4. Why pancreas is known as double gland?

Answer:

Pancreas:-

It is the important part of digestive system because its secret different enzyme that help in digestion of food. Also it has glandular importance in the body.

"It is called as double gland".

Reason

Because it has a dual function i-e it act as both endocrine as well as exocrine gland.

Exocrine function:

Acinar cells belong to exocrine pancreas and secret digestive enzymes into gut through system of duct.

Endocrine function:-

. α Cell secret glucagon.

.β cell secret insulin.

5. Why insulin is so vital for normal survival?

Answer:-

Insulin:-

It is a hormone secreted by β cells of pancreas. Its function is decrease glucose level in the blood.

"It is vital for human survival".

Reason:

Because it controls our blood glucose level so our body get the energy it needs for daily activities when the amount of glucose rises in blood the pancreas will release more insulin to push more glucose into the cell.

6. What is the role of luteinizing hormones in males and females respectively?

Answer:

Luteinizing hormone (LH) is produced and released in the anterior pituitary gland. This hormone is considered a gonadotrophic hormone because of its role in controlling the function of ovaries in females and testes in males, which are known as the gonads.

In women, the hormone stimulates the ovaries to produce **oestradiol**. Two weeks into a woman's cycle, a surge in luteinizing hormone causes the ovaries to release an egg during ovulation. If

fertilization occurs, luteinizing hormone will stimulate the corpus luteum, which produces progesterone to sustain the pregnancy.

For men, luteinizing hormone stimulates the production of **testosterone** from Leydig cells in the testes. Testosterone, in turn, stimulates sperm production and helps accentuate male characteristics — like a deep voice or growth of facial hair.

6. Mention the difference between hypothyroidism and hyperthyroidism.

Answer:

The Differences Between Hypothyroidism and Hyperthyroidism

Hypothyroidism causes symptoms like slowed metabolism, tiredness, and weight gain. Having an underactive thyroid can decrease or slow down your bodily functions.

With hyperthyroidism, you may find yourself with more energy, as opposed to less. You may experience weight loss as opposed to weight gain. And you may feel anxious as opposed to depressed.

The most common difference between the two diseases relates to hormone levels. Hypothyroidism leads to a decrease in hormones. Hyperthyroidism leads to an increase in hormone production.

In the United States, hypothyroidism is more common than hyperthyroidism. However, it's not uncommon to have an overactive thyroid and then an underactive thyroid, or vice versa. Finding a skilled doctor who specializes in the thyroid, typically an endocrinologist, is an important part of your treatment plan.

S#	Species	Genome	Monoploid	Haploid
1	Human	2n = 46	23	23
2	Wheat	6n = 42	7(7x6)	3n = 21
3	Oenothera gigas	4n = 26	7 (7x4)	2n = 14

Q2. List the types and role of histone proteins in chromatin fiber?

Histones:

Histones are highly alkaline protein found in eukaryotic where that package and order the DNA into structure units called nucleosomes.

Types:

Core histones:

Histones H2A, H2B, H3 and H4 are known as the core histones.

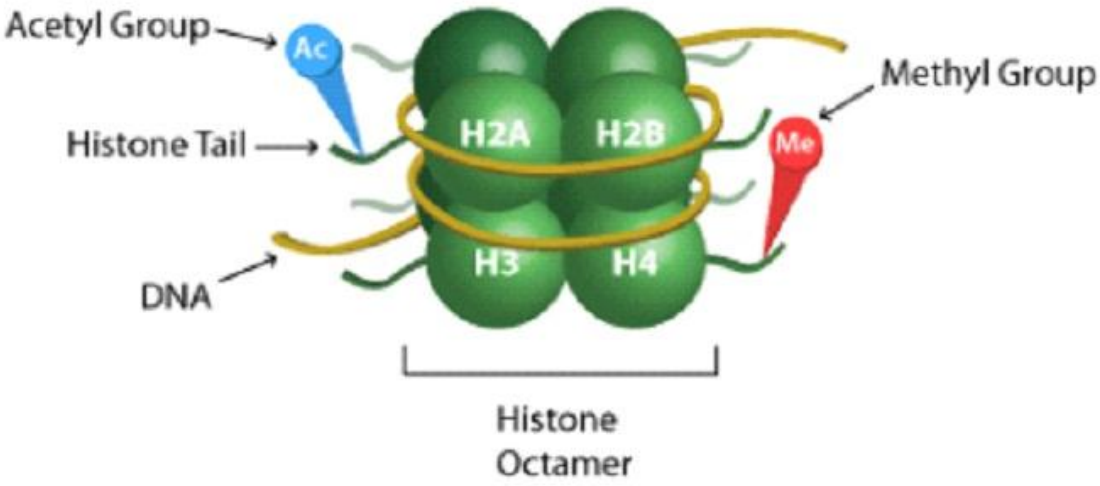
Linker histone:

