This Question Paper contains 20 printed pages.
(Part - A & Part - B)

Sl.No.

056(E)

(FEBRUARY-MARCH, 2025)
SCIENCE STREAM
(CLASS - XII)

Part - A : Time : 1 Hour / Marks : 50
Part - B : Time : 2 Hours / Marks : 50

પ્રશ્ન પેપરનો સેટ નંબર જેની સામેનું વર્તુળ OMR શીટમાં ઘટ્ટ કરવાનું રહે છે.
Set No. of Question Paper, circle against which is to be darken in OMR sheet.
17

(Part - A)

Time : 1 Hour] ***[Maximum Marks : 50***

Instructions :

1) **There are 50 objective type (M.C.Q.) questions in Part - A and all questions are compulsory.**
2) **The questions are serially numbered from 1 to 50 and each carries 1 mark.**
3) **Read each question carefully, select proper alternative and answer in the O.M.R. sheet.**
4) **The OMR sheet is given for answering the questions. The answer of each question is represented by (A) O, (B) O, (C) O, (D) O. Darken the circle ● of the correct answer with ball-pen.**
5) **Rough work is to be done in the space provided for this purpose in the Test Booklet only.**
6) **Set No. of Question Paper printed on the upper-most right side of the Question Paper is to be written in the column provided in the OMR sheet.**
7) **For diagram/chart based questions, separate questions are given for visually impaired students. Only they have to attend them.**

1) Assertion (A) : Apple is false fruit.

Reason (R) : Thalamus also contributes to fruit formation in apple.

(A) A is correct & R is wrong.

(B) A & R both are correct, R is not correct explanation of A.

(C) A & R both are correct, R is correct explanation of A.

(D) A is wrong & R is correct.

Rough Work

Rough Work

2) Which one is not determine of the developing foetus by using amniocentesis?

(A) Hepatitis

(B) Survivability of the foetus.

(C) Sex determination of foetus.

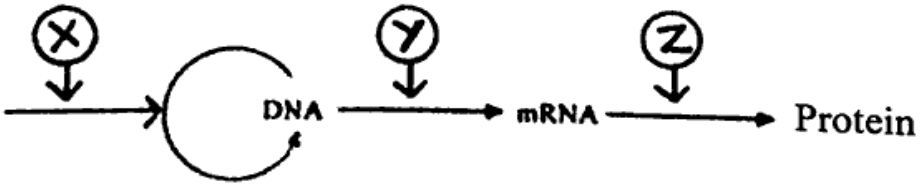
(D) Haemophilia

3) If a colour blind woman marry with a person whose mother is colour blind then what are the probability of colour blind in their offspring?

(A) 100% (B) 25%

(C) 50% (D) 75%

4) Given figure represent the concept of central dogma. Choose the correct option for labelled 'X', 'Y' & 'Z'.



(A) X - Transcription Y - Replication Z - Translation

(B) X - Replication Y - Translation Z - Transcription

(C) X - Translation Y - Transcription Z - Replication

(D) X - Replication Y - Transcription Z - Translation

Only for Visually impaired Students

Rough Work

4) The flows of genetic information in central dogma are in which direction?

(A) RNA → DNA → Protein

(B) DNA → Protein → RNA

(C) Protein → RNA → DNA

(D) DNA → RNA → Protein

5) Which scientist proposed that 'embryo never pass through the adult stages of other animals'?

(A) Thomas Malthus (B) Karl Ernst von Baer

(C) Alfred Wallace (D) Ernst Heckel

6) They are useful to get rid of aphids.

(A) Baculovirus (B) Dragonfly

(C) Lady bird (D) Trichoderma

7) Which scientist construct the r - DNA by isolating the antibiotic resistance gene?

(A) Ernest chain & Howard Florey

(B) Stanley Cohen & Herbert Boyer

(C) James Watson & Francis Crick

(D) Francois Jacob & Jacque Monod

8) Which gene controls corn borer- which create pores in maize?

(A) Cry II Ab (B) Cry I Ac

(C) Cry I Ab (D) Cry II Ac

Rough Work

9) Which of the following is correct equation for Verhulst pearl Logistic growth?

