GUJCET-BE-2023

Test Booklet No. 0700944 **Test Booklet Set No.** **07**

This booklet contains 16 pages.

DO NOT open this Test Booklet until you are asked to do so.

Important Instructions :

1) The Biology test consists of 40 questions. Each question carries 1 mark. For each correct response, the candidate will get 1 mark. For each incorrect response ¼ mark will be deducted. The maximum marks are 40.
2) This Test is of **1 hour** duration.
3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
6) The Set No. for this Booklet is 07 . Make sure that the Set No. printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
9) Use of White fluid for correction is not permissible on the Answer Sheet.
10) Each candidate must show on demand his / her Admission Card to the Invigilator.
11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
12) Use of Simple (Manual) Calculator is permissible.
13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) will be deemed not to have handed over the Answer Sheet and will be dealt with as an unfair means case.
14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
16) The candidates will write the Correct Test Booklet Set No. as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

SE

BIOLOGY

1) Alexander Fleming was the first person to discover 'Penicillin' by chance. He worked on which bacterium?

(A) Haemophilus Influenzae

(B) Staphylococci

(C) Streptococcus Pneumoniae

(D) Salmonella Typhi

2) Match the following. Choose the correct option.

	Column - I		Column - II
(i)	Propionibacterium Shermanii	(P)	Fermenting fruit prices to produce ethanol
(ii)	Saccharomyces Cerevisiae	(Q)	Citric Acid
(iii)	Aspergillus niger	(R)	'Swiss Cheese'
(iv)	Trichoderma polysporum	(S)	Immuno-suppressive

(A) (i - R); (ii - Q); (iii - P); (iv - S)

(B) (i - P); (ii - S); (iii - R); (iv - Q)

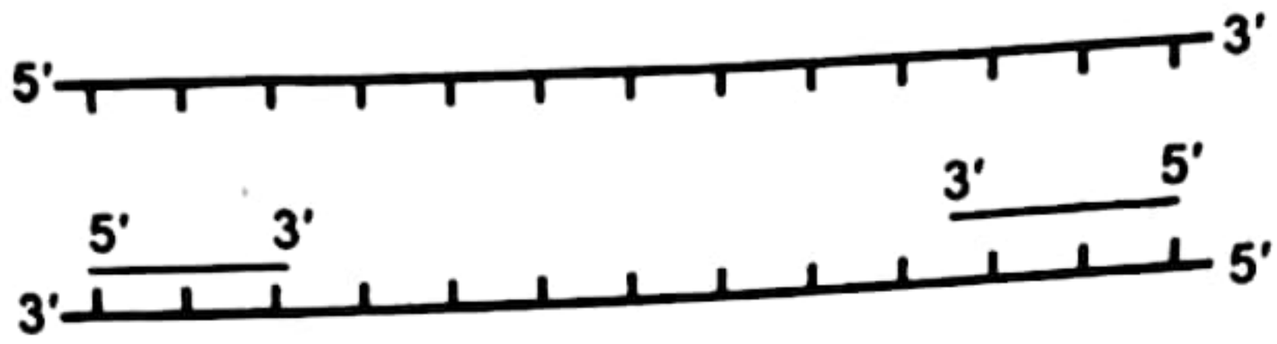
(C) (i - P); (ii - Q); (iii - R); (iv - S)

(D) (i - R); (ii - P); (iii - Q); (iv - S)

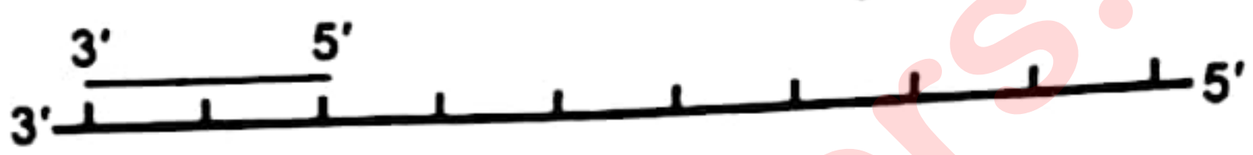
(Space for Rough Work)

