-2022
209. The diploid number of chromosomes in an angiospermic plant is 16. What will be the number of chromosomes in its endosperm and antipodal cells ?  
CBSE-2019
210. After syngamy and triple fusion in embryosac embryo will be diploid and endosperm will be  
Kerala Board-2013

### Section-C (Short Answer)

211. Draw a vertical section of maize grain and label its endosperm, plumule, coleoptile, scutellum, radicle and coleorrhiza.

CBSE-2020

212. Explain the various steps in development of endosperm in a flower.

CBSE-2019

213. (a) Name the structure seen on the surface of black pepper and beet seeds, not seen on a bean seed. Mention the part of the ovule its is a remnants of

(b) Name the outer layer of a maize grain, and state where generally does this layer gets developed in a flowering plant.

CBSE-2020

### Section-D (Long Answer)

214. Describe the structure of cellular endosperm with diagram.

Rajasthan Board-2020

215. Draw a well-labelled diagram of an angiospermic ovule showing porogamous type of pollen germination.

Meghalaya Board-2019

216. Explain different types of endosperms with suitable diagrams.

ISC-2019

Meghalaya Board-2018

## 8. Embryo

### Section-A (Multiple Choice Questions)

217. Filiform apparatus in the embryo sac of an angiosperm is present at the micropylar tip of

- (a) Central cell (b) Egg cell  
(c) Synergids (d) Antipodals

CBSE-2020

Ans. (c)

218. In a typical embryo sac, how many cells and nuclei are found?

- (a) 6 cells and 8 Nuclei (b) 7 cells and 8 Nuclei  
(c) 8 cells and 8 Nuclei (d) 8 cells and 7 Nuclei

Jharkhand Board-2018

Ans. (b)

219. A mature angiosperms embryo sac is

- (a) 7 celled-7nucleate (b) 8 celled- 8 nucleate  
(c) 7 celled- 8 nucleate (d) 8 celled- 7 nucleate

Jharkhand Board-2020

Ans. (c)

220. Inactive state of embryo is—

- (a) Dormancy (b) Morulla  
(c) Excited state (d) None of these

MP Board-2023

Ans. (a)

221. Select correct option for the Embryo sac of angiosperm plants.

- (a) Three diploid (2n) antipodal are present at chalazal end  
(b) It has centrally located triploid secondary nucleus  
(c) Endosperm tissue is produced before fertilization  
(d) Egg apparatus with two haploid synergids and one haploid egg cells

Gujarat Board- March, 2019

Ans. (c)

222. A typical angiosperm embryo sac, at maturity, though \_\_\_\_\_ is \_\_\_\_\_

- (a) 7 nucleate - 8 celled  
(b) 8 nucleate - 7 celled  
(c) 7 nucleate - 7 celled  
(d) 7 nucleate - 6 celled

Gujarat Board- March, 2020

Ans. (b) :

223. The mature female gametophyte in angiosperms is

- (a) 7 – celled, 7 – nucleate  
(b) 7 – celled, 8 – nucleate  
(c) 8 – celled, 7 – nucleate  
(d) 8 – celled, 8 – nucleate

Manipur Board-2017

Ans. (b)

