INDIAN SCHOOL AL MAABELA

(ISO 9001:2015 CERTIFIED INSTITUTION)
QUESTION BANK- 2019-20
BIOLOGY-Organisms and populations
CLASS: XII

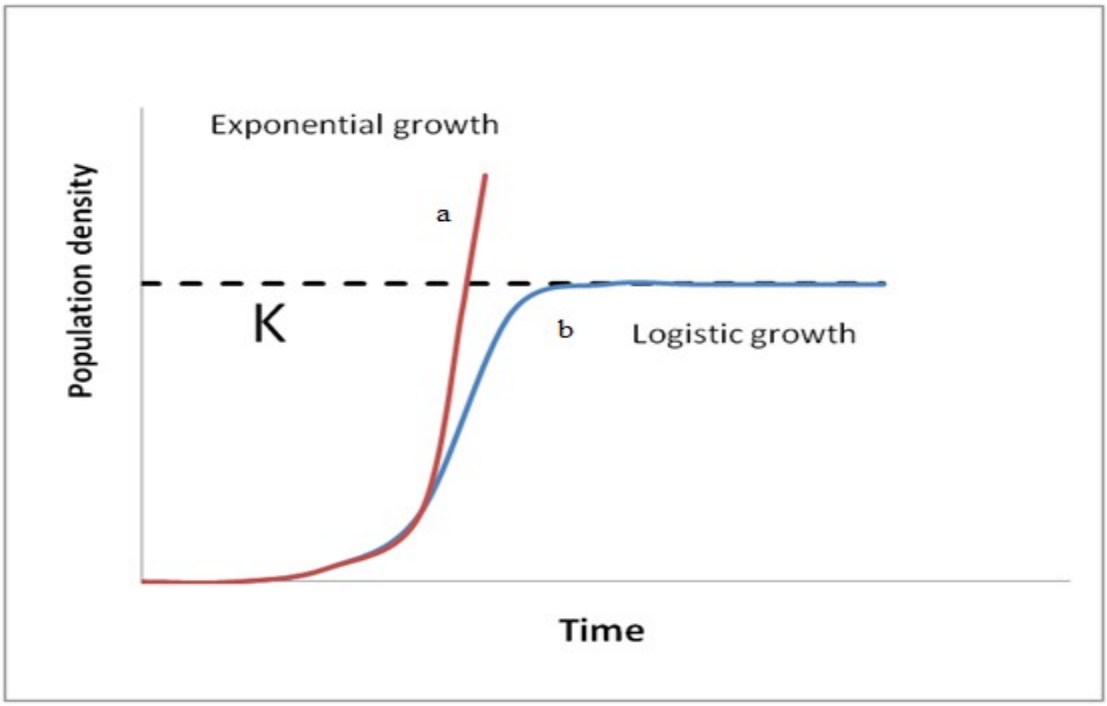
ISAM/FR/SEC/QB/02

I. Answer the following:

1.	What is symbiosis?	1
2.	Define population.	1
3.	Define predation	1
4.	Name 4 levels of biological organisation in ecology	1
5.	The pattern of ecosystem in which the density and distribution of species vary along a horizontal gradient is called ----------.	
6.	Define leaching	1
7	What is ecological niche?	1
8	Define biome	1
9	What is carrying capacity?	1
10	Define mutualism.	1
11	Define natality.	1
12	What is commensalism?Give examples.	1
13	What is population density?	1
14	Why is thermoregulation more effectively achieved in larger animals than in smaller ones?	1
15	When and why do some animals like snails go into aestivation?	1
16	When and why do some animals like frogs hibernate?	1
17	Cows and dogs are eurythermal animals .Why are polar bears categorised as stenothermal animals?Give reasons	1
18	What do phytophagous insects feed on?	1
19	What is an interaction called when an orchid grows on a mango plant?	1
20	Give an example of an organism that enters diapause and why?	1
22	State Gause's competitive exclusion principle.	1
23	Explain the terms a)Mutualism b)Biotic community	2
24	Define a)Mimicry b)Ectotherms	2