3) Choose the correct option for the 'Annealing' step in P.C.R. from the following diagrammatic representations :

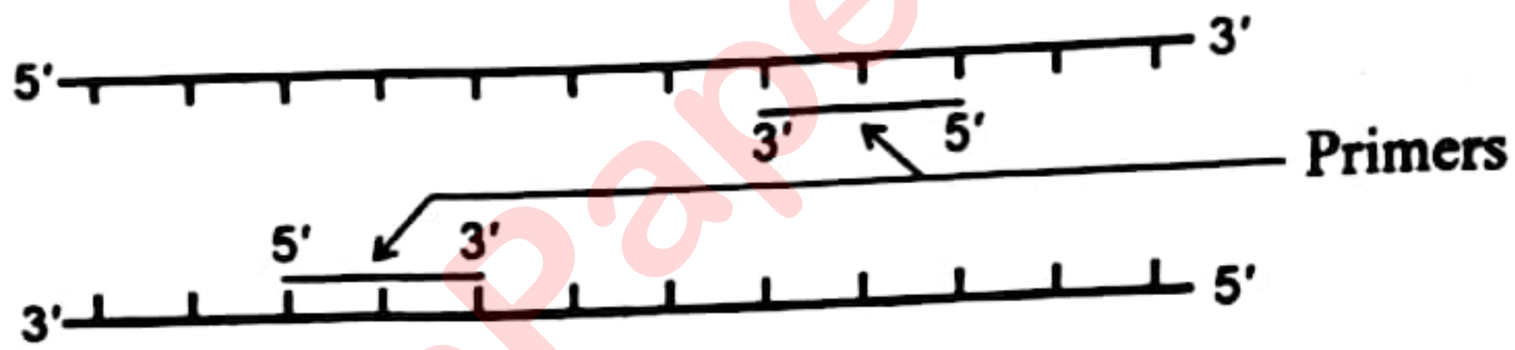
(A)



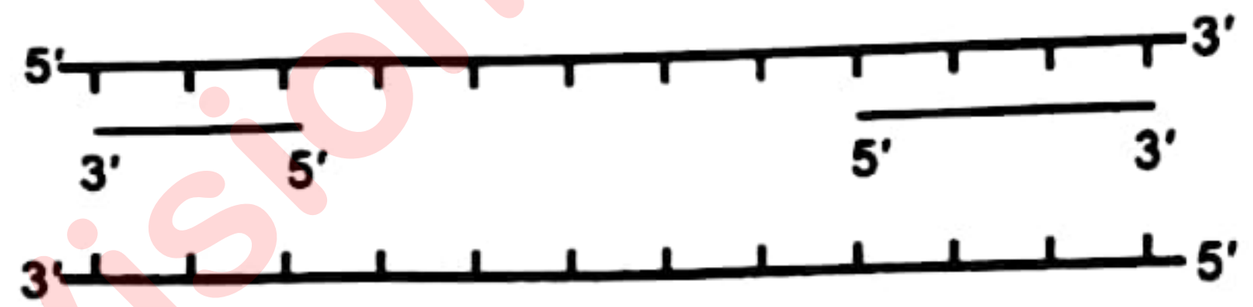
(B)



(C)



(D)



4) In extraction of genetic material (DNA), which enzyme is not used?

(A) Ribonuclease

(B) Cellulose

(C) Protease

(D) Both Protease and Ribonuclease

(Space for Rough Work)

5) In E.Coli cloning vector pBR322, antibiotic resistance genes (amp^R) indicates which restriction sites?

(A) PvuI, PstI
(B) PvuII, EcoRI
(C) BamHI, SalI
(D) EcoRI, HindIII

6) Proteins encoded by the genes _____ and _____, which control the cotton bollworms.