### Section-B (Very Short Answer)

224. The portion of embryonal axis above the level of cotyledons in dicot embryo is known as —.

Kerala Board-2021

225. Supply of oxygen and nutrition to embryo by.....

MP Board-2021

226. What is Coleorrhiza?

Haryana Board-2023

227. Where exactly is the filiform apparatus present in the embryo-sac of an angiosperm? State its function.

CBSE-2019

228. Nutritive tissue of a fertilized egg in angiosperms is embryo.

Odisha Board-2019

229. Which structure provides nutrient to growing embryo in plants. ?

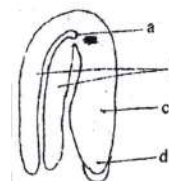
Chhattisgarh Board-2023

230. Different stage of development in a dicot embryo are given below. Arrange them in the correct sequential order.

Heart shaped embryo, globular embryo, mature embryo, pro-embryo

Kerala Board-2021

231. Identify the following parts of a dicot embryo.



Kerala Board-2017

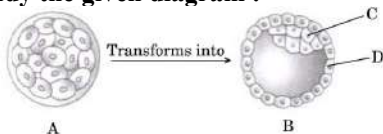


### Section-C (Short Answer)

232. Different stage of development in a dicot embryo are given below. Arrange them in the correct sequential order.  
Heart shaped embryo, globular embryo, mature embryo, pro-embryo  
Kerala Board-2021
233. Draw a labelled diagram of the mature embryo sac of angiosperms.  
ISC-2018
234. Write an account on the development of dicotyledonous embryo with labeled diagram.  
Assam Board-2023
235. What is embryo? Discuss the development of a dicot embryo. How do you differentiate a dicot embryo from a monocot embryo?  
Assam Board-2012
236. Describe the post fertilization changes in embryo sac.  
Assam Board-2018
237. Draw a neat diagram of a mature embryo sac of an angiosperm and label the following :  
(i) Antipodals  
(ii) Polar nuclei  
(iii) Synergids  
Manipur Board-2022
238. Draw a diagrammatic representation of a typical anatropous ovule and label Antipodal cells and synergids.  
Manipur Board-2016

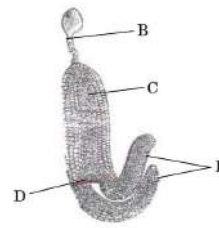
### Section-D (Long Answer)

239. (a) Draw the embryo sac of a flowering plant and label the following :  
(i) Central cell  
(ii) Chalazal end  
(iii) Synergids  
(b) Name the cell and explain the process it undergoes to develop into an embryo sac.  
(c) Explain the development of endosperm in coconut.  
CBSE-2019
240. Study the given diagram :



A is an embryonic stage that gets transformed into B, which in turn gets implanted in the endometrium in human females.

- (a) Identify A, B and its parts C and D.  
(b) State the fate of C and D in the course of embryonic development in humans.  
(c) Identify the figure given below and also identify the parts B, C, D and E.



- (d) State the function of E.  
CBSE-2020
241. Describe the development of an embryo of an angiosperm.  
UP Board-2020
242. Explain embryonic development in angiosperm plants. Draw labelled diagram of heart shaped Embryo.  
Gujarat Board- March, 2019
243. Draw a labelled sketch of a Typical Embryosac and write one main function of the following:  
(a) Synergids  
(b) Egg cell  
(c) Antipodal cell  
Chhattisgarh Board-2021, 2023

### Section-E (Case-Based Questions)

244. With the help of diagram describe the stages of embryo development in a dicot flowering plant.  
Haryana Board-2017

## 9. Seed

### Section-A (Multiple Choice Questions)

245. Residual persistent Nucellus in seed is called—  
—  
(a) Perisperm (b) Pericarp  
(c) Coloeorrhiza (d) Coleoptile  
Gujarat Board- March, 2022

Ans. (a)

246. The edible part of Apple is  
(a) Endocarp (b) Mesocarp  
(c) Endosperm (d) Thalamus  
Jharkhand Board-2018

Ans. (d)

247. Which of the following is an example of false fruit ?  
(a) Mango (b) Apple  
(c) Tomato (d) Kiwi  
Jharkhand Board-2023

Ans. (b)

248. Which one of the following is a false fruit?  
(a) Apple (b) Grape  
(c) Mango (d) Pea.  
UP Board-2022

Ans. (a)

249. Thalamus is edible part in which of the following ?

- (a) Annona (b) Apple  
(c) Orange (d) All of these

Bihar Board-2021

Ans. (b)

250. Aril is edible in which of the following fruits ?

- (a) Myristica (b) Litchi  
(c) Annona (d) All of these

Bihar Board-2021

Ans. (b)