25	Distinguish between between habitat and niche	2
26	Distinguish between natality and mortality	2
27	What is emigration?	2
28	What is Allen's rule?	2
29	Why have conformers not evolved to become regulators	2
30	Write a short note on allelopathy and antibiosis	2
31	How desert plants are adapted to the dry conditions?	2
32	Which one out of the eurythermal or stenothermal species is likely to survive increased global temperature?Give reason	2
33	Name the interaction in each of the following a)Cukoo lays her eggs in the crow's nest b)Ticks live on the skin of dogs c)Sea anemone is found on the shell of hermit crab. d)Ascaris worms living in the intestine of human e)Wasp pollinating fig inflorescence f)Clown fish living among the tentacles of sea anemone	2
34	What is "r" in the population equation dN/dt = rN.How does the increase in the value of 'r' affect the population size?	2
35	A moss plant is unable to complete its life cycle in a dry environment.State two reasons	2
36	Many fresh water animals cannot live in marine environment.Why?	2
37	How do organisms cope with the stressful external environmental conditionswhich are localised or of short duration?	3
38	What is ecological niche ?What do you mean by competition – exclusion principle?	3
39	Give an account on different types of parasitism.	3
40	Analysis of age pyramids for human population can provide important inputs for long term plannning strategies.Explain	5
41	a)List the different attributes that a population has and not an individual organism. b)What is population density?Explain any 3 different ways the population density can be measured with the help of an example of each?	5
42	Describe various positive interactions amongst different species.	5
43	a)Write a note on population growth curve.	5
	b)Write any 3 characteristics of population.	5
44	Give importance and adaptation of light to the plants	5
45	With the help of a diagram ,describe logistic population growth curve.	5

46.



Study the population gowth curves in the graph given above and answer the questions

1.Identify the growth curves a and b.

2.Which one of them is considered a more realistic one and why?

3.If dN/dT=rN(K-N/K)is the equation of the logistic growth curve,What does K stand for?

4.What is the meaning of population density?

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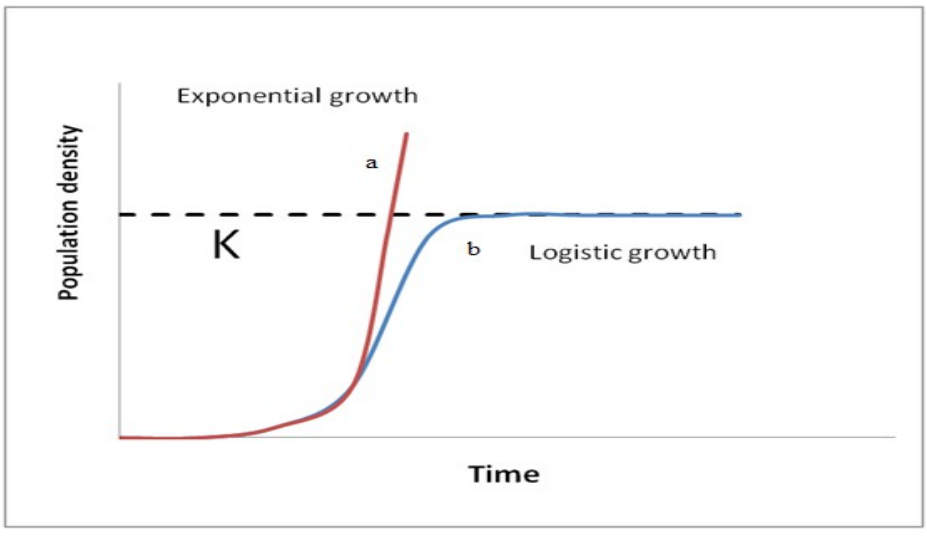

Study the population growth curve

i)Identify curves a and b

ii)Mention the conditions resposible for the curves a and b respectively

iii)Give the necessary equation for the curve b

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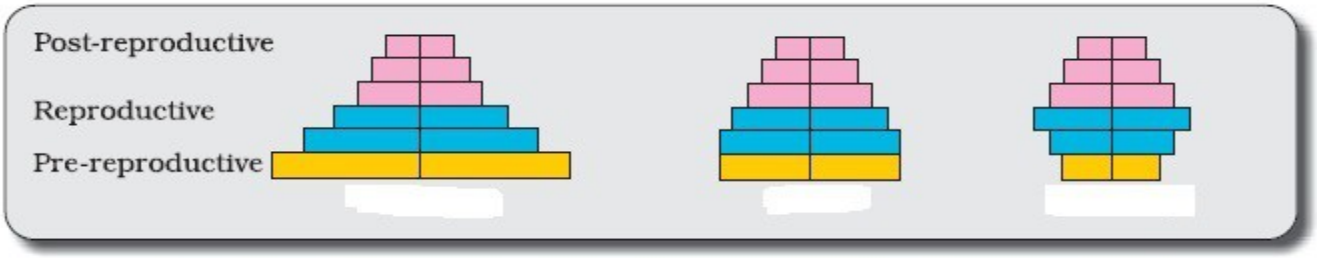

Representation of age pyramids for human population

1.Mention the names given to the 3 kinds of age profiles.