(A) Cry I Ab and Cry I Ac.
(B) Cry I Ab and Cry II Ac.
(C) Cry I Ac and Cry II Ab.
(D) Cry II Ab and Cry II Ac.

7) Choose the correct option from the statements given below which do not support the reasons for production of transgenic animals :

(A) to test the safety of the polio vaccine
(B) for production of $\alpha - 1$ antitrypsin used to treat emphysema
(C) for diagonising genetic disorder
(D) to test the toxicity of drugs

8) Choose the correct option showing population interactions

(A) Sea-anemone and clown fish → Predation
(B) Monarch butterfly and bird → Competition
(C) Egret and grazing cattle → Parasitism
(D) Fig and wasp → Mutualism

9) _____ and _____ are the two basic processes which contribute to an increase in population density.

(A) Natality and Immigration
(B) Mortality and Immigration
(C) Mortality and Emigration
(D) Natality and Emigration

(Space for Rough Work)

10) A few organisms can tolerate and thrive in a wide range at temperatures. They are known as :

(A) Eurythermal
(B) Stenohaline
(C) Stenothermal
(D) Euryhaline

11) In a particular condition, decomposition rate is slower if detritus is rich in _____ and _____.

(A) nitrogen and sugar
(B) ligin and chitin
(C) ligin and nitrogen
(D) chitin and sugar

12) In which trophic level, you will keep the species 'Sparrow'?

(A) Only Primary Consumer
(B) Only Secondary Consumer
(C) Both Primary and Secondary Consumer
(D) Both Secondary and Tertiary Consumer

13) Cryopreservation technique are practiced for preserving the gamates of threatened species in viable and fertile condition for long periods. Choose the correct temperature in which it is done?

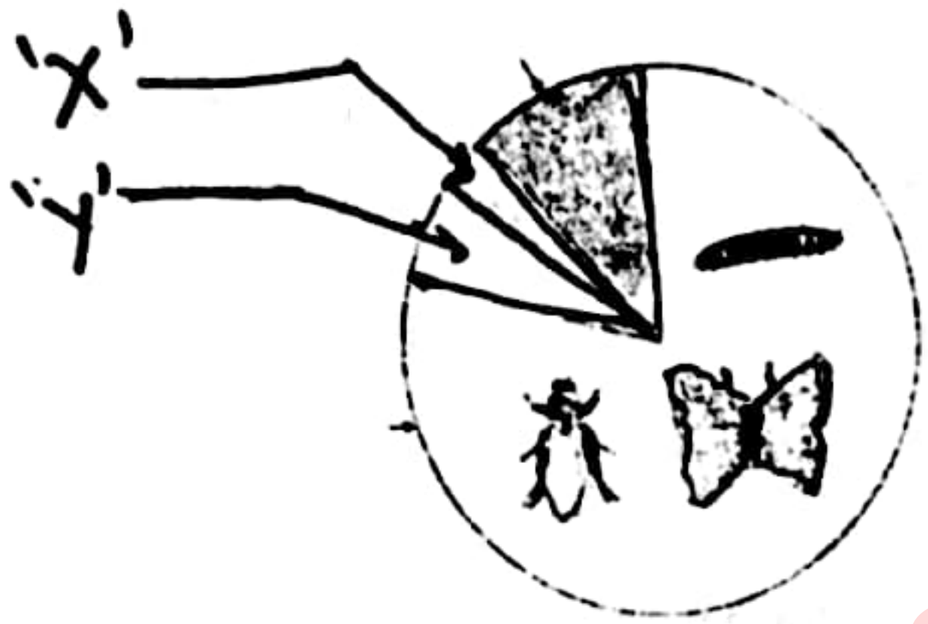
(A) – 296°C
(B) – 42°C
(C) – 90°C
(D) – 196°C

14) In species-Area relationship, select the naturalist and geographer who observed that within a region species richness increased with increasing explored area, but only up to a limit.

(A) Paul Ehrlich
(B) Alexander Von Humboldt
(C) Edward Wilson
(D) David Tilman

(Space for Rough Work)

15) Following figure represent the global biodiversity showing proportionate number of species at major taxa of invertebrates. Identify 'X' and 'Y'.



(A) X = Molluscs; Y = Crustaceans (B) X = Crustaceans; Y = Molluscs
(C) X = Crustaceans; Y = Insects (D) X = Molluscs; Y = Insects

16) According to Central Pollution Control Board (CPCB), particulate size _____ in diameter are responsible for Causing the greatest harm to human health.
(A) 10.0 micrometers (B) 5.0 micrometers
(C) 2.5 micrometers (D) 7.5 micrometers

17) Choose the correct option by matching Column - I and Column - II

	Column - I		Column - II
(P)	Water (Prevention and Control of Pollution) Act,	(i)	1987
(Q)	Environment (Protection) Act,	(ii)	1981
(R)	Montreal Protocol	(iii)	1974
(S)	Air (Prevention and Control of Pollution) Act,	(iv)	1986

(A) (P - iii), (Q - iv), (R - i), (S - ii)
(B) (P - iii), (Q - i), (R - iv), (S - ii)
(C) (P - ii), (Q - iii), (R - iv), (S - i)
(D) (P - iv), (Q - iii), (R - ii), (S - i)

(Space for Rough Work)

18) Choose the correct option which is correct for 'asexual reproduction'.

Statement P :- Reproductive structures for Chlamydomonas are zoospores.

Statement Q :- Amoeba undergoes both binary and multiple fission under respective conditions.

Statement R :- Fragmentation occurs in Hydra & sponges.

(A) Statements P is true

(B) Statements Q and R are true

(C) Statements P and Q are true

(D) Statements P, Q & R are true

19) Match the following. Choose the correct option.

	Column - I	Column - II		Column - III	
(i)	Homothallic	(P)	Monoecious	(X)	Coconut & Chara
(ii)	Heterothallic	(Q)	Dioecious	(Y)	Papaya & Merchantia

(A) (I - ii), (II - Q), (III - X)

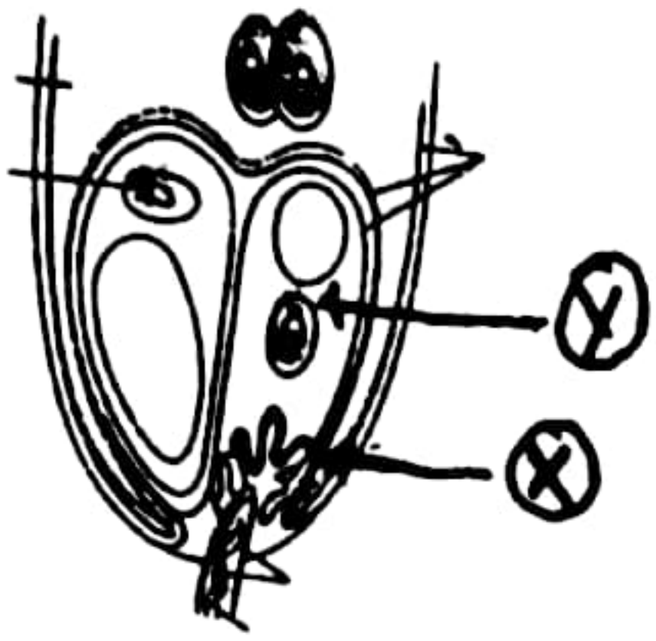
(B) (I - i), (II - P), (III - X)

(C) (I - i), (II - P), (III - Y)

(D) (I - i), (II - Q), (III - Y)

(Space for Rough Work)

20) What indicates 'X' and 'Y' in the following diagram?



(A) X = Egg cell ; Y = Synergid

(B) X = Synergid ; Y = Filiform apparatus

(C) X = Filiform apparatus ; Y = Synergid

(D) X = Egg cell; Y = Filiform apparatus

21) In flowering plants, 'triple fusion' is the combination of _____.

(A) Central polar nuclei + One male gamate

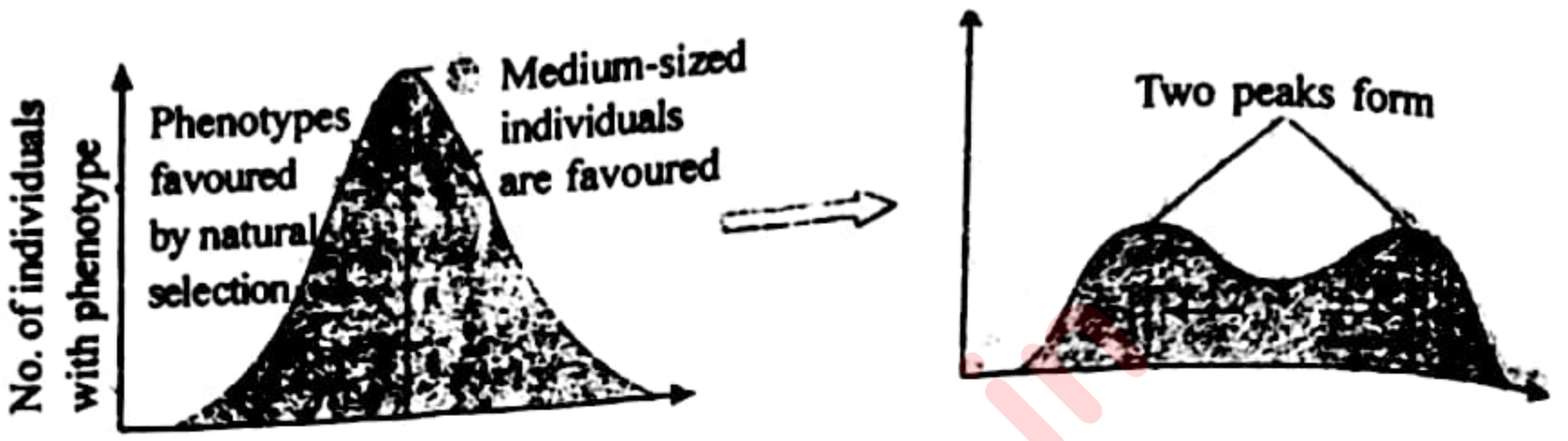
(B) Two antipodal cells + One male gamate

(C) Two synergids + One male gamate

(D) Egg cell + Two male gamates

(Space for Rough Work)

22) The diagram given below represent the operation of natural selection on different trails. Choose the correct option.



(A) Disruptive
(B) Directional
(C) Stabilising
(D) Stabilising & Directional Both

23) This defines the 'Operon'.
(A) Arrangement of operator + regulatory gene
(B) Arrangement of structural gene + operator + regulatory gene
(C) Arrangement of structural gene + regulatory gene
(D) Arrangement of structural gene + promoter + regulatory gene

24) In a microsporangium, which layer is generally having more than one nucleus?
(A) Tapetum
(B) Middle layers
(C) Endothecium
(D) Epidermis

25) Choose the correct sequence of transport at sperms in human from seminiferous tubules is :
(A) Vasa efferentia → Rete testis → Epididymis → Vas deferens
(B) Rete testis → Epididymis → Vasa efferentia → Vas deferens
(C) Rete testis → Vasa efferentia → Epididymis → Vas deferens
(D) Vas deferens → Vasa efferentia → Epididymis → Rete testis

(Space for Rough Work)

26) These hormones are produced in women during pregnancy only:

(A) hCG, progestogens & relaxin

(B) hCG, hPL & relaxin

(C) hPL, estrogen & relaxin

(D) progestogens, estrogens & relaxin

27) During Human fertilisation, this induces changes and acts as a barrier and ensure that only one sperm can enter and fertilise the ovum.

(A) Perivitelline space

(B) Zona pellucida

(C) Corona radiata

(D) Cytoplasm of the ovum

28) In females, MTP's are considered relatively safe during _____ weeks of pregnancy.

(A) 30 to 36

(B) 12 to 24

(C) 16 to 28

(D) 11 to 22

29) Choose the correct option which can be used by the females as injections or implants under the skin for emergency contraceptive from the following :

(i) progestogens

(ii) progestogen + estrogen combinations

(iii) estrogen

(iv) progestasert

(A) (i) & (ii)

(B) (ii) & (iii)

(C) (i) & (iv)

(D) (i) & (iii)

30) 'Sex-determination' in Humans is identified by :

(A) Somatic cell → autosomes

(B) Germ cell → sex chromosome

(C) Germ cell → autosomes

(D) Somatic cell → sex chromosomes

(Space for Rough Work)

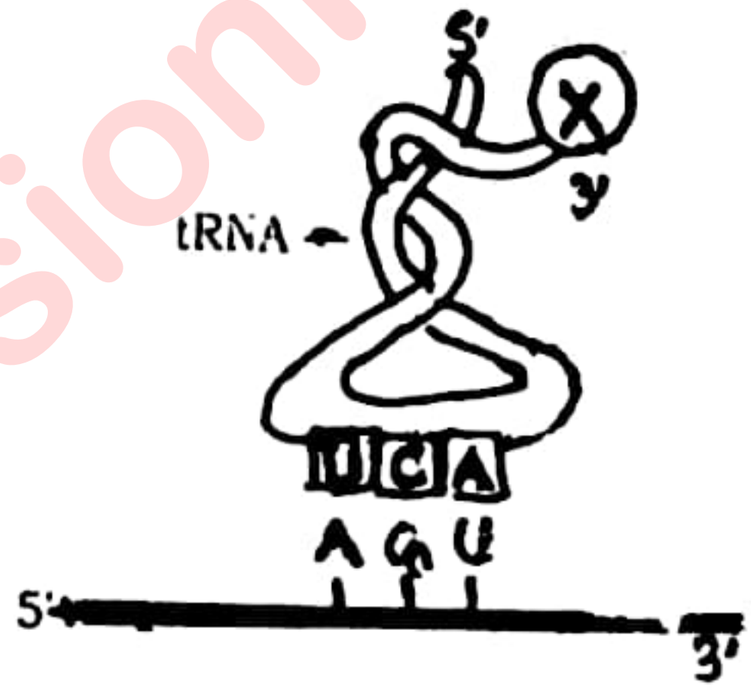
31) In Turner's Syndrome, during cell division, which type of Aneuploidy is seen?

(A) (2n + 2)
(B) (2n – 1)
(C) (2n + 1)
(D) (2n – 2)

32) A cross was made by Mendel with pea plant between violet flower (VV) in axial position (AA) and white flower (vv) in terminal position (aa). What ratio of white flowers (vv) phenotypically he had received in F_2 generation?