251. Some seeds such as black pepper and beet, remnants nucellus persist is known as:

- (a) Non albuminous (b) Perisperm  
(c) Albuminous (d) Pericarp

Gujarat Board- March, 2020

Ans. (b) :

252. Development of Fruit without fertilization and are seedless known as

- (a) Polyembryony (b) Apomixis  
(c) Parthenocarpy (d) Parthenogenesis

Kerala Board-2015

Ans. (b)

### Section-B (Very Short Answer)

253. Write one example of each non-albuminous, albuminous, perispermic seed.

Rajasthan Board-2023

254. "For a common man both mango and strawberry are fruits, but not for a biology student. Justify.

CBSE-2019

255. Write the names of any two false fruits.

UP Board-2020

256. Define parthenocarpy.

Meghalaya Board-2021

257. Why is apple called a virtual fruit? Which part of the flower does the fruit?

MP Board-2022

258. Write the any two causes of Dormancy in seed.

MP Board-2016

259. What is endosperm?

MP Board-2018

260. Write any two differences between Monocotyledon seed and Dicotyledon seed.

MP Board-2019

261. Name the edible part of an apple.

Assam Board-2019

262. Give an example of a plant where the fruit is not produced from ovary.

Assam Board-2014

263. Banana is considered a good example of parthenocarpy. Give reason.

Manipur Board-2022

264. Draw a neat diagram of false fruit of apple.

Goa Board-2018

### Section-C (Short Answer)

265. Banana is a parthenocarpic fruit. What are parthenocarpic fruits ? How can be parthenocarpy induced ?

Kerala Board-2021

266. Name a distinguishing structure seen in a mature black pepper seed and not in a pea seed. State how does it develop.

CBSE-2019

267. What is called Parthenocarpic fruits ? Give an example

Tamil Nadu Board-2020

268. What is parthenocarpic fruit? How can the formation of such fruits be induced?

Assam Board-2020

269. Differentiate between albuminous and non-albuminous seeds by giving two points.

Manipur Board-2022

270. List the changes each part of the fertilized ovule undergoes to develop into seed.

J&K Board-2020

### Section-D (Long Answer)

271. What do you understand by seed dormancy? What are the natural ways of breaking the seed dormancy?

Jharkhand Board-2019

272. Describe the importance of seed and fruit development.

UP Board-2022

273. (a) Draw a labeled diagram of an albuminous seed (L.S).

(b) How are seeds advantages to flowering plants?

J&K Board-2021

### Section-E (Case-Based Questions)

274. Explain the post fertilisation events leading to seed formation in a typical dicotyledonous plant.  
Manipur Board-2023
275. Draw a labeled diagram of L. S. of an endospermic monocot seed.  
Haryana Board-2017

## 10. Apomixis and Polyembryony

### Section-A (Multiple Choice Questions)

276. Polyembryony commonly occurs in—  
(a) Tomato (b) Potato  
(c) Banana (d) Citrus  
Manipur Board-2023

Ans. (d)

277. In which of the following polyembryony is found?  
(a) Guava (b) Orange  
(c) Gram (d) Maize  
Haryana Board-2022

Ans. (b)

278. In which of the following species of plants seeds are produced through apomixis:  
(a) Asteraceae and Grass (b) Mustard  
(c) Citrus and Mango (d) None of these  
Bihar Board-2018

Ans. (c)

### Section-B (Very Short Answer)

279. Which fruits develop without fertilization are called.....  
MP Board-2020
280. The fusion of male and female pronuclei is called \_\_\_\_\_  
Odisha Board-2014
281. Define the following:  
(i) Parthenocarpy  
ISC-2018
282. Define the term Apomix is.  
Assam Board-2018
283. What do you understand by parthenogenesis ? Explain with example.  
Bihar Board-2023
284. Explain polyembryony with an example  
Haryana Board-2017
285. State two advantages of an apomictic seed to a farmer.  
CBSE-2020

