ASN Senior Secondary School

PRE BOARD EXAMINATION 2019- 20

SUBJECT- BIOLOGY **TIME 3 Hrs.**

CLASS -XII **MM-70**

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General Instructions:-

- *All questions are compulsory.*
- *The question paper consists of five sections A, B,C D and E . Section A contains **5** question of multiple choice of **1 mark each**. Section B is of **7** questions of **2 marks each**. Section C has **9** questions of **3 marks each, Section D** contains3 case-based questions whereas Section E is of **3** questions of **5 marks each**.*
- *There is no overall choice. However, an internal choice has been provided in two questions of 1 mark each, one question of2 marks and two questions of 3 marks and all three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.*
- *Wherever necessary, the diagrams drawn should be neat and proper*

SECTION A

Q1 The major functions of an ecosystem include

I Productivity II Decomposition III Energy flow IV Nutrient flow

Choose the correct option

a) I,II and III b) II,III and IV c) II,III and IV d) I,II, III and IV

Q2 In the plasmid pBR322 which is the most important feature to be used as a vector?

a) Origin of replication (ori) c) Presence of a selectable marker
b) Presence of sites for restriction endonuclease d) Its size

Q3 Which of the following hormones is secreted by the human placenta?

a) HCG b) Oestrogen c) Progesterone d) Androgens

OR

Q3 The Vas deferens receives duct from the seminal vesicle and opens into the urethra as

a)Epididymis b) Ejaculatory duct c) Efferent ductile d) Ureter

Q4 The genotype of a person with Turner's syndrome will be

a)44+XXY b)44+XYY c)44+XXYY d)44+XO

Q5 Control of gene expression takes place at the level of

a)Transcription b)Translation c)Replication d)Duplication

OR

Q5 The amino acid attaches to the tRNA at its

a)5'end b)3'end c)Anti-codon loop d)DHU loop

SECTION B

Q6 The female fruitfly and the male fowl are homogametic while the male fruitfly and female fowl are heterogametic, suggest why are they called so?

Q7 What do you mean by the term "standing crop" in an ecosystem? Draw a pyramid of biomass where a small standing crop of phytoplanktons supports a large standing crop of zooplanktons in the sea.

Q8 Show the replication of HIV in human cell with the help of diagram only.

Q9a) What is interspecific hybridization?

b)What is MOET? When is it used ?

OR

Q9 Highlight any two limitations that are faced by breeders during plant hybridization programmes.

Q10 Differentiate between Microsporogenesis and Megasporogenesis?

Q11 Define and explain the natural phenomenon that occurs due to the accumulation of DDT at successive trophic levels.

Q12Alien species are known to be highly invasive and are considered a threat to the indigenous species of an area. Explain with two examples.

SECTION C

Q13Insulin extracted from the pancreas of slaughtered pigs and cattle was helpful in treating diabetes, then why was there a need to develop genetically engineered insulin? How is the genetically engineered insulin produced?

Q14 How do organisms cope up with stressful external environmental conditions, which are localized or for very short duration?

OR

Give any three adaptive features of plants and animals found in arid (desert) areas.

Q15 Diagrammatically trace the life-cycle of the malarial parasite.

OR

Q15 a)Draw structure of an antibody molecule.

b)What are various barriers of innate immunity ? Explain.

Q16i)Study the table given below and identify A, B and C

Microbe	Product of human welfare
A	Bread, cakes, wines, beer etc.
B	Swiss cheese
Aspergillus niger	C

ii) Name one drug and mention the source from which it is obtained along with its effect on the body.

Q17 Eco RI is used to cut a segment of foreign DNA and that of the vector DNA to form recombinant DNA. Show the following with the help of schematic diagrams.

i)The site at which Eco RI will act and cut both the segments.

ii)Sticky ends formed on both the segments where the two DNA segments will join later to form a recombinant DNA.

iii) What is palindromic sequence?

Q18 a)How is the use of "Himgiri" variety of wheat helpful in increasing the yield?

b) A banana herb is virus infected. Describe the method that will help in obtaining healthy banana plants from diseased plant.

Q19a) Explain the following

i) Juvenile Phase ii)Reproductive phase

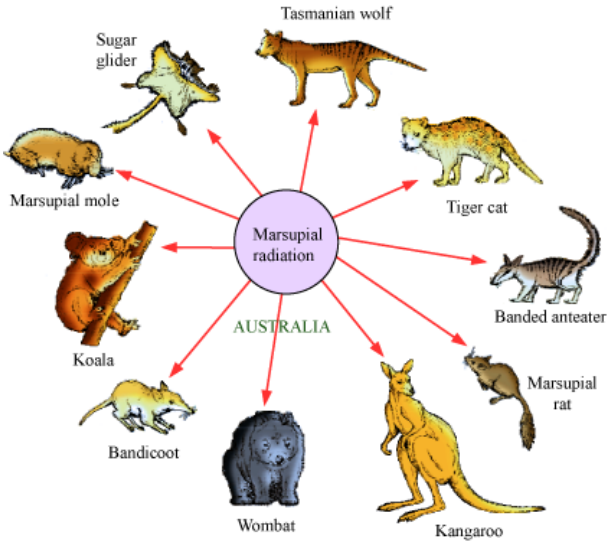
b)Explain the hormonal regulation of gametogenesis in human male.

