Brain International School

Vikas Puri, New Delhi

REVISION SHEET

SUBJECT: BIOLOGY **CLASS-XII** **TERM 1**

1 Marks Questions

1. Haploid plants develop by pollen are called ……..

(a) Emasculation (b) Parthenocarpy (c) androgenesis (d) somatic hybridization

2. Even in absence of pollinating agents seed-setting is assured in

(a) Commelina (b) Zostera (c) Salvia (d) Fig

3. When the pollen of a flower is transferred to the stigma of another flower on the same plant, the process is known as

(a) Autogamy (b) Geitonogamy (c) Xenogamy (d) Cleistogamy

4. An embryo may sometimes develop from any cell of embryo sac other than egg. It is termed as

(a) apospory (b) apogamy (c) parthenogenesis (d) parthenocarpy

5. Acrosomal reaction of the sperm occurs due to

a) its contact with zonapellucida of the ova
b) reactions within the uterine environment of the female
c) reactions within the epididymal environment of the male
d) androgens produced in the uterus.

6. Morula is a developmental stage

a) between the zygote and blastocyst
b) between the blastocyst and gastrula
c) after the implantation
d) between implantation and parturition

7. Seminal plasma in humans is rich in

a) fructose and calcium but has no enzymes
b) glucose and certain enzymes but has no calcium
c) fructose and certain enzymes but poor in calcium
d) fructose, calcium and certain enzymes.

8. After birth, colostrum is released from mammary glands which is rich in
   a) fat and low in proteins
   b) proteins and low in fat
   c) proteins, antibodies and low in fat
   d) proteins, fat and low in antibodies.

9. Intensely lactating mothers do not generally conceive due to the
   (a) suppression of gonadotropins (b) hypersecretion of gonadotropins .
   (c) suppression of gametic transport (d) suppression of fertilisation.

10. Sterilisation techniques are generally fool proof methods of contraception with least side effects. Yet, this is the last option for the couples because:
   i. It is almost irreversible
   ii. Of the misconception that it will reduce sexual urge/drive
   iii. It is a surgical procedure
   iv. Of lack of sufficient facilities in many parts of the country Choose the correct option:
   (1) i and iii (2) ii and iii (3) ii and iv (4) i, ii, iii and iv

11. Confirmatory test for STDs is
   (a) ELISA (b) PCR (c) DNA hybridization (d) all of these.

12. Eukaryotic RNA polymerase III catalyses the synthesis of
   (a) mRNA (b) rRNA (c) hnRNA (d) tRNA

13. Which was the last human chromosome to be completely sequenced ?
   a) Chromosome 1 (b) Chromosome 11 (c) Chromosome 21 (d) Chromosome X

14. In E. colt, the lac operon gets switched on when
   a) lactose is present and it binds to the repressor
   b) repressor binds to operator
   c) RNA polymerase binds to the operator
   d) lactose is present and it binds to RNA polymerase.

15. Chemically, RNA is (i) reactive and (ii) stable as compared to DNA.
   e) (i) equally, (ii) equally b) (i) less, (ii) more
   c) (i) more, (ii) less d) (i) more, (ii) equally

16. The primate which existed 15 mya was

   a) Homo habilis
   b) Australopithecus
   c) Ramapithecus
   d) Homo erectus

17. The earliest geological time period among the following is _
   a) Cambrian
   b) rmian
   c) Jurassic

d) Quaternary

18 Which pathogen causes tuberculosis?

a) Virus
b) Bacteria
c) Protozoa
d) Fungus

19 The disease caused by Plasmodium is:

a) Dengue
b) Malaria
c) Filariasis
d) Typhoid

20 Which of the following is a non-communicable disease?

a) Diabetes
b) Influenza
c) Measles
d) Cholera

21. Which microorganism is used in the production of antibiotics?

a) Penicillium
b) Lactobacillus
c) Saccharomyces
d) Rhizobium

22. Saccharomyces cerevisiae is used in the production of:

a) Curd
b) Alcohol
c) Cheese
d) Antibiotics

23. Which microbe is involved in the production of citric acid?

a) Aspergillus niger
b) Acetobacter aceti
c) Streptococcus
d) Rhizobium

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25. Even in absence of pollinating agents seed-setting is assured in

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26. When the pollen of a flower is transferred to the stigma of another flower on the same plant, the process is known as

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27. An embryo may sometimes develop from any cell of embryo sac other than egg. It is termed as

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28. In each of the following questions a statement of Assertion (A) is given followed by a corresponding statement of Reason (R) just below it. Of the statements, mark the correct answer as:

(1) If both Assertion and Resaon are true and reason is the correct explanation of the assertion
(2) If both Assertion and Reason are true but reason is not the correct explanation of the assertion
(3) If assertion is true but Reason is false
(4) If both Assertion and Reason are false.

