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**SECOND MID TERM TEST, NOVEMBER - 2019  
STANDARD - XII**

Time : 1.30 hrs

**BIOLOGY**

Marks: 50

Bio-Botany

Marks: 25

Part - A

I. Choose and write the answers with their right symbol to the following: 8×1=8

- 1) The value of PAR will be \_\_\_\_\_ during night.  
a) 2000-3000 m.m/s.m/s      b) 0-3000 m.m/s.m/s      c) 0-(zero)      d) 400-700 nm
- 2) The graphical representation of the amount of organic material present at each successive trophic level in a pond ecosystem is the \_\_\_\_\_.  
a) Pyramid of number-upright      b) Pyramid of biomass -upright  
c) Pyramid of energy - upright      d) Pyramid biomass - inverted
- 3) Which of the following eco system has the highest primary productivity?  
a) Pond ecosystem      b) Lake ecosystem  
c) Grassland ecosystem      d) Forest ecosystem
- 4) This is the completely filtered UV radiation type by the atmospheric ozone layer.  
a) UV-a      b) UV-b      c) UV-B      d) UV-C
- 5) Which of the following would most likely help to slow down the greenhouse effect?  
a) Promoting the use of Public rather than Private transport.  
b) Converting tropical forests into grazing land for Cattle  
c) Ensuring that all excess paper packaging is buried to ashes.  
d) Redesigning landfill dumps to allow methane to be collected.
- 6) Here the Appiko movement was started  
a) Borepanthar-Gujarat      b) Mandal village - Chamali district  
c) Gubbi Gadde Village - Uttar Karnataka      d) None of the above
- 7) Which of the following crop plant does not contain the gene for the semi dwarfness character?  
a) TN-1      b) Norin-10      c) Jaya      d) Ratna
- 8) The quickest method of plant breeding is  
a) introduction b) Selection      c) Hybridization      d) Mutational breeding

Part - B

II. Answer any three questions to the following:- 3×2=6

- 9) Differentiate food chain and food web.
- 10) What is called plant succession?
- 11) What is called ozone depletion?
- 12) What is called acclimatization?

Part - C

III. Answer any three questions only. Q.No.14 is compulsory to answer:- 2×3=6

- 13) Write a short note on the exemplary law to the second law of thermodynamics.
- 14) Write the preventive methods of global warming.
- 15) What is Chipko movement? Write any two its main features.
- 16) Write the objective of plant breeding.

Part - D

IV. Answer in detail to the following:- 1×5=5

- 17) Tabulate the differences between the primary and secondary plant succession. [or]  
Describe the types of hybridization.

N

NAMAKKAL (COT)

2 XII - Biology

Bio-Zoology

Marks: 25

I. Choose the correct answer:

5×1=5

- 1) The most common substrate used in distilleries for the production of Ethanol is
  - a) Soya meal
  - b) Ground gram
  - c) Molasses
  - d) Corn meal
- 2) Identify the mismatch pair
  - a) Humulin - E.Coli
  - b) Interferon - Saccharomyces Cervisiae
  - c) ELISA - HIV
  - d) PCR-Technique - RNA Amplification
- 3) Animals that can move from fresh water to sea called as
  - a) Stenothermal
  - b) Eurythermal
  - c) Catadromous
  - d) Anadromous
- 4) Match the following:-
 

Interaction	Results of Interactions
A) Mutualism	m) one harmed, other unaffected
B) Commensalism	n) only one species is benefitted
C) Parasitism	o) one benefitted, other neither harmed nor benefitted
D) Amensalism	p) both lose
	q) both beneficial

  - a) A-q, B-o, C-n, D-m
  - b) A-p, B-o, C-m, D-n
  - c) A-m, B-p, C-q, D-o
  - d) A-o, B-n, C-p, D-q
- 5) Assertion and Reason
 

Assertion (A):- Interferon are effective against viruses.

Reason (R):- Proteins which can be synthesized only by genetic engineering are

  - a) If both A and R are true, R is correct explanation of A
  - b) If both A and R are true, R is not correct explanation of A.
  - c) Both A and R are false.
  - d) A is true, R is false

II. Answer any three of the following, 8th Question is compulsory:

3×2=6

- 6) What are transgenic animals? Give example?
- 7) What are DNA Vaccines?
- 8) Define - Allen's rule.
- 9) Define the term In-situ and Ex-situ bioremediation.
- 10) What is the Biological Oxygen Demand (BDO)?