Q20 A man with a colour blind father marries a woman who had a colour blind mother and normal father. What percentage of male children conceived by this couple will be colour blind ?

Q21 A paternity dispute case for a child has reached the court for which there is no definitive evidence. Propose and explain an alternative method which can settle this dispute .

SECTION D

Q22 Study the picture given below and answer the following questions

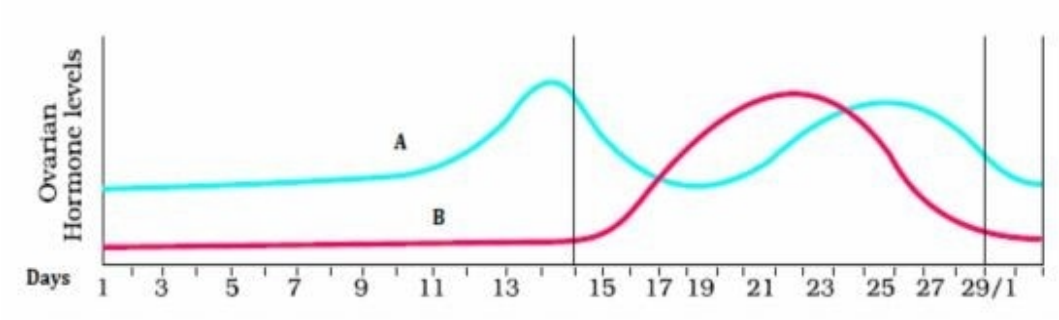


i) Mention the specific geographical region where these organisms are found.

ii) Name and explain the phenomenon that has resulted in the evolution of such diverse species in the region.

iii) Explain giving reasons the existence of placental wolf and Tasmanian wolf sharing the similar habitat.

23 The graph given below highlights the variations occurring in the levelsof ovarian hormonesdyring various phases of the menstrual cycle.



i) Indicate the source of the hormones marked as A and B in grap

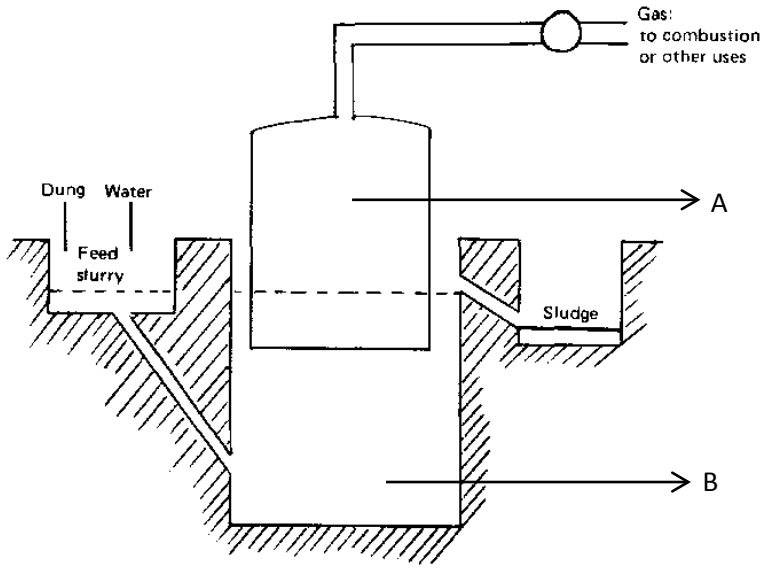
ii) Explain why A peaks before B.

iii) Compare the roles of A and B in menstrual cycle.

24 The biogas plant shown below is used in rural areas for the production of biogas.

i)Observe the figure and label the different parts marked as A and B.

ii)Explain the working of a biogas plant.



SECTION E

Q25a) Draw the double helical structure of DNA as hypothesized by Watson and Crick.

b)Explain the experimental proof of semi-conservative mode of replication given by Meselson and Stahl.

OR

Q25 a)In a monohybrid cross between homozygous parents, where the trait for red colour in flowers is dominant over white colour, the F2- generation shows identical genotype and phenotype ratios. What does this tell you about the nature of alleles involved? Justify your answer.

b)Explain Pleiotropy with help of an example.

Q26 a) Explain the process of Hydrarch succession.

b)What is the significance of predation in nature?

OR

Q26 a) What are the types of growth models used to predict population growth? Draw their respective growth curves with equations. Which growth model is more realistic and why?

b)“Ecosystem services are the products of ecosystem processes” . Comment

Q27 a)Draw a well-labelled diagram of the longitudinal section of an albuminous seed.

b)Comment on the following statements giving reason

i)Cut pieces of a Bryophyllum when put into wet soil produce new plants.

ii)In the whiptail lizards, only females are born generation after generation.

iii)Fertilisation in Bryophytes/ Pteridophytes is considered as internal fertilization.

OR

Q27 a)Male and female gametes in human beings differ from each other in terms of both structure and function. Enumerate some major differences between the two, along with their diagrams.

b)Though each pollen grain has two male gametes, atleast 10pollen grains (not 5) are required to fertilise 10 ovules present in a particular carpel. Explain.

c) Draw a well-labelled diagram of blastula.