SAMPLE QUESTION PAPER -5

CLASS - 12

BIOLOGY

Maximum Marks: 70

SECTION - A Q.6. The first antibiotic was discovered accidently by

General Instructions: Same as in Sample Question Paper- 1

Time Allowed: 3 hours

- Q.1. In E. coli, the lac operon gets switched on when:

 (a) lactose is present and it binds to the
- Q.2. The correct surgical procedure as a contraceptive repressor binds to operator RNA polymerase binds to the operator lactose is present and it binds to RNA polymerase

Q.7. Golden rice is

(a) a variety of rice grown along the yellow river

(a) A-Waksman, B-Streptococcus
(b) A-Fleming, B-Penicillium noto
(c) A-Waksman, B-Bacillus brevis
(d) A-Fleming, B-Staphylococci

A-Fleming; B-Penicillium notatum

A-Waksman; B-Bacillus brevis A-Waksman; B-Streptococcus A while working on B.

- (a) ovariectomy(c) vasectomy (b) hysterectomy(d) castration
- Q.3. Match the following columns

Services are ronowing continuity	Treatment of the state of the s	(c) a nansgene rice naving gene for carotene
Column-I	Column-II	(d) wild variety of rice with yellow coloured grains.
A. Government of India 1, 1951	1. 1951	Q.8. Which one of the following symbols and its
legalised MTP		representation, used in human pedigree analysis
B. Family planning 2, 1971	2. 1971	is correct.
introduced		(a) \Rightarrow = male affect
C. Lactational amenorrhea	Natural contraceptive	••••••••••••••••••••••••••••••••••••••
D. IUD	4. Progesterone	(b) = mating between relatives
E. Pill	5. Cu-T	(c) $=$ unaffected male
		(

(a) <u>O</u> B

a transgenic rice having gene for carotene

long stored rice having yellow colour tint

) 1 2 3 4 5) 2 1 3 5 4	. IUD . Pill	4. Progesterone 5. Cu-T	",
B C D 1 3 4	les:		
,		U 4 r.	

- <u>©</u> © © © Q
- the reproductive success of the members of a population the struggle for existence
- (d) a change in the proportion of variation within a population
- Appearance of dry scaly lesions with itching on various parts of body are the symptoms ot :

Q.5.

- (b) ringworm
- (a) elephantiasis
- ascariasis (d) amoebiasis

- The best description of natural selection is:
 (a) the survival of the fittest
 (b) the struggle for existence <u>c</u>

Q.9. Population was termed as self-perpetuating unit

(b) (0) 6 <u>a</u>

= unaffected female = unaffected male

- Q.10.

(c) Mobius (a) Malthus

(d) Odum (b) Spencer

- Identify the parts labelled as A, B, C and D : (a) Head, Neck, Collar, Tail
- 6 Capsule, Tail,
- (c) Head, Collar, Head, Tail, Tail, Plate Collar, Pins
- Collar, Pronge

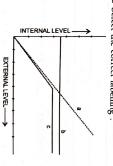
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the one which supports. In which ecosystem is such a pyramid found?

a

- Q.11. World summit on sustainable development of 2002 was held in: (a) South Africa (b) Sweden
- (c) Argentina (d) Brazil
- Q.12. Select the correct labelling:



- (a) a-partial regulators, b-conformers,
- (b) a-regulators, b-partial regulators, c-conformers
- (c) a-conformers, b-regulators, c-partial
- (d) a-conformers, b-partial regulators, regulators c-regulators

selecting the appropriate option given below: Assertion (A) and Reason (R). Answer these questions Question No. 13 to 16 consist of two statements -

- (a) Both A and R are true and R is the correct (b) Both A and R are true and R is not the correct explanation of A.
- (c) A is true but R is false
- Q.13. Assertion: Sporopollenin of pollen grains comes (d) A is false but R is true.

synthesis of sporopollenin Reason: Tapetal cells release enzymes for from tapetal cells.

Q.14. Assertion: Cross of F₁ individual with recessive homozygous parent is a test cross. the monohybrid test cross progeny. Reason: No recessive individual are obtained in

Q.15. Assertion: Interferons are effective against

viruses only by genetic engineering are effective against Reason : Proteins which can be synthesized

Q.16. Assertion: The rate at which a population can stable neither growing nor shrinking. characteristic of a country whose population is Reason: A triangular population pyramid is be expected to grow in the future can be assessed graphically by means of a population pyramid.