Assertion: Parturition is induced by neural signal in maternal pituitary.
Reason: At the end of gestation period, the maternal pituitary release prolactin which causes uterinecontractions.
(1) (2) (3) (4)

29. **Assertion(A):**Phenylketonuria is a recessive hereditary disease caused by body's failure to oxidise an amino acid phenylanine to tyrosine, because of a defective enzyme.
Reason(R): It results the presence of phenylalanine acid in urine.

30. **Assertion: Repression** occurs at transcription level.
Reason: When repressor binds to the operator, transcription occurs Mark the correct choice as:

31 **Assertion**(A) : According to big-bang hypothesis about 20 billion years ago universe was a big ball of only neutrons.
Reason (R): Movement of these particles is known to generate tremendous heat which caused explosion due to temperature and pressure changes.

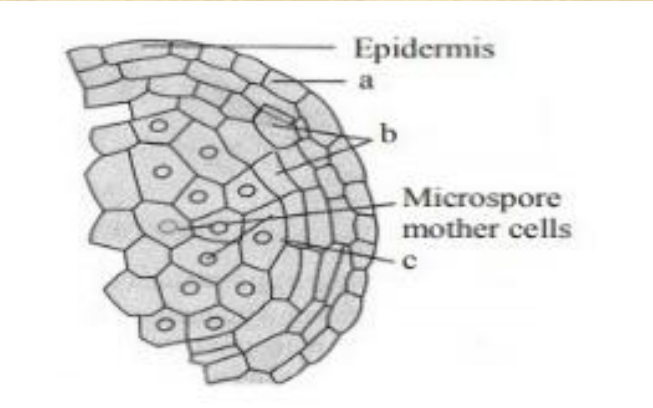
2 Marks Questions

32. Name the causative organism of typhoid and mention its mode of transmission.
33. Define allergy and give one example
34. Name two microorganisms used in the production of antibiotics.
35. Mention two uses of lactic acid bacteria in the food industry.
36. Match the items in Column I with those in Column II.

Column I	Column II
A. ABO blood group in humans.	1. Polygenic inheritance.
B. Flower colour in snapdragon.	2. Mendelian genetic disorder.
C. Human skin colour.	3. Sex-linked Mendelian disorder
D. Phenylketonuria.	4. Incomplete dominance
	5. Multiple allelism.

37. cross between a normal couple resulted in a son who was haemophilic and a normal daughter. In course of time, when the daughter was married to a normal man, to their surprise, the grandson was also haemophilic.
(i) Represent this cross in the form of a pedigree chart. Give the genotypes of the daughter and her husband.
(ii) Write the conclusion you draw from the inheritance pattern of this disease

Observe the figure given below and answer the questions:



Label parts a, b and c.
What will happen if c will not work properly? **(2)**

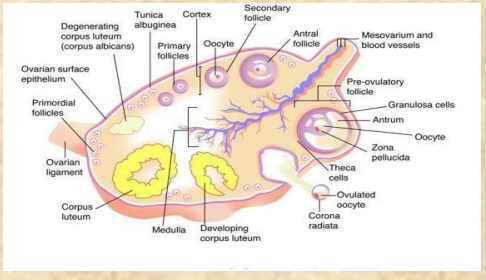
38. Differentiate between biofertilizers and chemical fertilizers.
39. Explain the role of Lactobacillus in curd formation.
40. What are antibiotics? Give two examples.
41. Mention any two advantages of biogas production.
42. What is sewage treatment? Why is it important?
43. What is autoimmunity? Give one example.
44. Why is AIDS considered an immunodeficiency disease?
45. Explain the role of antibodies in our body.
46. Write two symptoms of malaria.
47. What is an allergy? Mention two common allergens.
48. Distinguish between active and passive immunity.
49. How is typhoid transmitted?
50. Explain the term adaptive radiation with one example.
51. Differentiate between natural selection and genetic drift.
52. What are connecting links? Give an example.
53. Write any two observations made by Darwin during his voyage.
54. Differentiate between multiple alleles and polygenic inheritance.
55. Why is haemophilia called a sex-linked disorder?

3 Marks Questions

56. Differentiate between innate and acquired immunity.
57. Explain the role of interferons in protecting the body from viral infections.
58. Explain the role of microbes in sewage treatment.
59. Differentiate between primary and secondary sewage treatment
60. Explain the principle of inheritance of variations.
61. Differentiate between inherited and acquired traits with examples.
62. How do variations arise in a population?
63. Explain the role of mutations in inheritance of variations.
64. Describe how natural selection acts on inherited variations
65. How are microbes used in the production of antibiotics?
66. Explain the primary and secondary treatment of sewage.
67. What are biofertilizers? Explain any three types.
68. Describe the role of yeast in industrial fermentation.
69. Explain how microbes help in the treatment of sewage water
70. Explain the life cycle of Plasmodium in human beings.
71. Describe the causes and symptoms of pneumonia.
72. Explain the mechanism of acquired immunity.

4 Marks Questions
CASE STUDY QUESTION

73. Ovulation is the process of releasing the matured egg or ovum from the mature follicle in the ovary on stimulation with the hormone LH (luteinizing hormone). This process occurs every month. There is a release of only one egg after the rupture of the mature Graafian follicle. This egg is ready for fertilization and travels to the ampulla region in the fallopian tube.



i) mmediately after ovulation, the mammalian egg is covered by a membrane known as
(a) chorion (b) zonapellucida (c) corona radiate (d) vitelline membrane.

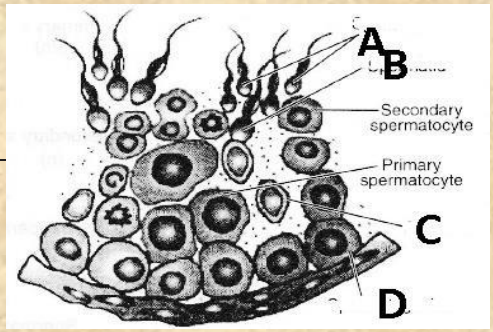
ii) How many functional sperms and how many ova will be formed by a primary spermatocyte and a primary oocyte, respectively?
(a) One, One (b) One, Four (c) Four, One (d) Four, Four

iii) Ovulation occurs under the influence of
a) follicle-stimulating hormone
b) luteinising hormone
c) progesterone
d) estrogen

iv) Urethral meatus refers to the

a) urinogenitalduct
b) opening of vas deferens into urethra
c) external opening of the urinogenital duct
d) muscles surrounding the urinogenial duct

74 Observe the figure given below and answer the questions



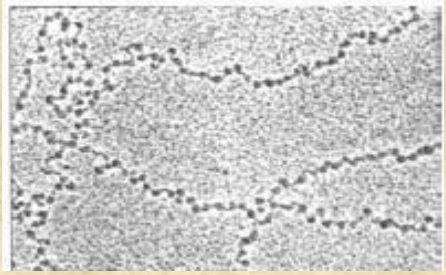
a) Label A and B.

b) What will be the ploidy level of D cells?

Answer:(a)_A_____B_____

b)_

75 Efficient maintenance of chromatin structure during passage of RNA polymerase II (Pol II) is critical for cell survival and functioning. Moderate-level transcription of eukaryotic genes by Pol II is accompanied by nucleosome survival, extensive exchange of histones H2A/H2B and minimal exchange of histones H3/H4. Complementary in vitro studies have shown that transcription through chromatin by single Pol II complexes is uniquely coupled with nucleosome survival via formation of a small intranucleosomal DNA loop (Ø-loop) containing the transcribing enzyme. In contrast, transient displacement and exchange of all core histones are observed during intense transcription. Indeed, multiple transcribing Pol II complexes can efficiently overcome the high nucleosomal barrier and displace the entire histone octamer in vitro. Thus, various Pol II complexes can remodel chromatin to different extents. The mechanisms of nucleosome survival and displacement during transcription and the role of DNA-histone interactions and various factors during this process are discussed.