Histone h1 and h v are known as the linker histone.

Nucleosome:

Two of each of the core histones assembles to form one octameric nucleosome score of 200 base pairs of DNA wrap around this core particle.

This linker histone h1 binds the nucleosomes at the entry and exit sides of the DNA. Thus locking the DNA into place and allowing the formation of higher order structure.



Function of histone:

Compacting DNA strands:

In 1908 an English mathematician hardy and a German physician Weinberg proposed the law according to this under certain conditions allelic and genotype frequency remains constant from generation to generation in a sexual reproductiing population.

Or

Statistic allele frequency in a population will remain constant unless one or more factor change.

Factors conditions for the law:

- **Large population:** the population should be large enough to ignore the loss of genes by chance.
- **There must be no mutations** because mutation introduces new genes in a population thus changes the allele frequencies.
- **Natural selection must not occur** because only organism with advantages mutations will survive the other dies.
- **Artificial selection** must not occur.
- There should be no immigration and emigration.
- All the members of population should be given equal reproductive chances.

Q5. Define speciation.

Answer: Book page # 283

Chapter# 25

Man and his environment

Exercise

1. Summaries the significance of biochemical cycles?

Answer:

Biogeochemical cycle:

Definition:

The flow of chemical elements and compounds between living organism and the physical environment is called biochemical cycle.

Significance:

Biogeochemical cycle circulates nutrients through the soil into the plants microbes and animals which return the elements to the earth through chemical processes.

Bio elements regulation:

Those elements which are present in the environment and important for the survival of organisms are called by elements such as H, O, C, N, O, H, S their amount is specified by the biochemical cycle.

Question 9: what is DNA library?

In eukaryotic cells the mature mRNA is already spliced, hence the cDNA produce lacks introns and can be readily expressed in a bacterial cell. While information in cDNA libraries is a powerful and useful tool since gene products are easily identified, the libraries lack information about enhancers, intron and other regulatory elements found in a genomic DNA library.

Plasma:	Bacteria, Streptomyces
Bacteriophages:	Bacteria
Cosmid:	Bacteria
Yeast cloning vectors:	Yeast
Ti and Ri plasmid:	Transformation of cloned gene in higher plants

Chapter# 27:

Biology and human welfare

Question 1: differentiate between animals husbandry and livestock management?

Answer:

Livestock:

Live stocks on domestic animals raised in agricultural setting to produce commodities such as food fibre etc.

Animal husbandry:

It is the branch of agriculture concern with animals that are raised for meat, egg, milk, fibre and other products.

Question 2: what is importance of artificial insemination?

Answer:

Page#380 (artificial insemination)

Question 3: what is biogas?

Answer: page 389 (biogas)

Question 4: write note on process of cheese making?

Answer: Page 386

Question 5: what is acclimatization?

Answer: page 381.

Question 6: famine gives importance of domestic animals?

Answer: page 377

Question 7: how did Edward Jenner prepared vaccine first?

Answer: page 373

Question 8: list the trade that used to be incorporated into crop plant by various techniques?

Answer: page 381

Question 9: what are conjugate vaccine give an example?

Conjugate vaccine: