

Holidays Assignment - class XII

Subject: Biology (2026)

All questions are compulsory

**Revise Lesson-3- Reproductive Health,
L- 4 - Principles of Inheritance and Variation
L- 5 Molecular Basis of Inheritance for UT- II**

Do the following assignment in your biology CW register.

(Note: Paste this assignment (printed) in your class Work Biology register and write answers in the same order.)

PART -1 Theory

Section- A (one Mark questions)

Q1. Which of the following is a non-medicated Intrauterine Device (IUD)?

- (a) CuT
- (b) Lippes Loop
- (c) LNG-20
- (d) Multiload 375

Q2. Amniocentesis is a process to

- a). grow cells on culture medium
- b). Determine any disease if heart
- c). Know bout the diseases of brain
- d). Determine any diaseas of heart.

Q3. In a fertilised embryo sac, the haploid, diploid and triploid structure are:

- a). Synergid, zygote and primary endosperm nucleus.
- b). Synergid, antipodal and polar nuclei
- c). Antipodal, synergid and primary endosperm nucleus
- d). Synergid, polar nuclei and zygote

Q4. Mature Graffian follicle is generally present in the ovary of a healthy female around

- a). 5-8 day of menstrual cycle
- b). 11- 17 day of menstrual cycle
- c). 18- 23 day of menstrual cycle
- d). 24- 28 day of menstrual cycle

Q5. Listed below all reproductive tract infections except

- a) Genital Herpes
- b) Filariasis
- c) Trichomoniasis
- d) Syphilis

Q6. Which of the following has 23 chromosomes?

- a) Spermatogonia
- b) Zygote
- c) Secondary oocyte
- d) Oogonia

Q7. 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

Q8. Condoms are one of the most popular contraceptives because of the following reasons.

- a). These are effective barriers for insemination
- b). They do not interfere with coital act
- c). These help introducing the risk of STDs
- d). All of the above.

Q9. What is the function of Copper T

- a). Stop cleavage. b). Stop fertilisation
- c). Check mutation c). Stop gastrulation

Q10. Identify the disease which is not a sexually transmitted disease

- a). Gonorrhoea. b). Syphilis
- c). Amoebiasis. d). Chlamydia

Q11. Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by

- a). water. b). bat
- c). Bee. d). wind

Q12. Endosperm is completely consumed by the developing embryo in which of the following

- a) maize and castor
- b) castor and groundnut
- b) maize and pea
- c) pea and groundnut

Q13. The technique which is used to implant the embryo in case the oviducts of the woman are blocked by an obstruction is

- a). GIFT. b). IUT
- c). IUI. d). ICSI

Q14. Which of the following hormones controls the function of Sertoli cells in humans?

- a). FSH. b). Testosterone
- c). Estrogen. d). ACTH

Q15. The hard outer layer of pollen grain is called

- a). Intine. b) germ pore
- c). Exine. d). Tapetum

Q16. The vasa deferens receives duct from the seminal vesicle and opens into urethra as

- a). Epididymis. b). Ejaculatory duct
- c). Efferent duct. d). Ureter

Q17. Acrosomal reaction of the sperm occurs due to

- a). Its contact with zona pellucida of the ova
- b). Reactions within the epididymal environment of the male
- c). Reactions within the uterine environment of the female
- d). Androgens produced in the uterus

Q18. Androgens are synthesized by

- a). Sertoli cells.
- b). Leydig cells
- c). Seminal vesicles.
- d). Bulbourethral gland

Q19. Which of the following contraceptive methods do involve a role of hormones?

- a). Lactational amenorrhoea, pills, emergency contraceptives

- b). Barrier method, lactational amenorrhea, pills
- c). Copper- T emergency contraceptives
- d). Pills, emergency contraceptives, barrier methods.

Q20. A gene which controls the expression of more than one trait is said to show

- a). Multiple allelism
- b). Polygenic inheritance
- c). Incomplete dominance
- d). Pleiotropism

Q21. If both the parents are carriers for thalassemia, the chances of an afflicted child being born to them are:

- a). 25% b). 50%
- c). 75%. d). 100%

Q22. Which one of the following chromosome events will not result in genetic variation amongst the following?

- a) Independent assortment
- b) Crossing over
- c) Linkage
- d) Mutation

Q23. Turner's syndrome in humans occurs due to

- a). aneuploidy b). euploidy
- c). Polyploidy d). Autosomal abnormality

Q24. Which of the following characteristics of pea plants was not used by Mendel in his experiments?

- a). Seed colour. b). Seed shape
- c). Pod length. d). Flower position

Q25. ZZ/ZW type of sex determination is seen in

- a). Platypus. b). Snails
- c). Cockroach c). Peacock

Q26. Mendel's law of independent assortment holds good for genes situated on the

- a). Non homologous chromosomes
- b). Homologous chromosomes
- c). Extra nuclear genetic element
- d). Same chromosome

Q27. In sickle cell anaemia glutamic acid is replaced by valine. Which one of the following triplets codes for valine?

- a). Pleiotropy. b). Co- dominance
- c). Segregation. d). Incomplete dominance

Q28. A cross between two tall plants resulted in offspring having few dwarf plants. What would be the genotypes of both the parents?

- a) TT and Tt
- b) Tt and Tt
- c) TT and TT
- d) Tt and tt

Q29. In dihybrid cross, if you get 9:3:3:1 ratio it denotes that

- a) the alleles of two genes are interacting with each other
- b) It is polygenic inheritance

- c) It's a case of multiple allelism
- d) the alleles of two genes are segregating independently

Q30. How many types of gametes would be produced if genotype of a parent is AaBB

- a). 1.
- b). 2.
- c). 3.
- d). 4

Assertion and Reason questions:

In the following questions, a statement of assertion followed by a statement of reason is given. Choose the correct out of the following choices.

- a) Assertion and reason both are correct statements and reason is the correct explanation for assertion
- b) Assertion and reason both are correct statements but reason is not correct explanation for assertion
- c) Assertion is a correct statement but reason is a wrong statement.
- d) Assertion is a wrong statement but reason is the correct statement.

Q31. ASSERTION: Hemophilia never occurs in women

Reason: Gene for haemophilia is located on X chromosome.

Q32. Assertion: In birds , females are heterogametic and males are homogametic.

Reason: In birds females have ZW sex chromosomes and males have ZZ sex chromosomes.

Q33. ASSERTION: Diaphragm and cervical caps are barriers made of rubber.

Reason : They block the entry of sperms through the cervix.

Q34. Assertion: contraceptives are methods to prevent unwanted pregnancies **Reason :**Unwanted pregnancies can only be prevented by using oral contraceptives.

Q35. Assertion: Determination of the sex of an unborn child followed by MTP is an illegal practice.

Reason: Amniocentesis is a practice to test the presence of genetic disorders also.

Section - B : 2 mark questions:

Q36. What is a test cross? How can it decipher the heterozygosity of a plant

Q37. What is meant by monosporic development of female gametophytes?

Q38. What is polyembryony? How can it be commercially exploited?

Q39. Why are menstrual cycles absent during pregnancy?

Q40. Where are the leydig cells present and what is their role in reproduction?

Q41. a.) Where do the signals for parturition originate in humans?

b.) Why is it important to feed the newborn babies on colostrum

Q42. Write the scientific name of fruit fly?

Why did Morgan prefer to work with fruit flies for his experiments? State three reasons.

Q43. Give four measures one has to take to prevent from contacting STIs transmitted infections?

Q44. Mention two advantages of lactational amenorrhoea as a contraceptive method?

Section - C (3 marks questions):

Q45. Differentiate between

- a). hypocotyl and epicotyl
- b). coleoptile and coleorhiza
- c). Perisperm and pericarp

Q46 Explain incomplete dominance in Snapdragon.

Q47. A man with blood group A married a woman with B group. They have a son with AB blood group and a daughter with blood group O. Work out the cross and show the possibility of such inheritance.

Q48. Briefly explain the IVF and ET. What are the conditions in which these methods are advised?

Q49. What are characteristic features of a true breeding line?

Q50. Expression of different genes for different traits may show complete dominance or co dominance.

Write about expression of such genes with the help of one example of each.

Long questions - 5 marks

Q1. Explain the pattern of inheritance, cause of Sickle cell anaemia and Phenylketonuria. 5

Q2. Explain how does trisomy of 21 st chromosomes occur in humans. List any four characteristic features in an individual suffering from it. 5

Q3. A village health worker was taking a session with women. She tells the women that one has to be careful while using oral pill as method of birth control. Wrong usage can actually promote conception.

a). Analyse the statment and compare the merits and demerits of using oral pills and surgical methods of birth control.

b). Village women were confused as to how a thin metallic copper loop can provide protection against pregnancy. Justify the use, explaining the mode of action of IUDs. 5

Q4. STI s are a threat to reproductive health. Describe any two such diseases and suggest the preventive measures. 5

Q5. Explain How are Mendelian inheritance, polygenic inheritance and pleiotropy different from each other?

Explain polygenic inheritance with the help of suitable example. 5

PART -2 (Practical: 30 marks)

Q1.INVESTIGATORY PROJECT: Frame a good biology investigatory project which can be formulated through experimentation or observation, by identifying a biological concept of your interest and is relevant to the curriculum.

{e.g. Human Health and Diseases: *AIDS: Investigate the causes , transmission and prevention of HIV/ AIDS

*Cancer: Exploring different types of Cancer, their causes, treatment options.

*Mendelian disorders: Studying inherited diseases

*Drug Addiction: Examining the causes and effects of drug addiction.

*Infertility

* Effect of diet on Blood Glucose

*Impact of Pollution on Plant Growth

* Pollination

* Sustainable Development in Agriculture

* Growth of Mould

* Antibiotics

* Reproductive Health etc. etc.} or topics already shared in the group.

Q2. Lab. Manual Work:

Write the following practicals in your practical file of biology with relevant points and well labelled diagrams from the shared pdf.

(Diagrams to be drawn by pencil)

1.Flowers adapted to pollination by different agencies (wind, insects, birds).

2. Pollen germination on stigma through a permanent slide or scanning electron

And other experiments as shared in the class group.