Shown above is the electron micrograph (EM) picture of 'beads-on-string'. (i)Histone proteins are

b) basic, negatively charged (b) basic, positively charged
(c) acidic, positively charged (d) acidic, negatively charged

(ii) The promoter site and the terminator site for transcription are located at
(a) 3′ (downstream) end and 5′ (upstream) end, respectively of the transcription unit.
(b) 5′ (upstream) end and 3′ (downstream) end, respectively of the transcription unit.
(c) the 5′ (upstream) end.
(d) the 3′ (downstream) end.

(iii) Which histones make up the core particle of a nucleosome?

a. Two H2A/H2B dimers and an H3/H4 tetramer
b. An H2A/H2B tetramer and an H3/H4 dimer
c. An H2A/H2B dimer and an H3/H5 tetramer
d. An H1/H2 dimer and an H3/H4 tetramer

(iv) Euchromatin

(a) stains lightly (b) is partially condensed

(c) genetically active chromatin with genes (d) all of the above

76 . According to Hardy-Weinberg principle, the allele frequencies in a population are stable and remain constant through generations. When the frequency differs from the expected values, the difference indicates the extent (direction) of evolutionary change. Disturbance in the genetic equilibrium or Hardy-Weinberg equilibrium in a population can be interpreted as resulting in evolution.

i Write the algebraic equation representing Hardy-Weinberg equilibrium. ---

ii. Why are analogous structures a result of convergent evolution?

77 Identify the following pairs as homologous or analogous organs.

a. Sweet potato and potato.

(b) Eye of Octopus and eye of mammals.

c) horns of Bougainvillea and tendrils of Cucurbita.

d) Forelimbs of bat and whale

78 Name the ancestors of a man based on the features given below

i) Human-like, meat-eater with 900 cc brain, lived in Java.

ii) More human-like with brain size 1400 cc, lived in Central Asia, used hides and buried their dead.

iii) Human-like, vegetarian, with brain capacity between 650-800 cc.

79. A patient shows symptoms like persistent cough, mild fever, night sweats, and weight loss. After medical examination, it was found that the patient tested positive for Mycobacterium tuberculosis.

Questions:

a. Name the disease the patient is suffering from.

b. Mention the mode of transmission of this disease.

c. Suggest two preventive measures.

d. Which body organ is primarily affected?

80. A farmer decides to install a biogas plant on his farm to manage cattle waste and produce energy.

The biogas plant uses anaerobic digestion of organic matter by methanogenic bacteria.

Questions:

a) Name one methanogenic bacterium.

b) Write the main components of biogas.

c) Mention two benefits of using biogas plants.

d) Explain why anaerobic conditions are essential in this process

81. Explain the stages involved in sewage treatment with a suitable flow chart.
82. Describe the process of biogas production and name the microorganisms involved.
83. How do microorganisms help in maintaining soil fertility? Explain.
84. Discuss the role of microbes in the preparation of various fermented foods and beverages.
85. Explain the production of penicillin and its importance in medicine.
86. Describe the structure of a mature embryo sac in angiosperms with a neat labeled diagram
87. Explain the process of double fertilization in flowering plants. Why is it considered unique to angiosperms?
88. Differentiate between self-pollination and cross-pollination. Mention two advantages of cross-pollination.
89. Describe the stages involved in the development of pollen grains (microsporogenesis) in flowering plants.

5 Marks Questions

90. Describe biogas production with the help of a labeled diagram.
91. Discuss the life cycle of Plasmodium and the symptoms of malaria.
92. Explain innate and acquired immunity in detail with suitable examples.
93. Describe various infectious diseases and their causative organisms.
94. Describe the evidences supporting organic evolution.
95. Explain the Hardy-Weinberg equilibrium and factors affecting it.
96. Discuss the origin and evolution of humans with suitable examples.
97. Explain adaptive radiation with reference to Australian marsupials.
98. . Explain Inheritance of Haemophilia or Colour Blindness.

Include:

- Sex-linked inheritance
- Carrier female
- Affected male
- Pedigree analysis

99 Describe the Structure and Functions of Placenta.

Include:

- Formation
- Maternal and foetal tissues
- Nutrient exchange
- Hormonal functions

100 Explain Fertilization, Implantation and Pregnancy.

Include:

- Site of fertilization
- Zygote formation
- Blastocyst formation
- Implantation
- Pregnancy changes