286. It is said apomixes is a type of asexual reproduction. Justify.  
CBSE-2019
287. Write any two ways by which apomictic seeds may be developed in angiosperms.  
CBSE-2019
288. Parthenocarpy and Parthenogenesis  
Odisha Board-2019
289. What is meant by polyembryony in angiosperm? Write its importance.  
Assam Board-2022
290. Define amphimixis.  
Rajasthan Board-2018  
Meghalaya Board-2018
291. Write short notes  
Polyembryony  
Assam Board-2012  
Chhattisgarh Board-2021
292. Apomixes is a phenomenon in which ovary developed into a fruit without fertilization. 1  
Assam Board-2013
293. Explain the phenomenon of apomixis. Write one advantage of using apomictic seeds.  
Manipur Board-2017
294. In honey bees and some lizards female gamete undergoes development to form new organisms without fertilization.  
This phenomenon is called  
Kerala Board-2013

### Section-C (Short Answer)

295. State what is apomixis. Write its significance. How can it be commercially used ?  
CBSE-2019
296. Define and give one example of each of the following.  
(a) False fruit (b) True fruit  
(c) Parthenogenic fruits (d) Polyembryony  
Bihar Board-2018
297. Explain the modified form of reproduction in which seeds are produced without fertilization.  
Gujarat Board- March, 2018



# Human Reproduction

1.

## The Male Reproductive System

### Section-A (Multiple Choice Questions)

1. Which hormone is secreted by the Leydig cells?  
 (a) Vasopressin (b) Gonadotropins  
 (c) Oxytocin (d) Testosterone

Odisha Board-2014

Ans. (d)

2. Leydig cells are present in  
 (a) Ovary (b) Testis  
 (c) Kidney (d) Uterus

Jharkhand Board-2018

Ans. (b)

3. How many sperms are produced from a single spermatogonium ?  
 (a) 6 (b) 1  
 (c) 4 (d) 3

Jharkhand Board-2020

Ans. (c)

4. Acrosome of sperm is found in  
 (a) head (b) neck  
 (c) middle-piece (d) tail

Meghalaya Board-2014

Ans. (a)

5. Sertoli cells are found in:  
 (a) Kidney (b) Ovary  
 (c) Liver (d) Testis

MP Board-2012

Ans. (d)

6. Which is correct option for sertoli cells?  
 (a) It provide nutrition to sperms  
 (b) It secrete testosterone  
 (c) It secrete semen  
 (d) It activate sperm

Gujarat Board- March, 2019

Ans. (a)

7. For-normal fertility, at least \_\_\_\_\_ sperms must have normal shape and size and at least \_\_\_\_\_ of them must show vigorous motility.  
 (a) 50% and 50% (b) 70% and 30%  
 (c) 40% and 60% (d) 60% and 40%

Gujarat Board- May, 2021

Ans. (d) :

8. Testicular hormones like androgens are synthesized by  
 (a) Leydig cells (b) Sertoli cells  
 (c) Spermatogonia (d) Spermatozoa

Gujarat Board- March, 2020

Ans. (a) :

9. Match the following :

	A	B
(i)	L.H. Surge	(a) Fertilisation
(ii)	Leydig cells	(b) Nutrition to Spermatids
(iii)	Ampullary-isthmic junction	(c) Ovulation
(iv)	Sertoli cells	(d) Androgens

- (a) (i)-a (ii)-c (iii)-d (iv)-b  
 (b) (i)-c (ii)-d (iii)-a (iv)-b  
 (c) (i)-b (ii)-a (iii)-c (iv)-d  
 (d) (i)-a (ii)-b (iii)-d (iv)-c

Kerala Board-2021

Ans. (b) :

### Section-B (Very Short Answer)

10. Name a human organ that requires lower temperature than the normal body temperature and explain why.  
 CBSE-2019
11. The main function of interstitial cells of seminiferous tubules is .....  
 Assam Board-2022
12. Testes in Humans.....was located.  
 MP Board-2022
13. Failure of testes to descent in scrotum is known as ..... (Fill in the blank)  
 J&K Board-2020