(A) $dN / dt = (d - b) N$

(B) $dN / dt = rN\left(\frac{K}{K - N}\right)$

(C) $dN / dt = (b - d) N$

(D) $dN / dt = rN\left(\frac{K - N}{K}\right)$

10) A grass is eaten by goat & goat is eaten by Tiger. So Tiger is _____

(A) Secondary consumer (B) Tertiary consumer

(C) Primary consumer (D) Primary Producer

11) _____ is a example of Ex situ conservation.

(A) Wild life sanctuaries

(B) Seed banks

(C) Sacred groves

(D) Biosphere reserves area

12) In ____ the number of ovules in an ovary is one.

(A) Papaya (B) Orchids

(C) Mango (D) Water melon

Rough Work

13) Which one from the following is mis- matched pair?

(A) I C S I - sperm is directly injected into uterus

(B) Z I F T - early embryos could be transferred into fallopian tub

(C) G I F T - Transfer of an ovum collected from donor into the fallopian tube of female

(D) I U T - Transfer of an embryo with more than 8 blastomeres into uterus

14) The brain capacity of Homo erectus was _____

(A) 650 - 800 cc (B) 900 cc

(C) 1400 cc (D) 1200 cc

15) Trichoderma is _____

(A) Symbiotic lichen (B) Free living bacteria

(C) Blue green algae (D) Free living fungi

16) Which enzyme is used in isolation of bacterial DNA?

(A) Ribonuclease (B) Cellulase

(C) Lysozyme (D) Chitinase

17) How many documented varieties of Basmati rice are grown in India?

(A) 427 (B) 270

(C) 27 (D) 2700

18) If 8 drosophilas in a laboratory population of 80 died during one week the death rate in the population during that period is _____ individual/ drosophila/ week.

(A) 0.1 (B) 1.0

(C) 10 (D) 72

19) Ecosystem follows _____

(A) First Law of Thermodynamics

(B) Second Law of Thermodynamics

(C) First & Second Law of Thermodynamics

(D) None of the above

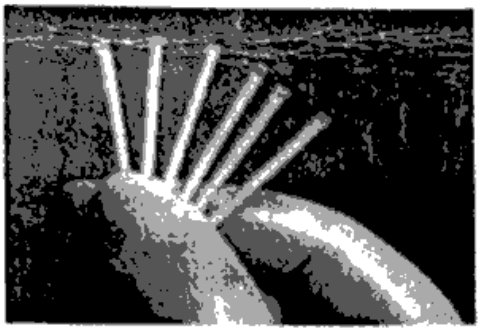
20) From the following which is not example of Albuminous seed?

(A) castor (B) groundnut

(C) maize (D) wheat

Rough Work

21) Given figure of contraceptive is implants at which part of female?



(A) in vagina
(B) in uterus
(C) in fallopian tube
(D) under the skin

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21) Progestogens alone or in combination with estrogen can be used by females as injection or implants at which part?

(A) in vagina
(B) in uterus
(C) in fallopian tube
(D) under the skin

22) On which plant from the following Hugo devries brought forth the idea of mutation?

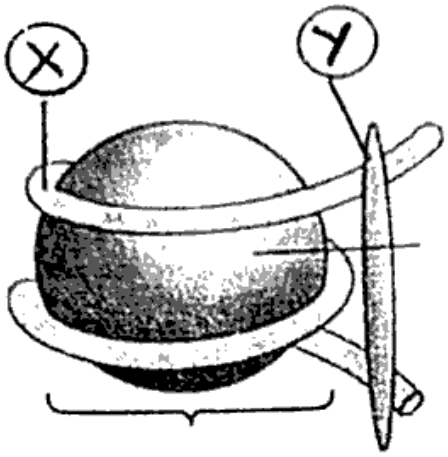
(A) pea
(B) snapdragon
(C) evening primrose
(D) cucurbita

23) Polypeptide chain A& chain B of insulin are linked together by which bond?

(A) glycosidic
(B) disulphide
(C) dipeptide
(D) diester

Rough Work

24) Identify 'X' & 'Y' in given diagram.