2.Which one of them is ideal for a population and why?

3.How do such age profile studies help policy makers get concerned about our growing population and prepare for future planing?

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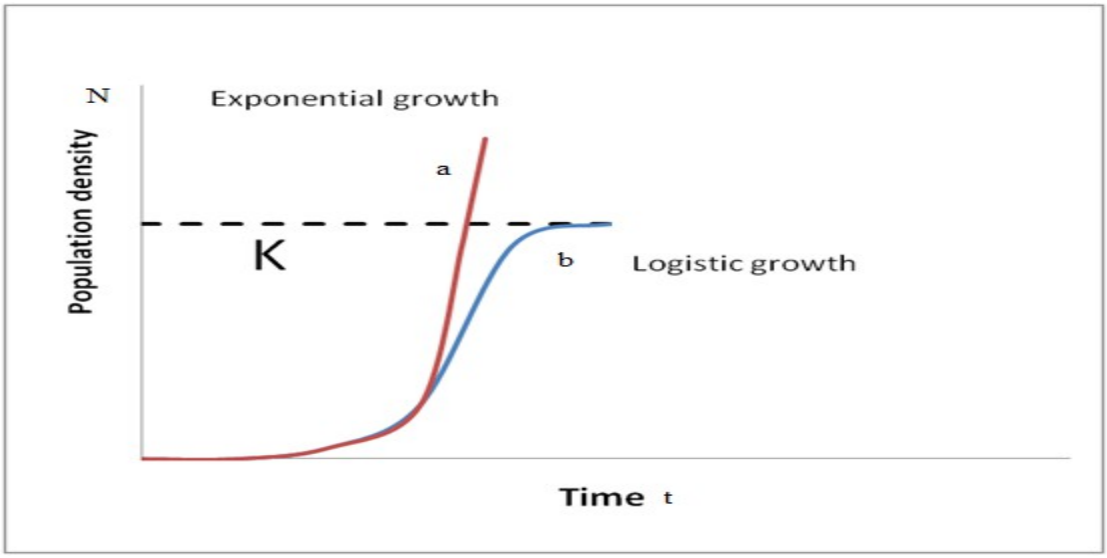

1.Write the status of food and space in the curves a and b

2.In the absence of predators which one of the two curves would appropriately depict the prey population?

3.Time has been shown on X axis and there is parallel dotted line above it.Give the significance of this line.

UNIT- REPRODUCTION- Reproduction in organisms and sexual reproduction in flowering plants

1.Eichhornia crassipes is regarded as a problematic aquatic weed.Explain 1

2.Why are the plants raised through micropropagation are called somaclones? 1

3.What are the advantages of tissue culture? 1

4A bilobed ,dithecous anther has 100 microspore mother cells per microsporangium.How many male gametophytes thisanther can produce? 1

3.Define Aril.

4.In a young anther, a group of compactly arranged homogenous cells were observed in the centre of each microsporangium. What is the name given to these cells? 1

5.Give the scientific name of a plant which came to India as a contaminant with imported wheat and causes pollen allergy. 1

6.Pollen grains of water pollinated species have a special characteristics for protection from water. What is that? 1

.Draw aschematic representation of hydra? 2

5.Draw the structure of gemmules in songe.

6.Draw a diagrammatic sketch of conidia formation in Penicillium 2

7.Mention the unique feature with respect to flowering and fruiting in bamboo species. 2

8. The number of chromosomes in the shoot tip cells of maize plant is 20. What will be the number of chromosomes in the gametes and microspore mother cells of the same plant? 2

9.Mention the site where syngamy takes place in amphibians and reptiles respectively. 2

10. List 2 main pre-fertilisation events. 2

11. Differentiate parthenogenesis and parthenocarpy 2.

12. Draw the embryo sac of a flowering plants and label : 5

(a) (i) Central Cell (ii) Chalazal end (iii) Synergids

(b) Name the cell that develops into embryo sac and explain how this cell leads to formation of embryo sac.

(c) Mention the role played by various cells of embryo sac.

(d) Give the role of filiform apparatus.