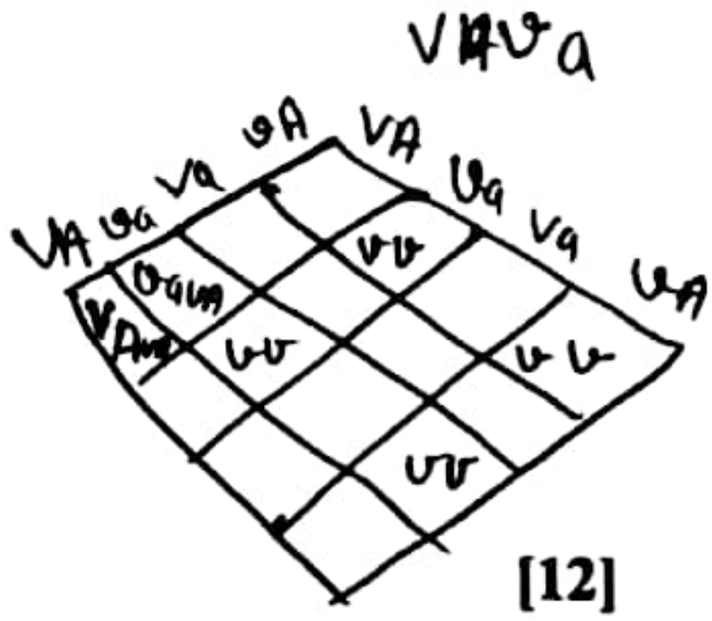
(A) 4
(B) 3
(C) 9
(D) 1

33) In the given figure below, what does the 'X' represents?



(A) Glycine (Gly)
(B) Tyrosine (Tyr)
(C) Valine (Val)
(D) Serine (Ser)

(Space for Rough Work)



(i) The Codon is read in t RNA in a contaguous fashion. There is no punctuations.
(ii) Some amino acids are coded by more than one codon.
(iii) UUU would code for phenylalanine.
(iv) GAA is a stop terminator codon.

Comparing the above statements (i - iv) select the correct option marked with T(True) & F(False) w.r.t. salient features of genetic code.

(A) FTTF
(B) FFTF
(C) TTFF
(D) FT FT

35) From 15 mya to 40,000 years back, what will be the correct series of indication in evolution of man?

(A) Australopithecines → Homo erectus → Ramapithecus → Neanderthal
(B) Ramapithecus → Homo erectus → Australopithecines → Neanderthal
(C) Australopithecines → Ramapithecus → Homo erectus → Neanderthal
(D) Ramapithecus → Australopithecines → Homo erectus → Neanderthal

36) In the life cycle of plasmodium sporozoites _____ undergoes asexual reproduction in which cells?

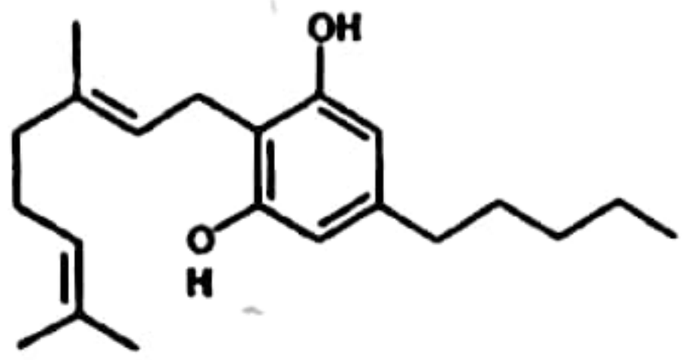
(A) Intestinal cells & R.B.C.
(B) Liver cells & R.B.C.
(C) Liver cells & W.B.C.
(D) Salivary glands & W.B.C.

37) This is the correct statement for IgE.

(A) Inhibits the secretion of histamine and serotonin from mast cells
(B) Doesnot stimulate B cells
(C) Giving immune response to allergens
(D) This antibody is received from the mother to the foetus through placenta during pregnancy

(Space for Rough Work)

38) Identify the plant, from where a chemical is extracted whose skeletal structure is given below.



(A) Saccharum officinarum

(B) Papaver somniferum

(C) Cannabis sativa

(D) Eichhornia crassipes

39) Choose the correct option, which is not true for 'inbreeding depression.

(A) In breeding refers to the mating of more closely related individuals within the same breed for 4-6 generations which lead to 'inbreeding depression'

(B) It increases homozygosity

(C) Close inbreeding reduces fertility and productivity

(D) It is a practice of mating animals within the same breed but having no common ancestors on either side of their pedigree up to 4-6 generations.

40) From IR-8 and Taichung Native - I, which variety of semi-dwarf crop was derived?

(A) Sugarcane

(B) Rice

(C) Wheat

(D) Maize

(Space for Rough Work)