(A) X - H_1 Histone Y - DNA
(B) X - Histone octamer Y - H_2 Histone
(C) X - DNA Y - H_1 Histone
(D) X - DNA Y - Histone octamer

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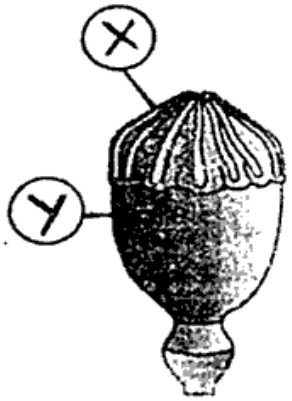
24) In Eukaryotes, Nucleosome consists which parts?
(A) DNA
(B) Histone octamer
(C) A & B both
(D) only DNA

25) Which is the correct option in given 'X' & 'Y' labelled diagram.



(A) X - stigma Y - syncarpous ovary
(B) X - style Y - syncarpous ovary
(C) X - stigma Y - apocarpous ovary
(D) X - style Y - apocarpous ovary

Rough Work

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25) Which type of pistil in papawer?

(A) multicarpellary, syncarpous

(B) bicarpellary, apocarpous

(C) monocarpellary

(D) multicarpellary, apocarpous

26) From the given hormones, which hormone is not released from the placenta?

(A) human placental lactogen

(B) estrogen

(C) human chorionic gonadotropin

(D) prolactin

27) Which of the following sexually Transmitted Infections is not completely curable?

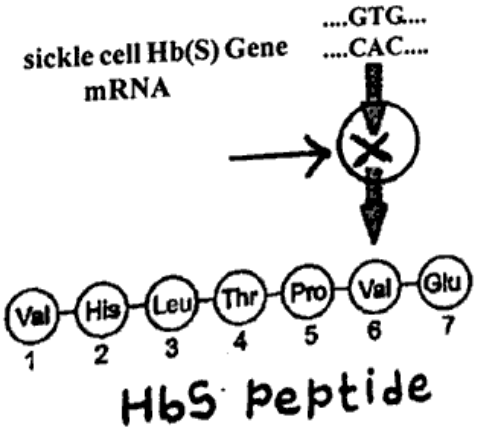
(A) Genital warts

(B) Genital herpes

(C) Syphilis

(D) Gonorrhoea

28) From given chart, which is the correct option of three digit code for 'X'?



(A) GAG

(B) GAU

(C) GUG

(D) GAA

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Rough Work

28) In sickle cell anaemia, there is a substitution of Glutamic acid by valine. Which is the codon for valine?

(A) GAG

(B) GAU

(C) GUG

(D) GAA

29) According to Erwin Chargaff in DNA, if [A] = 11, [G] = 12 then [T] + [C] = _____

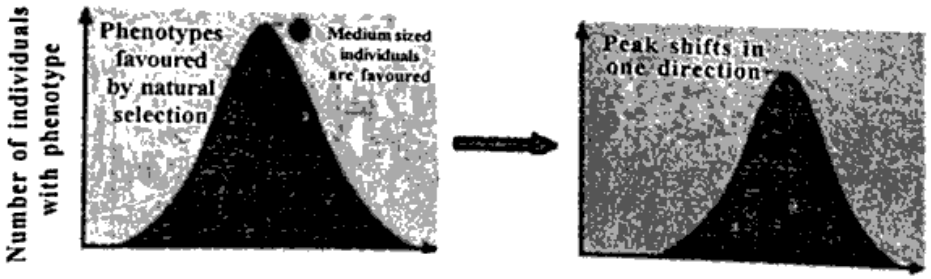
(A) 11 + 23

(B) 12 + 11

(C) 11 + 12

(D) 23 + 12

30) What the given diagrammatic representation of the operation of natural selection indicate?



(A) Stabilising

(B) Directional

(C) Disruptive

(D) Stabilising & Disruptive

Rough Work

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30) Which type of stabilisation lead when more individuals acquire value other than the mean character value in the operation of natural selection on different traits?

(A) Stabilising

(B) Directional

(C) Disruptive

(D) Stabilising & Disruptive

31) What is the common name of Diacetyl morphine?