### Section-C (Short Answer)

14. Write only the name of male Reproductive organs and female Reproductive organs of Humans.  
 MP Board-2015
15. Select the odd one Justify your selection (Rete testis, Vasa efferentia, Fallopian tube, vas deferens)  
 Kerala Board-2023
16. Draw a labeled sketch of male reproductive system and write one main function of the following parts:  
 (a) Sertoli cells  
 (b) Leydig cells  
 (c) Vas deferens  
 Chhattisgarh Board-2020
17. Draw a well-labelled diagram of human sperm.  
 Meghalaya Board-2023
18. Name the male sex accessory ducts in the human body in a proper sequence. Write their functions.  
 CBSE-2020

19. What is the function of mitochondria in a sperm?  
Assam Board-2022
20. Write the name of one sex hormone secreted by human male.  
Jharkhand Board-2023
21. What are the functions of Leydig cells?  
UP Board-2023
22. Where are Leydig cells found? What are their functions?  
Meghalaya Board-2014, 2023
23. Give the reason the human testes are situated outside the Abdominal Cavity.  
MP Board-2016,2020  
Manipur Board - 2022
24. What is Leydig cell? State its function.  
Assam Board-2016
25. Show a diagrammatic sectional view of seminiferous tubule (enlarged)  
Goa Board-2023
26. Draw a neat diagram showing the structure of a human sperm.  
UP Board-2019  
Goa Board-2019
27. (a) Draw the sectional view of a seminiferous tubule of human. Label its any six parts.  
(b) Name the pituitary hormones involved in the process of spermatogenesis. State their functions.  
CBSE-2020
28. (a) Explain the process of spermatogenesis in humans.  
(b) Give an account of hormonal control of oogenesis.  
ISC-2020
29. Draw a labelled diagram of L.S. of human testis.  
ISC-2018
30. Write the functions of the following :  
(a) Sertoli cells and Leydig cells in human testis  
(b) Acrosome of human sperm  
CBSE-2019
31. Draw a neat and labeled diagram of reproductive system of man.  
MP Board-2021  
UP Board-2020
32. Draw a labelled diagram of a mammalian sperm.  
Meghalaya Board-2021
33. What is rete testis?  
Meghalaya Board-2018
34. What is spermatogenesis? Name 2 hormones involved in regulation of spermatogenesis.  
MP Board-2019
35. How seminal plasma is formed? Write one function of seminal plasma.  
Assam Board-2017
36. Draw a neat labeled diagram of cross section of seminiferous tubule.  
Assam Board-2014, 2016
37. Draw a transverse sectional view of seminal tubule and label sertoli cells and spermatozoa.  
Manipur Board-2016
38. With the help of a diagram explain the microscopic anatomy of testis  
J&K Board-2022
39. Write the functions of the following structures in human reproduction :  
(a) Leydig cells  
(b) Corpus luteum  
Kerala Board-2022
- Section-D (Long Answer)**
40. Draw a neat diagram of the sectional view of seminiferous tubules of human male and label the following:  
(a) Spematogonium  
(b) Spermatid  
Manipur Board-2023
41. Draw a well labeled diagram of human male reproductive system. Write about male sex accessory ducts.  
Haryana Board-2023
42. Draw a diagram of the sectional view of a human seminiferous tubule and label any six of its parts.  
CBSE-2019, 2020
43. Draw a labelled diagram to show interrelationship of four accessory ducts in a human male reproductive system.  
CBSE-2019
44. With the help of a diagram describe the structure of human sperm.  
Jharkhand Board-2020
45. (i) Draw a labelled diagram of male reproductive system.  
(ii) Explain structure of Testis.  
(iii) Write two functions of Sertoli cells.  
Rajasthan Board-2019
46. Describe the human male reproductive system with suitable diagram.  
UP Board-2023  
AP Board-2017, 2018, 2019, 2020, 2021
47. Draw a labeled diagram of Transverse section of Human testis.  
MP Board-2019
48. What is Sexual Reproduction? Describe the process of gamete formation in human males.  
J&K Board-2023
- Section-E (Case-Based Questions)**
49. Describe the male reproductive system of human. What is the chief function testis?  
UP Board-2019
50. Draw a labelled sketch of male reproductive system and write one main function of the following parts :  
(a) Prostate gland  
(b) Epididymis  
(c) Vas deferens  
Chhattisgarh Board-2022

