Biochemistry III sem
Date - 23/3/15

VCD - BIOCHEMISTRY- II S.Y.B.S.c SEM III 75 MARKS 2 1/2 HRS 25

Note: 1. Figures to right indicate marks.
2. All questions are compulsory.
3. Draw appropriately labelled diagrams wherever necessary.

Q I) **(A) Answer the following (any 4)** **(8M)**

1. Name the three laws proposed by Gregor Mendel
2. Phenotype and Genotype
3. Monohybrid cross.
4. Give one example of Incomplete Dominance .
5. Difference between dominant trait and recessive trait.
6. Give two examples of a Dihybrid cross.
7. Define a Gene. Where is it present ?
8. A homozygous dominant pink flower is crossed with a homozygous white flower. Depict the F1.Write the genotypic and phenotypic ratio.

(B) Explain the following : (any 3) **(6M)**

1. Name the 3 traits studied by Mendel in pea plant.
2. Define Epistasis. Give phenotypic number in recessive epistasis
3. In pumpkins ,orange colour is dominant to green. Suppose a pumpkin plant homozygous for orange is crossed with one homozygous for yellow. Determine the appearance of (a) F1 (b) F2 generation. Give its phenotypic and genotypic ratio.
4. Explain with an example Co- Dominance.

(C) Answer in brief: (any 1) **(6M)**

1. Law of segregation. Give an example with a dihybrid cross (smooth seeds, green colour &wrinkled seeds, yellow colour) with 9:3:3:1 ratio.
2. Explain Maternal effects seen in coiling of snails.

I) **(A) Answer the following: (any 4)** **(8M)**

1. Name the Phases of a Cell cycle
2. What are Prokaryotes? What are its subtypes
3. What is Supercoling? Give its types
4. Define Conjugation.
5. Name the cells in which Meiosis occurs.
6. What is S phase in cell cycle?
7. Draw structure of a Prokaryotic Genome.
8. Define Histones.

(B) Explain the following: (any 3) **(6M)**

1. Organization of prokaryotic genome with a diagram.
2. Define Transformation.
3. What are F^+ AND F^- Strains?
4. Draw the Structure of a Chromosome.

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(C) **Answer in brief :(any 1)** (6M)

1. Diagrammatically elaborate Mitosis
2. Explain Bacterial transformation.

Q III) (A) Answer the following: (Any 4) (8M)

1. Name and explain any 2 proteins of plasma membrane.
2. Explain importance of plasma proteins.
3. Name and explain any one mechanism of transport of ions against their concentration gradient.
4. Diagrammatically explain Exocytosis.
5. What are transferrin?
6. Explain Endocytosis.
7. Explain symport.
8. What are lipoproteins?

(B) Answer the following: (any 2) (6M)

1. What is Passive transport?
2. Explain transport of Ca.
3. Explain chloride shift.
4. Give detailed structure of Haemoglobin

(C) Answer in brief :(any 1) (6M)

1. Explain secondary Active Transport using suitable example
2. Explain transport of CO_2 and O_2 in blood.

Q .IV) (A-1) Explain the following: (any 1) (2M)

1. Give 1 example of Trihybrid cross.
2. Define Dominant trait and Recessive trait..

(A-2) Answer of the following: (any 2) (3M)

1. Who is the Father of Genetics. Name the model used for his experiments.
2. Which are the cells present in the embryo responsible for maternal effects?
3. What are Alleles. Give an example explaining it?
4. What do you mean by F1and F2 generation?
5. Give an example of Co- Dominance.
6. In which kind cross is 9:3:3:1 ratio is observed.

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(B-1) Explain the following: (any 1) **(2M)**

1. Define Chromatin
2. Why are genes present as clusters in the Prokaryotic genome?

(B-2) Answer the following: (any 3) **(3M)**

1. Name the five major classes of Histones.
2. Abbreviation of SARS.
3. Name the 30 nm fiber called which has 6 nucleosomes joined it.
4. Name the two cycles in which phages convert.
5. Name the chromosomes responsible for sex determination in humans.
6. Name the enzyme responsible for unwinding of DNA.

(C-1) Explain the following: (any 1) **(2M)**

1. Channel proteins
2. Ion transport via blood

(C-2) Name the following: (any 3) **(3M)**

1. Name molecules transported via facilitated transport.
2. Name the transport mechanism which involves ATP hydrolysis.
3. Name the molecule that inhibits haemoglobin protein.
4. Name the Ca bound proteins in blood.
5. Name the molecules which diffuse readily across plasma membrane.
6. Name any one transport mechanism which involves transport against concentration gradient.

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