(A) Smack (B) Hashish

(C) Cocaine (D) Charas

32) Match Column - I and Column - II by suitable manner.

	Column - I		Column - II
(p)	Lipase	(i)	as a clot buster
(q)	Streptokinase	(ii)	removing oily stains from laundry
(r)	Cyclosporin A	(iii)	as blood cholesterol lowering agent
(s)	Statin	(iv)	as an immunosuppressive agent

(A) (p - iv), (q - iii), (r - ii), (s - i)

(B) (p - iii), (q - iv), (r - i), (s - ii)

(C) (p - ii), (q - i), (r - iv), (s - iii)

(D) (p - ii), (q - iii), (r - iv), (s - i)

Rough Work

33) _____ is the recognition site for amp^R gene.

(A) Pvu II
(B) Hind III
(C) Bam H I
(D) Pst I

34) Which human protein used to treat emphysema?

(A) α - 1 antitrypsin
(B) α - 1 eropsin
(C) α - 1 trypsin
(D) α - 1 enterogastrin

35) Which parasite depends on two intermediate host a snail & a fish to complete its life cycle?

(A) Trematode
(B) Plasmodium
(C) Copepods
(D) Pisaster

36) Sentence (P) : G P P = N P P + respiration losses

Sentence (Q) : N P P = G P P + respiration losses

(A) Sentence P is true but Q is wrong
(B) Sentence P & Q both are wrong
(C) Sentence P & Q both are true
(D) Sentence P is wrong but Q is true

37) Match Column - I & Column - II

	Column - I		Column - II
(p)	Paul Ehrlich	(i)	Popularised the Biodiversity term
(q)	David Tilman	(ii)	Species - area relationship
(r)	Von Humboldt	(iii)	increased diversity contributed to higher productivity.
(s)	Edward Wilson	(iv)	rivet popper hypothesis.

(A) (p - iii), (q - iv), (r - i), (s - ii)
(B) (p - iv), (q - iii), (r - ii), (s - i)
(C) (p - ii), (q - i), (r - iv), (s - iii)
(D) (p - iv), (q - i), (r - ii), (s - iii)

Rough Work

38) Choose the correct option for given statement.
(T = True, F = False)

(i) If both male & female flowers are present on same plant then it is dioecious.

(ii) In papaya, male & female flowers are present on different plants.

(iii) In castor & maize, it prevents autogamy & geitonogamy

(iv) In monoecious, it prevents autogamy but not geitonogamy.

(A) FFTT (B) TTFF

(C) TFTF (D) FTFT

39) Match Column - I & Column - II

	Column - I		Column - II
(p)	after one month of pregnancy	(i)	foetus develops limbs & digits
(q)	after second month of pregnancy	(ii)	well development of external genital organs
(r)	end of first trimester	(iii)	separation of eye - lids
(s)	end of second trimester	(iv)	embryo's heart is formed

(A) (p - ii), (q - i), (r - iv), (s - iii)

(B) (p- iii), (q - iv), (r- i), (s - ii)

(C) (p - iv), (q - i), (r - ii), (s - iii)

(D) (p - iv), (q - iii), (r - ii), (s - i)

40) What is the correct name of AI technique in assisted reproductive technologies.

(A) Assisted Insemination

(B) Artificial Insemination

(C) Artificial Injection

(D) Artificial Intelligence

Rough Work

41) Genes which controlled α- Thalassemia & β- Thalassemia are present on which number of chromosomes.

(A) On 21 & on 11
(B) On 16 & on 11
(C) On 16 & on 21
(D) On 11 & on 16

42) Distance between two consecutive base pair of DNA is ___

(A) 34 nm
(B) 0.34 nm
(C) 0.34×10^{-9} m
(D) both B & C

43) In a family tree of dinosaurs, which dinosaurs was about 20 feet in height & had huge fearsome dagger like teeth?

(A) Tyrannosaurus
(B) Pteranodon
(C) Triceratops
(D) Stegosaurus

44) If a person is positive in Widal test. then that person is affected by which pathogen?