13. Describe the structure of pollengrian 5

14.Draw a labelled diagram of V.S of maize grain. 5

15.Draw a labelled diagam of T.S of anther. 5

16. Write a note on the develoment of endosperm. Mention the types with examples. 5

17.Mention the economic significance of various special modes of reproduction. 5

18.Are pollination and fertilization necessary in apomixis?Mention the advantage of apomictic seeds to farmer. 5

UNIT REPRODUCTION(1 mark questions)

1.Where would you look for coleoptile and coleorhiza?

2.A bilobed ,dithecous anther has 100 microspore mother cells per microsporangium.How many male gametophytes thisanther can produce?

3.Define Aril.

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5.Give the scientific name of a plant which came to India as a contaminant with imported wheat and causes pollen allergy.

6.Pollen grains of water pollinated species have a special characteristics for

protection from water. What is that?

7.Why are pollen grains produced in enormous quantity in Maize?

8.In same species of Asteraceae and grasses, seed are formed without fusion of gametes. Mention the scientific term for such form of reproduction.

9. Coconut palm is monoecious and date palm is dioecious.Why?

10.Meiocyte of an onion plant contains 32 chromosomes.Workout the number of chromosomes in endosperm.b)The human male and female bird, are heterogametic while human female and male bird are homogametic.Why?

11.a What are vegetative propagules?

b.What are the vegetative propagules in eichhornia, potato, onion, ginger, penicillium and sponge .

12. Name the plant which flowers once in 12 years.

13. What is sporulation?

14. What do you mean by the term uniparental?

15. Differentiate Zoospore from Zygote .

16. Explain why meiosis and embryogenesis are interlinked.

17. A moss plant produces a large number of antherozoids but a few egg cells. Why?

18. What is parthenogenesis? Give few examples from animals.

19. Amoeba is immortal. Explain.

20. What is a fruit, seed and embryo?

21. Mention the site where syngamy takes place in amphibians and reptiles respectively.

22. Technical term to denote unisexual condition .

23. Differentiate parthenogenesis and parthenocarpy.

26. Name 2 plant groups having haploid body.

27.Eichhornia crassipes is regarded as a problematic aquatic weed.Explain

28.Why are the plants raised through micropropagation are called somaclones?

29.What are the advantages of tissue culture?

Short anwer(2/3marks)

1.Draw the diagrammatic sketch of the sectional view of a typical anatropous ovule.

2.Differentiate between anemophilous and entomophilous flowers.

3.How does the pattern of Mediterranean orchid helps in pollination?

4.Give an account on significance of double fertilization.

5.Differentiate betweeen endospermic and non endospermic seed with examples.

6.Geitonogamous flowering plants are genetically autogamous but functionally cross pollinated.Justify.

7.Outer envelop of pollen grain made of a highly resistant substance. What is that substance? At which particular point the substance is not present?

8. Explain embryogenesis in plants .

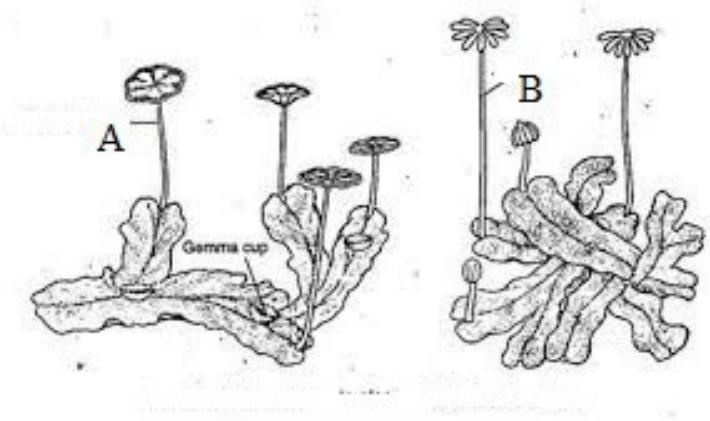
9. Explain embryogenesis in animals.

10. Explain the disadvantages of external fertilization .

11. Explain why meiosis and embryogenesis are interlinked.

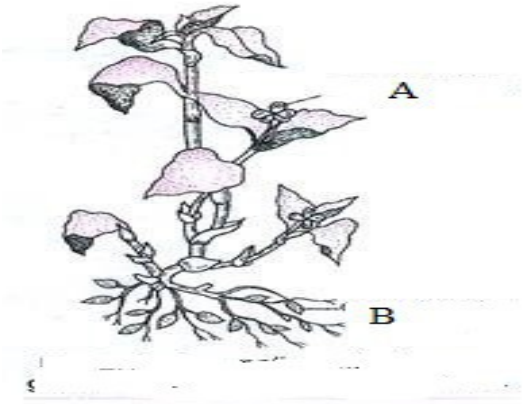
12. The number of chromosomes in the shoot tip cells of maize plant is 20. What will be the number of chromosomes in the gametes and microspore mother cells of the same plant?