III. Write any three of the following, 14th Question is compulsory:-

3×3=9

- 11) What are the uses of Polymerase Chain Reaction. (PCR)?
- 12) Differentiate between 'J' Growth curve and 'S' Growth Curve.
- 13) Give the diagnostic characteristic feature of 'Biome'?
- 14) Give any two bioactive molecules produced by microbes and state their uses?
- 15) Draw the diagram of Embryonic stem cells.

IV. Write answer given below the questions:-

1×5=5

- 16) Difference between primary and secondary sewage treatment? [or]  
Explain what are the steps involved in the process of production of 'Dolly' by Cloning method?

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# SHRI KRISHNA ACADEMY

BOARD EXAM(10, +1, +2) NEET, AND JEE COACHING CENTRE  
SBM SCHOOL CAMPUS, TRICHY MAIN ROAD, NAMAKKAL

CELL: 99655-31727, 94432-31727

**II MID TERM TEST - NOVEMBER - 2019**

TENTATIVE ANSWER KEY

**STD: XII**

**DATE: 08.11.2019**

**SUBJECT: BIO-BOTANY**

**MARKS : 25**

Q. NO	SECTION - I	MARKS						
	<b>SECTION - I</b>	<b>1</b>						
1.	c) 0 - (Zero)	1						
2.	d) Pyramid biomass-inverted	1						
3.	d) Forest ecosystem	1						
4.	d) UV-C	1						
5.	d) Redesigning landfill dumps to allow methane to be collected	1						
6.	c) Gubbi gadde Village -Uttar Karnataka	1						
7.	b) Norin - 10	1						
8.	b) Selection	1						
	<b>Part -B</b>							
	<b>II. ANSWER ANY THREE QUESTIONS FROM THE FOLLOWING</b>	<b>3X2=6</b>						
9.	<p><b>Food Chain:</b></p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%;">Food Chain</th> <th style="width: 50%;">Food Web</th> </tr> </thead> <tbody> <tr> <td>The movement of energy from producers upto top carnivores is known as food chain</td> <td>The inter-locking pattern of a number of food chain form a web like arrangement called food web in an ecosystem.</td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>❖ Producers</li> <li>❖ Primary Consumers</li> <li>❖ Secondary Consumers</li> <li>❖ Tertiary Consumers</li> </ul> </td> <td>Eg. In a grazing food chain of a grass land, in the absence of a rabbit, a mouse may also eat food grains the mouse in turn may be eaten directly by a hawk or by a snake and the snake may be directly eaten by hawks.</td> </tr> </tbody> </table>	Food Chain	Food Web	The movement of energy from producers upto top carnivores is known as food chain	The inter-locking pattern of a number of food chain form a web like arrangement called food web in an ecosystem.	<ul style="list-style-type: none"> <li>❖ Producers</li> <li>❖ Primary Consumers</li> <li>❖ Secondary Consumers</li> <li>❖ Tertiary Consumers</li> </ul>	Eg. In a grazing food chain of a grass land, in the absence of a rabbit, a mouse may also eat food grains the mouse in turn may be eaten directly by a hawk or by a snake and the snake may be directly eaten by hawks.	1
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10.	Successive replacement of one type of plant community by the other of the same area/place is known as plant succession.	2						
11.	The ozone shield is being damaged by chemicals released on the Earth's surface notably the chlorofluorocarbons widely used in refrigeration, aerosols, chemicals used as cleaners in many industries. The decline in the thickness of the ozone layer over restricted area is called <b>Ozone hole</b> .	2						
12.	The newly introduced plant has to adapt itself to the new environment. This adjustment of the introduced plant in the changed environment is called acclimatization.	2						

<b>Part - C</b>		<b>2x3=6</b>																		
<b>III. Answer any 2 questions:</b>																				
13.	<p><b>The exemplary law to the second law of thermodynamics:</b></p> <p>This law was proposed by Lindeman (1942). It states that during transfer of food energy from one trophic level to other, only about 10% is stored at every level and rest of them (90%) is lost in respiration, decomposition and in the form of heat. Hence, the law is called ten percent law.</p>	3																		
14.	<p><b>Preventive methods of global warming:</b></p> <ul style="list-style-type: none"> <li>➤ Increasing the vegetation cover, grow more trees.</li> <li>➤ Reducing the use of fossil fuels and green house gases.</li> <li>➤ Developing alternate renewable sources of energy</li> <li>➤ Minimising uses of nitrogeneous fertilizers, and aerosols.</li> </ul>	3																		
15.	<p><b>Chipko movement:</b></p> <p>The tribal women of Himalayas protested against the exploitation of forests in 1972. Later on it transformed into <b>Chipko Movement</b> by <b>Sundarlal Bahuguna</b> in Mandal village of Chamoli district in 1974. People protested by hugging trees together which were felled by a sports goods company. Main features of Chipko movement were,</p> <ul style="list-style-type: none"> <li>• This movement remained non political</li> <li>• It was a voluntary movement based on Gandhian thought.</li> <li>• It was concerned with the ecological balance of nature</li> <li>• Main aim of Chipko movement was to give a slogan of five F's – Food, Fodder, Fuel, Fibre and Fertilizer, to make the communities self sufficient in all their basic needs.</li> </ul>	3																		
16.	<p><b>Objective of plant breeding:</b></p> <ul style="list-style-type: none"> <li>❖ To increase the yield, vigour and fertility of the crop.</li> <li>❖ To increase tolerance to environmental condition, salinity, temperature and drought.</li> <li>❖ To prevent the premature falling of buds,</li> <li>❖ To improve synchronous maturing</li> <li>❖ To develop resistance to pathogens and pests.</li> <li>❖ To develop photosensitive and thermos sensitive varieties.</li> </ul>	3																		
<b>Part - D</b>		<b>1x5=5</b>																		
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(OR)

**Types of hybridization:**

**Types of Hybridization** According to the relationship between plants, the hybridization is divided into.

- i. **Intravarietal hybridization** - The cross between the plants of same variety. Such crosses are useful only in the self-pollinated crops.
- ii. **Intervarietal hybridization** - The cross between the plants belonging to two different varieties of the same species and is also known as intra specific hybridization. This technique has been the basis of improving self-pollinated as well as cross pollinated crops
- iii. **Interspecific hybridization** - The cross between the plants belonging to different species belonging to the same genus is also called intra genic hybridization. It is commonly used for transferring the genes of disease, insect, pest and drought resistance from one species to another.

**Example:** *Gossypium hirsutum* x

*Gossypium arboreum* – Deviraj.

- iv. **Intergeneric hybridization** – The crosses are made between the plants belonging to two different genera. The disadvantages are hybrid sterility, time consuming and expensive procedure.

**Example:** Raphanobrassica, Triticale.

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# SHRI KRISHNA ACADEMY

## ✍ CREATIVE QUESTIONS :

ONE MARKS, TWO MARKS & FIVE MARKS AVAILABLE in ALL SUBJECTS.

## ✍ MATERIALS(GUIDE) FOR

X-STD, XI-STD, & XII- STD AVAILABLE in ALL SUBJECTS.

## ✍ FULL TEST QUESTION PAPERS

X-STD, XI-STD, XII-STD AVAILABLE in ALL SUBJECTS.

## ✍ ONE MARK TEST QUESTION PAPER

X-STD, XI-STD, XII-STD AVAILABLE in ALL SUBJECTS.