SECTION - B

Q.17. Name the stage of the human embryo that gets implanted in the uterus and draw its labelled Q.20. (a) Identify (A) and (B) illustrations in the

following:

5'-G A-3'

Q.18. In peas, tallness is dominant over dwarfness, and obtained in the progeny in numbers mentioned was pollinated by a dwarf plant bearing white colour. When a tall plant bearing red flowers red colour of flowers is dominant over the white against them. flowers, the different phenotypic groups were

(i) 3'-CTTAAG-5'

Tall, White = 132Dwarf, Red = 136Dwarf, White = 128 Γ all, Red = 138

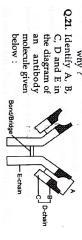
Mention the genotypes of the two parents and of the types of four offspring.

Q.19. In a pyramid of biomass drawn below, name the

 $\Xi\Xi$ one which is supported and S

(b) Write Ξ

the term given to (A) and (C) and



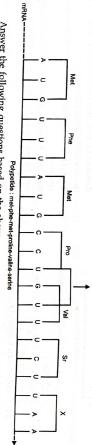
Identify A, B, C and D in the given table below:

Q

Erythroxylum coca	Cannabis sativa	i upuver somnijerum	Danger Council	Scientific name of the source plant	
С	Cannabinoids	Α	(Drug	
D	В	Depressant/slows body function		Harmful effects/Human body part affected	

SECTION - C

Q.22. A hypothetical mRNA is shown below. Read the sequence of nucleotides in it and the sequence of amino acids in the polypeptide translated by it.



Answer the following questions based on the above :

- Write the sequence of nucleotides in the template strand of DNA, alongwith its polarity, from which this mRNA has been transcribed.
- If the three nucleotides shown by the arrow in the above figure are deleted, what will be the sequence of amino acids in the new polypeptide translated?
- What is the significance of the last codon X in the mRNA shown? Name two other codons of the

 Ξ

Under the influence of which type of natural

- Q.23. Read the following statement and answer the questions that follow:
- 'A guava fruit has 200 viable seeds." What are viable seeds?

Write the total number of:

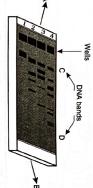
- (i) Pollen grains
 (ii) Gametes in producing 200 viable guava
- C Prepare a flowchart to depict the postpollination events leading to viable-seed
- Q.24. It is a common observation that many insects / that these insects develop from the mud. the day next to heavy rains. Some people believe moths can be seen near light sources on the night, production in a flowering plant.
- above observations:
- (i) Do you agree with this belief?(ii) What is this theory of origin of life known
- hese insects from mud
- Q.26.
- Answer the following questions, based on the
- How will you explain, the development
- Q.25. Study the given figures (a) and (b) and answer the

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- (iii) Who suggested natural selection as a (E) What could be the likely reasons of new mechanism of evolution? selection would graph (a) become like graph variations arising in the population?
- (a) Differentiate between humoral and cellmediated immune response.
- 6 Why is a patient, who has undergone organ transplant put on immuno-suppressants?
- If there is a history of haemophilia in the family, the chances of male members becoming haemophilic are more than that of the female.
- (a) Why is it so?(b) Write the sym Write the symptoms of the disease.

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by him. Ravi was doing gel electrophoresis to purify the observations of the experiment performed DNA fragments. Given below is the sketch of



(b) Analyse the reason for different positions <u>a</u> Elaborate the step he would have followed taken up by the DNA bands. At which end he would have loaded the samples and where?



"Determination of Biological Oxygen Demand

to visualize DNA bands.

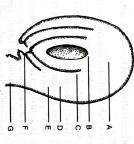
(BOD) can help in suggesting the quality of a

water body." Explain.

SECTION - D

Question No. 29 and 30 are case-based questions. Each has 3 subparts with internal choice in one subpart.

Q.29. One or more ovule (s) arise (s) from the placenta, the diagram and answer the questions that follow: ovule of an angiosperm is given below. Observe fertilisation it transforms into a seed, enclosed in the fruit. The diagram of a typical anatropous located in the ovarian cavity, called locule. After

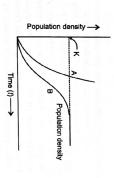


Give the technical term for the ovule.

E E

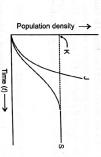
- Identify and name the part that : (i) attaches the ovule to the placenta.
- (ii) remains as perisperm in some seeds
- (iii) forms the testa of seed.
- Identify and name the part that:
 (i) represents the basal part of the ovule.
- (iii) is the junction between the body of the (ii) represents the female gametophyte. ovule and its stalk.
- (c) Trace the origin of C in the ovule.

Q.30. Study the population growth curve given below and answer the questions that follow:



- Identify 'A' shown in the graph
- (a) Identify 'A' shown in the graph.(b) Identify 'B' shown in the graph.(c) When and why do such curves occur in a
- population?

graph shown below: herbivorous mammals was taken and plotted as a A forest hardly has any carnivores. Census of 9



growth of herbivores. Give reasons for your Identify the curve that will explain the population answer.

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SECTION - E

" hydroxyl

(b) Identify A, B, C and D in the table given below: Name the linkages X, Y, Z and the respective molecules formed by them.

S. No.	Component-I	Component-II	Chamical linkage handing	Product
			the two components	Tionner
(i)	Α	Pentose sugar	В	Nucleoside
(ii)	Nucleoside	Phosphate	C	Nucleotide
(iii)	Nucleotide	Nucleotide	D	Dinucleotide
			And the second s	

<u>a</u> Differentiate between spermatogenesis and oogenesis on the basis of: time of initiation of the process

Name the hormones and state their role involved in controlling spermatogenesis in humans (i) time of initiation of the process (ii) site of completion or (iii) nature of meiotic division undergone by gamete mother cells (ii) site of completion of the process

Q.32. One day Anil went to his home town where he saw some farmers who were spraying the farmers to stop spraying these chemicals agrochemical in their fields. He requested Ravi's father consoled him and advised him to grow Bt cotton in his fields. the insects attacks and he has been suffering heavy

Now, answer the following questions:

(i) What is Bt cotton?

(ii) Name the bacterium which is used for developing Bt cotton.

Q.33. (iii) How Bt cotton has been developed?(a) Draw a sectional view of a seminiferous *(b)* spermatogonia and Leydig cell on it and write their functions tubule of human. Label sertoli cell

for female

Implant

for female Implant Condom Condon

Explain the role of pituitary and sex hormones in the process of spermatogenesis.

(a) Describe in sequence the process of microsporogenesis in angiosperms.

father asked the reason of his poverty. His friend told him that his land is suitable for growing

cotton but every year his crop gets distroyed by

meet his old friend, after long time. He found that

his big landlord friend became very poor. Ravi's Ravi's father is a biotechnologist. Once his father (iii) Why biofertilizers are preferred to chemical (ii) What did Anil explained to the farmers? Now, answer the following questions:

(i) What are these chemicals?

and explained them the side effects of such

(b) Draw a median longitudinal section of human estis, show the different intra-testicular

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Note: Solution of this paper will be available on 15th November 2023

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SAMPLE QUESTION PAPER - 6

CLASS - 12

BIOLOGY

Time Allowed: 3 hours

General Instructions: Same as in Sample Question Paper-1

Maximum Marks: 70

SECTION - A

Q.6. AIDS is widely diagnosed by :

Q.1. If the base sequence of a codon in mRNA is 5' - AUG - 3' the sequence of tRNA pairing with it must be:

(a) 5' - UAC - 3' 9 5' - CAU - 3'

Q.7.

(c) PC

(a) Widal test

(b) ELISA (d) Chromatography

'Restriction' in Restriction enzyme refers to :

by the enzyme

Q.2. In which of the following weeks of pregnancy (c) 5' - AUG - 3' (d) 5' - GUA - 3'

CVS is done? (b) 8th -510th week

Q.3. Identify the figures of the contraceptive given below and select the correct option. (c) 5th - 7th week (d) None of these

Q.8. Study the pedigree given below and select the

(d) all of these

phage in bacteria

(c) prevention of the multiplication of bacterio-(b) cutting of DNA at specific position only (a) cleaving of phosphodiester bond in DNA

that follows this pattern of inheritance probable mode of inheritance and a human trait



















Condom Condom Condom for male for male

- Autosomal recessive, sickle cell anaemia
- Sex linked recessive, Haemophilia Autosomal dominant, Myotonic dystrophy

Population dynamics is related to: Sex linked dominant, colour blindness

- increase in population
- decrease in population

Q.5. Which of following cells produce antibodies

(d) four O'clock plant

evening primrose

0.9

(c) T-lymphocytes (a) B-lymphocytes

(d) None of these

(b) Mast cells

Q.4. Hugo de Vries proposed the mutation theory of

organic evolution after his experiments on :

(a) garden pea

٥ c ত্ত a

Implant CuI CuT

CuT

for female for female Condom

for male Condom for male Condom

change in population

all of these

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