13. Explain the events of sexual reproduction.

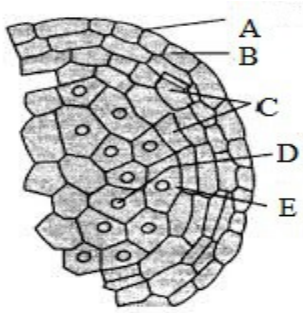


14.Label the parts and identify male and female thallus.

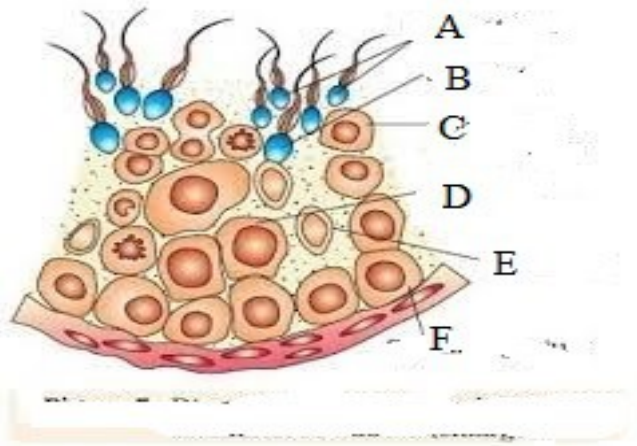
15.Label the parts.Write the function of the part labelled as “E”



16.Label the parts.



17.Label the parts



18.Draw the structure of gemmules in sponge.

19.Draw a diagrammatic sketch of conidia formation in Penicillium

20.Mention the unique feature with respect to flowering and fruiting in bamboo species.

21.Mention the site where syngamy takes place in amphibians and reptiles respectively.

Long answer (5Marks)(Diagrams)

1. Draw the embryo sac of a flowering plants and label :

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HUMAN HEALTH AND DISEASE

Very short answer (1 mark)

1. Suggest a molecular diagnostic procedure that detects HIV in a suspected AIDS patient.

2.In what way is monocyte a cellular barrier with reference to immunity?

3.How do cytokine barriers help in evading viral injections?

4.Thymus of a new born child was degenerating right from birh due to a genetic disorder. Predict its two impacts on the health of the child.

5.Why is colostrum a boon to the new born baby?

6.Name 2 types of cells which act as a cellular barrier to provide innate immunity in humans.

7.What is an auto immune response?

8.Why is Gambusia introduced into drains and ponds?

9. How does haemozoin affect the human bodyWhen realesed in blood during malarial infections?

10.When does a human body elicit an anamnestic response?

11.State the 2 roles of spleen in the human body?

12.How does Malaria differ from Chickungunia with reference to their vectors?

13.Retroviruses have no DNA.However the DNA of the infected host cell does possess the viral DNA.How is it possible?

Short answer (2 or 3 marks)

1.Name any two helminthes which are pathogenic to human.List two symptoms of diseases caused by any one of them.

2.Name any two secondary lymphoid organs in a human body and state the function of any one of them.

3.How are oncogenic viruses different from proto oncogenes?

4.Whaich organ of the human body is initially infected by Anopheles?Name the stage of the parasite that infects this organ.Explain the events that are responsible chill and high fever in the patient.

5.Name the cells HIV gains entry into after infecting the human body.Explains the events that occur in these cells.

6.Name the causative organism of the disease amoebiasis.List three symptoms.

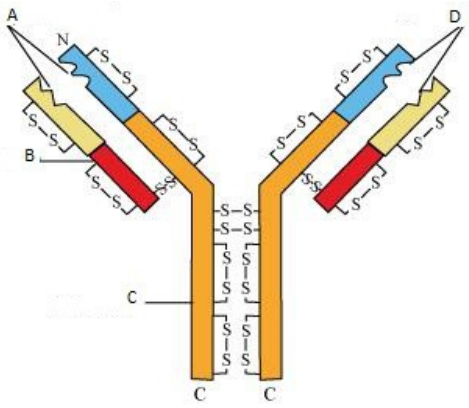
7.List the symptoms of ascariasis .How does a healthy person acquire this infection ?