→ **For MORE DETAILS - 99655 31727 , 94432 31727**



# SHRI KRISHNA ACADEMY

NEET, JEE & BOARD EXAM (10<sup>th</sup>, +1, +2) COACHING CENTRE  
SBM SCHOOL CAMPUS, TRICHY MAIN ROAD, NAMAKKAL

CELL: 99655 31727 , 94432 31727

**STD: XII**

**Date : 08.11.2019**

**SUBJECT: BIO- ZOOLOGY**

**Marks : 25**

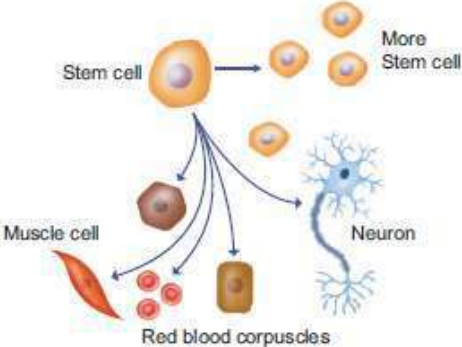
## TENTATIVE ANSWER KEY

### SECTION - I

#### CHOOSE THE CORRECT ANSWER

Q.No		Marks
1	c) Molasses	1
2	d) PCR-Technique – RNA Amplification	1
3	c) Catadromous	1
4	a) A-q, B-o, C-n, D-m	1
5	d) A is true, R is false	1
<b>SECTION - II (Q.No.8 Compulsory)</b>		3 x 2 = 6
6	<ul style="list-style-type: none"> <li>❖ <b>Transgenesis</b> is the process of introduction of extra (foreign/ exogenous) DNA into the genome of the animals to create and maintain stable heritable characters.</li> <li>❖ The foreign DNA that is introduced is called the transgene and the animals that are produced by DNA manipulations are called <b>transgenic animals</b> or the <b>genetically engineered</b> or genetically modified organisms. (example : Transgenic animals such as mice, rat, rabbit, pig, cow, goat, sheep and fish have been produced.</li> </ul>	1 1
7	<ul style="list-style-type: none"> <li>❖ Genetic immunisation by using DNA vaccines is a novel approach that came into being in 1990. The immune response of the body is stimulated by a DNA molecule.</li> <li>❖ A DNA vaccine consists of a gene encoding an antigenic protein, inserted onto a plasmid, and then incorporated into the cells in a target animal. DNA instructs the cells to make antigenic molecules which are displayed on its surfaces.</li> <li>❖ This would evoke an antibody response to the free floating antigen secreted by the cells. The DNA vaccine cannot cause the disease as it contains only copies of a few of its genes. DNA vaccines are relatively easy and inexpensive to design and produce.</li> </ul>	1 1
8	Warm blooded animals, living in colder climates, tend to have shorter limbs, ears and other appendages when compared to the members of the same species in warmer climates.	2
9	<p><b>In-situ Conservation</b> This is the conservation of genetic resources through their protection within a natural or manmade ecosystem in which they occur. It is conservation and protection of the whole ecosystem and its biodiversity at all levels in order to protect the threatened species.</p> <p><b>Ex-situ Conservation</b> It is conservation of selected rare plants/animals in places outside their natural homes. It includes offsite collections and gene banks.</p>	1 1
10	BOD (Biochemical oxygen demand or Biological oxygen demand). BOD refers to the amount of the oxygen that would be consumed, if all the organic matter in one liter of water were oxidized by bacteria. The greater the BOD of the waste water, the more is its polluting potential	2

