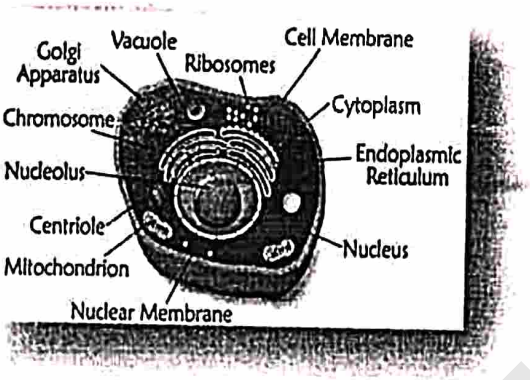
## MODEL ANSWERS

Semester: IV (New) | Academic Year: 2018-19
Course No. : ASDS-242 | Title: Livestock Breeding & Nutrition
Credits : 2 (1+1)
Day & date: | Time: Total Marks: 40

**Q.1.** Draw a neat diagram of cell and give functions of nucleus

**Cell Diagram**




**Functions of nucleus:**

- Regulation and transmission of heredity characters
- Responsible for life
- Controlling centre of all vital activities of cell.
- Contains chromosomes and genes i.e. hereditary material.
- Takes initiative in the cell division.
- Take direct part in growth and growth.

**Q.2. Define mutation. Give types of mutation and describe gene mutation.**

**Ans.** Mutation: The phenomena causing sudden and heritable change in genotype of an organism is called as mutation.

Mutation classified into two: i) Gene mutation ii) Chromosomal mutation.

Different Types of mutations are :

A) Location : i) Somatic ii) Germinal
B) Effect: i) Detrimental ii) Lethal iii) Visible
C) Direction: i) Forward ii) Backward or Reverse
D) Occurance: i) Recurrent ii) Non-recurrent
E) Size: Point mutation ii) Gross mutation
F) Quality : i) Structural mutation ii) Rearrangement mutation
G) Origin i) Spontanious ii) Genetic iii) Indused

Gene mutation:

Genes arises only from genes and heredity is due in last analysis to accurate gene replication. The process of gene reproduction is exact but occasionally it goes wrong that is copy of genes differs from original and modified gene goes on reproducing its changed structures. This is gene mutation. In this case only one character is affected at one time.

**Q.3.Enlist different types of gene action and describe allelic interaction**

**Ans:** Types of gene actions

A) Additive gene action

B) Non-additive gene action:

a) Allelic interaction:

I) Dominance : i) Complete dominance ii) Incomplete or partial dominance

II) Overdominance

b) Non-allelic interaction or Epistatis

a) Allelic interactions:

I) Dominance: Heterozygote ($A_1A_2$) is not midway between $A_1A_1$ or $A_2A_2$ for its phenotype. The dominance of alleles depends on the direction of heterozygote towards any of the two homozygotes. When dominance is complete, identical phenotypes are produced by heterozygous and dominant homozygous. In partial dominance phenotypic value of heterozygous is in between two homozygous.

II) Overdominance: The phenotypic value of heterozygotes is superior either of the two homozygotes.

**Q.4. Enlist various phases of meiosis and describe leptonema phase.**

**Ans.** Phases of meiosis : i) leptonema ii) Zygonema iii) Pachenema iv) Diplonema v) Diknesis

leptonema : In this phase chromosomes are highly stretched and bed like structure are offen visible. Chromosome may remain attached with one of their end by portion of nuclear membrane.

**Q.5. Give classification of feed stuffs with suitable examples.**

**Ans:**

A) Roughages: I ) Dry – i/ Straw –Jowar, maize, paddy , wheat.

ii / Hay – a) Legume hays- Lucerne, cow pea

b) Non legume hay – Sorghum

II) Green succulent

i/ Pasture – grasses, shrubs

ii/ Green fodder- a) Legume - Lucerne, cow pea

b) Non legume – Jowar, maize, oat etc.

iii/ Tree leaves- Babul, Bel,, Subabul, Pipal

iv/ Silage

v/ Root crops – Tapioca, tubers, potatoes.