8.Name the different types of cells that are responsible for producing acquired immune response in a human body.How do these cells respond when a pathogen enters the body?

9.Name two organisms responsible for ring worms in humans.Mention two diagnostic symptoms. Name the specific parts of the human body where these organisms thrive and explain Why?

10.How do interferons help us?Name the two types of immune systems in a human body.Why are cell mediated and humoralimmunities so called?

11.Label the parts.Name the different types of antibodies in humans.Which type of immunoglobulin is present in colostrum?Why breast feeding is recommended for infants?



Structure of an antibody molecule

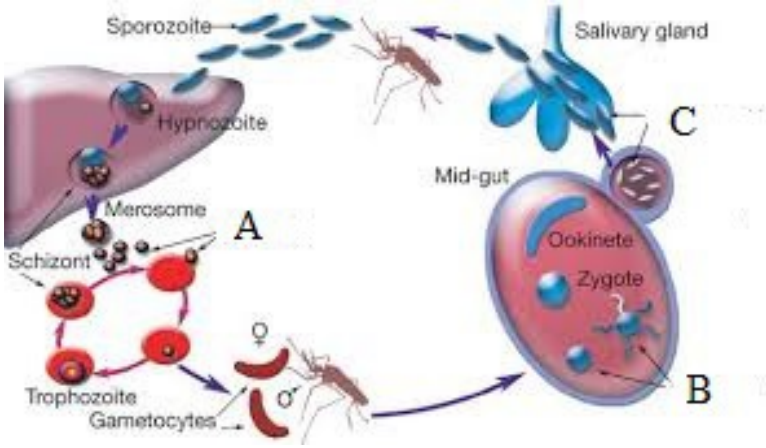
12.What is the functional difference between B cells and T cells?

13.Name the specific sites where the production of gametocytes and sporozoites takes place in the life cycle of plasmodium .

14.Name the causative pathogen of ascariasis.Explain the mode of transfer.

15.What makes some viruses cause cancer in humans?

16.Label the parts.



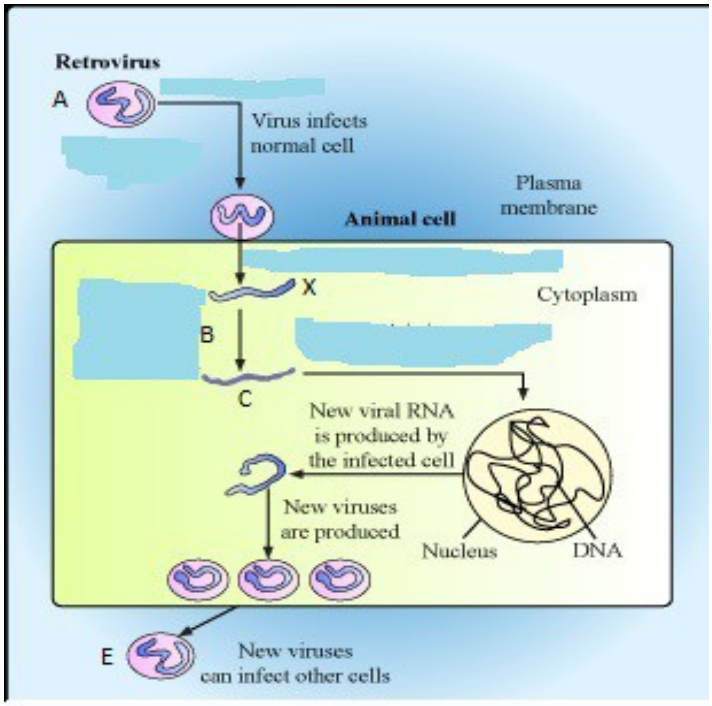
Long answer (5Marks)

1.Name and explain any 4 lymphoid organs present in humans.Categorise primary and secondary lymphoid organs.

2.Name the group of genes identified in cells responsible for cancer.Name 2 techniques used to identify cancer.Why are cancer patients often given interferons as a part of the treatment.

3.Explain the life cycle of plasmodium.

4.Observe the diagram and answer the following



1) Write the chemical nature of the coat A.

2) Name the enzyme B acting on X to produce molecule C.Name C.

3) Name the two different cells that the new virus E can attack.

4)What are the symptoms of HIV infection?