<b>SECTION - III (Q.No.14 Compulsory)</b>		3 x 3 = 9				
11	<ul style="list-style-type: none"> <li>❖ The differences in the genomes of two different organisms can be studied by PCR.</li> <li>❖ PCR is very important in the study of evolutions, more specifically phylogenetics.</li> <li>❖ As a technique which can amplify even minute quantities of DNA from any source, like hair, mummified tissues, bones or any fossilized materials.</li> <li>❖ PCR technique can also be used in the field of forensic medicine . A single molecule of DNA from blood stains, hair, semen of an individual is adequate for amplification by PCR.</li> <li>❖ The amplified DNA is used to develop DNA fingerprint which is used as an important tool in forensic science.</li> <li>❖ Thus, PCR is very useful for identification of criminals. PCR is also used in amplification of specific DNA segment to be used in gene therapy.</li> </ul>	<p>1</p> <p>1</p> <p>1</p>				
12	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 5px;"><b>J shaped growth form:</b></th> <th style="text-align: center; padding: 5px;"><b>S-Shaped growth form (sigmoid growth)</b></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;"> <ul style="list-style-type: none"> <li>➤ When a population increases rapidly in an exponential fashion and then stops abruptly due to environmental resistance or due to sudden appearance of a limiting factor, they are said to exhibit J-shaped growth form.</li> <li>➤ Many insects show explosive increase in number during the rainy season followed by their disappearance at the end of the season</li> </ul> </td> <td style="padding: 5px;"> <ul style="list-style-type: none"> <li>➤ Some populations, as in a population of small mammals, increase slowly at first then more rapidly and gradually slow down as environmental resistance increases whereby equilibrium is reached and maintained.</li> <li>➤ Their growth is represented by S shaped growth curve.</li> </ul> </td> </tr> </tbody> </table>	<b>J shaped growth form:</b>	<b>S-Shaped growth form (sigmoid growth)</b>	<ul style="list-style-type: none"> <li>➤ When a population increases rapidly in an exponential fashion and then stops abruptly due to environmental resistance or due to sudden appearance of a limiting factor, they are said to exhibit J-shaped growth form.</li> <li>➤ Many insects show explosive increase in number during the rainy season followed by their disappearance at the end of the season</li> </ul>	<ul style="list-style-type: none"> <li>➤ Some populations, as in a population of small mammals, increase slowly at first then more rapidly and gradually slow down as environmental resistance increases whereby equilibrium is reached and maintained.</li> <li>➤ Their growth is represented by S shaped growth curve.</li> </ul>	1 ½ + 1 ½
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13	<p>Biomes are large regions of earth that have similar or common vegetation and climatic conditions. Biomes can be broadly classified as aquatic biomes and terrestrial biomes</p> <p><b>Characters of biomes</b></p> <ul style="list-style-type: none"> <li>❖ Location, Geographical position (Latitude, Longitude)</li> <li>❖ Climate and physiochemical environment</li> <li>❖ Predominant plant and animal life</li> <li>❖ Boundaries between biomes are not always sharply defined. Transition or transient zones are seen as in case of grassland and forest biomes</li> </ul>	<p>1</p> <p>1</p> <p>1</p>				
14	<p><b>1. Streptokinase</b></p> <ul style="list-style-type: none"> <li>➤ Produced by the bacterium streptococcus and genetically engineered streptococci.</li> <li>➤ It is used as clot buster” for removing clots from the blood vessels of patients who have undergone myocardial infraction.</li> </ul> <p><b>2. Cyclosporin A</b></p> <ul style="list-style-type: none"> <li>➤ It is produced from the fungus Trichoderma polysporium</li> <li>➤ It is used as an immune suppressant in organ transplantation.</li> <li>➤ It is also used for its anti-inflammatory anti-fungal and anti – parasitic properties.</li> </ul>	<p>1 ½</p> <p>1 ½</p>				

15		(Diagram -2 Part-1)
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## SECTION - IV