**2.****The Female Reproductive System****Section-B (Very Short Answer)**

51. Draw a neat and well labeled diagram of transverse section of human ovary.  
Bihar Board-2021
52. Draw a labelled diagram of the internal structure of human ovary.  
ISC-2019

**Section-C (Short Answer)**

53. Draw a labeled sketch of female reproductive system and write one main function of the following parts:  
(a) Oviduct  
(b) Fimbriae  
(c) Ovary  
Chhattisgarh Board-2020, 2022
54. Write only the name of male Reproductive organs and female Reproductive organs of Humans.  
MP Board-2015
55. Write name and function of three parts of female reproductive system.  
Rajasthan Board-2023
56. Draw neat and clean diagram of sectional view of female reproductive system and describe uterus.  
Gujarat Board- March, 2022
57. Draw a labelled diagram of a mature human ovum with at least four labellings.  
ISC-2020
58. Name the different parts of the fallopian tube in humans. State the specific functions of any two parts.  
CBSE-2019
59. Name chief layers of human ovum.  
Jharkhand Board-2019
60. Write the structure of mammary gland. (diagram is not required)  
Gujarat Board- May, 2021
61. Draw a well labeled diagram of a T.S of a Human Ovary.  
Bihar Board – 2021  
Chhattisgarh Board-2022  
Assam Board-2020  
J&K Board-2023

**Section-D (Long Answer)**

62. (a) Draw a sectional view of human ovary. Label the following parts :  
(i) Primary follicle  
(ii) Secondary oocyte  
(iii) Graafian follicle  
(iv) Corpus luteum  
(b) Name the hormones influencing follicular development of corpus luteum.  
CBSE-2019
63. Give an account of the human female reproductive system.  
Odisha Board-2014

**3.****Gametogenesis (Gamete Formation)****Section-A (Multiple Choice Questions)**

64. From which part of the spermatid is acrosome formed ?  
(a) Nucleus (b) Mitochondria  
(c) Golgi bodies (d) Ribosome  
Odisha Board-2014

**Ans. (c)**

65. Antrum is cavity of :  
(a) Ovary (b) Graffian follicle  
(c) Blastula (d) Gastrula  
J&K Board-2022

**Ans. (b)**

66. Relaxin is secreted by –  
(a) Placenta (b) Thyroid gland  
(c) Both (a) and (b) (d) Corpus luteum  
Bihar Board-2023

**Ans. (d)**

67. Which organelle is not present in the cytoplasm of ovum?  
(a) Ribosome (b) Centrosome  
(c) Golgi body (d) Mitochondria  
Bihar Board-2023

**Ans. (b)**

68. After spermiogenesis, the sperm heads get embedded in which of the following cells ?  
(a) Leydig cells  
(b) Sertoli cells  
(c) Germinal epithelium  
(d) Seminal vesicle  
CBSE-2020

**Ans. (b)**

69. The total number of eggs produced by a healthy human female during life time:  
(a) 4000 (b) 400  
(c) 40 (d) 365  
Bihar Board-2018

**Ans. (b)**

70. The process of formation of gametes is called  
(a) Gametogenesis (b) Cytokinesis  
(c) Sporogenesis (d) None of these  
Bihar Board-2021

**Ans. (a)**

71. During spermiogenesis; what is produce from distal centriole?  
(a) Proacrosomal granule  
(b) Acrosome  
(c) Axial filament  
(d) Vacuoles of Golgi complex  
Gujarat Board- March, 2019

**Ans. (c)**