B) Concentrates: I) Energy rich – cereal grains & by products

II) Protein rich – Oilseed cakes, pulse chuni.

C) Feed supplements: Vitamin and minerals like A, D, K, B.

D) Feed additives – terramycin , flavomycin etc.

**Q.6. What is nutrients. Enlist six classes of major feed nutrients and functions of protein.**

**Ans: Nutrients:** Is a substance that promotes the growth, maintenance, function and reproduction of a cell or an organism.

**Classes**: 1. Water. 2. Protein 3. Carbohydrates. 4. Fats. 5. Vitamins. 6. Minerals

**Functions of proteins:**

1. Enzymic or catalytic: A most essential protein function is in exercising the acceleration of chemical conversions.

2. Hormonal & regulatory: Regulation of intracellular metabolism & integration of celluar metabolism throughput the whole organism.

3. Transport: Binding & transport of materials between tissues & through the cell membranes.

4. Supply of energy: Amino acids break down & liberate energy.

**Q.7. Differentiate between quantitative and qualitative traits.**

**Ans:**

| Sr. No. | Quantitative traits | Qualitative traits |
|---|---|---|
| 1 | These are measurable | These are not measurable |
| 2 | These are controlled by many pairs of genes | These are controlled by single or few pairs of genes |
| 3 | These are affected by environmental effect | These are generally free from environmental effect |
| 4 | e.g. Milk production, wool production, carcass yield | e.g. coat colour, blood antigen |

**Q.8. Differentiate between roughages and concentrates.**

| Sr. No. | Roughages | Concentrates |
|---|---|---|
| 1 | Contain more than 18 % CF | Contain less than 18% CF |
| 2 | Contain less than 60% TDN | Contain more than 60 % |
| 3 | They are more bulky | They are less bulky |
| 4 | They have comparatively low digestibility | Higher digestibility |
| 5 | Low weight per unit volume | Higher per unit volume |

**Q.9. What is feed additives? Enlist different feed additives and explain about antibiotics.**

**Ans:** Feed supplements are the compounds used to improve so as to take care of any deficiency.

a) Antibiotic b) Arsenic
c) Antifungal d) Antioxidants
e) Copper sulphate f) Coccidiostats
g) Hormonal preparation h) Enzyme preparations
i) Pellet binders j) Pigmentation compounds
k) Probiotics l)biostimulators
m) Mold inhibitors

Antibiotic : Are the antibacterial chemical substances produced by the living which inhibits growth or kill the bacteria. They are used in small quantities.

e.g. - Terramysin , zinc bacitracin , flavomycin etc
- Addition of Auromycin to calf rations has increased growth rates of dairy calves.

**Q.10. What is variation? Give classification and causes of variation.**

Ans. Every individual even of same species varies from other in some characteristics is known as variation.

Classification: i) Hereditary variation: Variation is genetic in origin and may be transmitted from one generation to other.

ii) Non- hereditary variation.: Which is not genetic in origin but due to effect of environmental factors like feeding light., temperature etc.

Causes of variation:

i) Recombination of genes
ii) mutation
iii) chromosomal aberration
iv) non- disjunction
v) translocation
vi) duplication
vii) deletion
viii) inversion
ix) Polyploydy
x) food ,light, temperature & soil.



**SECTION "B"**

**Q. 11. Define the terms.**

a) Genotype :

An animal's genotype for a character is the combination of genes he possesses which influence his character.

b) Zygote:

Diploid cell formed by fertilization of an ovum by as a sperm

c) Gene frequency:

It is defined as the number of genes present in the population. It is expressed as proportion or percentage.

d) Digestion:

Is the process whereby the organic and inorganic nutrients in the feeding stuffs are made soluble and diffusible so that the nutrients may be utilized for building of new tissues, repair of worn out tissues & transformation of energy for the life processes.

**Q.12. State true or false.**

a) Insufficient amount of carbohydrates results into ketosis. **–True**
b) Urea is used as a source of NPN in special feed. **–True**
c) Gene is a basic unit of inheritance located on the chromosomes. **–True**
d) Legumes are rich in iron.- **False**