1 x 5 = 5

16.	<table border="1"> <thead> <tr> <th data-bbox="177 539 272 584">S.No</th> <th data-bbox="272 539 831 584">Primary treatment</th> <th data-bbox="831 539 1353 584">Secondary treatment</th> </tr> </thead> <tbody> <tr> <td data-bbox="177 584 272 741">1</td> <td data-bbox="272 584 831 741">It is a physical process involves removal of solid particles of organic and inorganic materials from sewage.</td> <td data-bbox="831 584 1353 741">It involves microbiological degradation of organic matter in the primary effluent.</td> </tr> <tr> <td data-bbox="177 741 272 909">2</td> <td data-bbox="272 741 831 909">Removal of larger solid wastes by filtration and sedimentation</td> <td data-bbox="831 741 1353 909">Biological treatment through microbes. Involves growth of useful aerobic microbes and anaerobic bacteria to decompose the smaller particles already dissolved.</td> </tr> <tr> <td data-bbox="177 909 272 949">3</td> <td data-bbox="272 909 831 949">BOD is not reduced in this step</td> <td data-bbox="831 909 1353 949">BOD is reduced by "flocs"</td> </tr> <tr> <td data-bbox="177 949 272 1016">4</td> <td data-bbox="272 949 831 1016">Filters and Grit chambers are used to separate solid particles</td> <td data-bbox="831 949 1353 1016">Aeration tanks and anaerobic sludge digester are used to treat the sewage.</td> </tr> <tr> <td data-bbox="177 1016 272 1151">5</td> <td data-bbox="272 1016 831 1151">No biogases are produced.</td> <td data-bbox="831 1016 1353 1151">During the digestion of bacteria and fungi in the sludge gases like methane, hydrogen sulphide and CO<sub>2</sub> are produced which can be used as biogas.</td> </tr> <tr> <td data-bbox="177 1151 272 1218">6.</td> <td data-bbox="272 1151 831 1218">It takes a shorter period to finish.</td> <td data-bbox="831 1151 1353 1218">It takes much longer as organic microbes consume the waste,</td> </tr> </tbody> </table>	S.No	Primary treatment	Secondary treatment	1	It is a physical process involves removal of solid particles of organic and inorganic materials from sewage.	It involves microbiological degradation of organic matter in the primary effluent.	2	Removal of larger solid wastes by filtration and sedimentation	Biological treatment through microbes. Involves growth of useful aerobic microbes and anaerobic bacteria to decompose the smaller particles already dissolved.	3	BOD is not reduced in this step	BOD is reduced by "flocs"	4	Filters and Grit chambers are used to separate solid particles	Aeration tanks and anaerobic sludge digester are used to treat the sewage.	5	No biogases are produced.	During the digestion of bacteria and fungi in the sludge gases like methane, hydrogen sulphide and CO <sub>2</sub> are produced which can be used as biogas.	6.	It takes a shorter period to finish.	It takes much longer as organic microbes consume the waste,	<p>1</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>1</p>
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(OR)

- ❖ Cloning is the process of producing genetically identical individuals of an organism either naturally or artificially. In nature many organisms produce clones through asexual reproduction. Cloning in biotechnology refers to the process of creating copies of organisms or copies of cells or DNA fragments (molecular cloning).
- ❖ Dolly was the first mammal (Sheep) clone developed by Ian Wilmut and Campbell in 1997. Dolly, the transgenic clone was developed by the nuclear transfer technique and the phenomenon of totipotency. **Totipotency** refers to the potential of a cell to develop different cells, tissues, organs and finally an organism.
- ❖ The mammary gland udder cells (somatic cells) from a donor sheep (ewe) were isolated and subjected to starvation for 5 days. The udder cells could not undergo normal growth cycle, entered a dormant stage and became totipotent. An ovum (egg cell) was taken from another sheep (ewe) and its nucleus was removed to form an enucleated ovum. The dormant mammary gland cell/udder cell and the enucleated ovum were fused. The outer membrane of the mammary cell was ruptured allowing the ovum to envelope the nucleus.
- ❖ The fused cell was implanted into another ewe which served as a surrogate mother. Five months later dolly was born. Dolly was the first animal to be cloned from a differentiated somatic cell taken from an adult animal without the process of fertilization

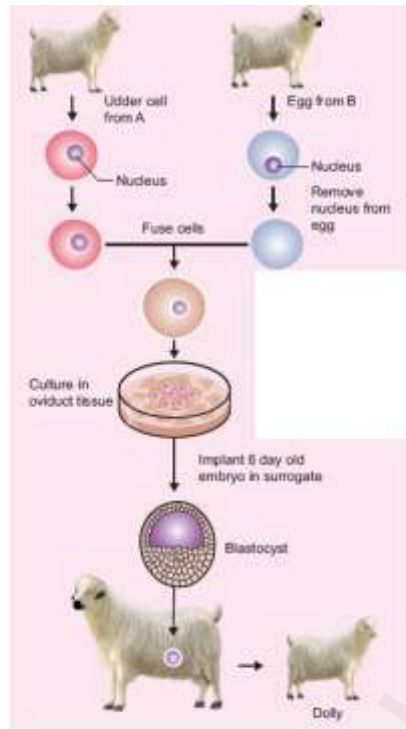
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# SHRI KRISHNA ACADEMY

✍ **CREATIVE QUESTIONS , MATERIALS(GUIDE), FULL TEST QUESTION PAPERS, ONE MARK TEST QUESTION PAPER for X, XI, XII AVAILABLE in ALL SUBJECTS.**

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