

SUBJECT – Mathematics

- Q.1 Let $f: [a, b] \rightarrow R$ be a bounded function and P is any partition of $[a, b]$ then prove that $L(P, f) \leq U(P, f)$.
- Q.2 Let $f: [a, b] \rightarrow R$ be a bounded function and P is any partition of $[a, b]$ and if P^* is the refinement of P
Then prove that (a) $L(P, f) \leq L(P^*, f)$. (b) $U(P^*, f) \leq U(P, f)$
- Q.2 Let $f: [a, b] \rightarrow R$ be a bounded function and P is any partition of $[a, b]$ then prove that
 $m(b - a) \leq L(P, f) \leq U(P, f) \leq M(b - a)$
- Q.3 $f: [a, b] \rightarrow R$ be a bounded function on $[a, b]$ and $f \in R[a, b]$ if and only if for every $\varepsilon > 0$ there
Exists a partition P of $[a, b]$ then prove that $U(P, f) - L(P, f) < \varepsilon$.
- Q.4 Show that if f is defined on $[a, b]$ by $f(x) = k \forall x \in [a, b]$ where k is constant then
 $f \in R[a, b]$ and $\int_a^b k dx = k(b - a)$.
- Q.5 Let $f(x) = x^2$ and $[0, a]$ $a > 0$ Show that $f \in R[0, a]$ and $\int_0^a x^2 dx = \frac{a^3}{3}$.

SUBJECT – Biotechnology

- Q.1 what is MS Media for plant tissue culture?
- Q.2 writes down the introduction and history of plant tissue culture?
- Q.3 what is growth regulators? Explain the use of Growth regulators?
- Q.4 Explain the process of Selection and maintenance of callus?
- Q.5 what is single cell culture?

SUBJECT – Chemistry

1. What are amino acids? Classify all amino acid, their structure and stereochemistry.
2. Explain structure of protein.
3. What are peptide linkage and explain its mechanism of formation.
4. Explain double helical structure of DNA.
5. What are saponification value, iodine value and acid value?

SUBJECT – Computer Networks

1. What is Computer Network? What is its need?
2. What are the various types of Networks?
3. What is the difference between LAN,MAN,WAN.
4. What do you mean by Network Topologies? Explain any two topology
5. What are the similarities between BUS and STAR topology?

SUBJECT – Physics

1. Define electric potential. Obtain an expression for the potential at a point in space due to a point charge.
2. Obtain an expression for the capacitance of a parallel plate capacitor.
3. Explain polarization of Dielectric, Derive relation between D, E and P.

4

What is conservation of charges

- 5 What is coulomb's law? Define unit charge also?