(A) Plasmodium falciparum
(B) Salmonella typhi
(C) Streptococcus pneumoniae
(D) Entamoeba histolytica

45) Which chemical is obtained from microorganism Aspergillus niger?

(A) Acetic acid
(B) Butyric acid
(C) Lactic acid
(D) Citric acid

Rough Work

46) The first r - DNA was constructed in which micro - organism?

(A) Salmonella typhimurium

(B) Vibrio cholera

(C) E. coli

(D) Staphylococci

47) Which molecule is tagged with a radioactive molecule is allowed to hybridise to its complementary DNA in a clone of cells?

(A) ds - DNA or ds - RNA

(B) ss - DNA or ss - RNA

(C) ss - DNA or ds - RNA

(D) ds - DNA or ss - RNA

48) Who proposed the competitive Exclusion principle?

(A) Von Humboldt (B) Mac Arthur

(C) G F. Gause (D) Verhulst - pearl

49) How many billion tons productivity of oceans?

(A) 70 (B) 155

(C) 55 (D) 170

50) How many number of biodiversity hotspots in the world right now?

(A) 14 (B) 25

(C) 9 (D) 34

056(E)

(FEBRUARY-MARCH, 2025)
SCIENCE STREAM
(CLASS - XII)

(Part - B)

Time : 2 Hours] *[Maximum Marks : 50*

Instructions :

1) **Write in a clear legible handwriting.**
2) **There are three sections in Part - B of the question paper and total 1 to 27 questions are there.**
3) **All the questions are compulsory. Internal options are given.**
4) **The numbers at right side represent the marks of the question.**
5) **Start new section on new page.**
6) **Maintain sequence.**
7) **For diagram/chart based questions, separate questions are given for visually impaired students. Only they have to attend them.**

SECTION - A

■ **Answer Questions No. 1 to 12 as directed. Each question carry 2 marks. (Attempt any 8)** **[16]**

1) Draw labelled diagram of enlarged view of one microsporangium showing wall layers.

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1) Explain the structures of microsporangium.

2) Write down the characters of ideal contraceptive.

3) What is pleiotropic gene? Explain with example.

4) Write down the types of RNA in bacteria & explain their functions.

5) Draw the labelled diagram of Miller's experiment.

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5) Describe in brief Miller's Experiment.

6) Which disease caused by Haemophilus influenzae? How it spread? Write down the symptoms of it.

7) Explain Biological control of viruses that attack insects & arthropods.

8) Explain Brood parasitism in birds.

9) Write down the limitations of ecological pyramid.

10) Explain the mechanism of production of seed without fertilisation.

11) Explain Intra Uterine devices (IUD's)

12) Explain commensalism with examples.

SECTION - B

■ **Answer question no 13 to 21 as directed. Each Question carry 3 marks. (Attempt any six)** **[18]**

13) Explain the structure of sperm cell with labelled diagram.

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13) Explain the structure of sperm cell & Define spermiogenesis & spermiation.

14) Give the salient features of genetic code.

15) Explain the Homologous & Analogous structure with example.

16) What is Innate Immunity? Explain the barriers of it.

17) Explain Biological treatment of sewage Treatment.

18) What are Genetically Modified Organism (GMO)? Write down the uses of G .M. plants.

19) Explain tissue culture.

20) Define Decomposition & Describe the steps of Decomposition.

21) Explain causes of biodiversity losses by Alien species invasion & co-extinction.

SECTION - C

■ **Answer Question No. 22 to 27 in detail, Attempt any four.** **[16]**

(Each Question carry 4 marks)

22) Explain the structure of typical angiosperm ovule with labelled diagram.

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22) Explain the structure of ovule & explain megasporogenesis.

23) Draw the labelled diagram of female reproductive system & explain the structure of womb.

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23) Explain the female accessory ducts & structure of womb, in female reproductive system.

24) Explain Mendel's Dihybrid cross experiment with chart.

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24) Explain the Law of Independent Assortment on the basis of Mendel's Dihybrid cross experiment.

25) Write down salient features of Human Genome.

26) Give the causes of cancer & describe the diagnostic methods of cancer.

27) Describe the separation & isolation of DNA fragments.

(diagram is not required)