

26 AUG 2020

: નોંધ : B. Sc Sem-6

Sub code: 21848

૧. દરેક પ્રશ્નનો [a] અથવા [a(i)] અને [a(ii)] જ લખવાના રહેશે.
૨. પ્રશ્ન : ૧[a] અથવા ૧[a(i)] અને ૧[a(ii)] તથા ૨[a] અથવા ૨[a(i)] અને ૨[a(ii)] ના 14 માર્ક્સ ના બદલે ૧૮ માર્ક્સ રહેશે.
૩. પ્રશ્ન : ૩[a] અથવા ૩[a(i)] અને ૩[a(ii)] તથા ૪[a] અથવા ૪[a(i)] અને ૪[a(ii)] ના 14 માર્ક્સ ના બદલે ૧૭ માર્ક્સ રહેશે.
૪. દરેક પ્રશ્નનો પ્રશ્ન નં ૧(b), પ્રશ્ન નં ૨(b), પ્રશ્ન નં ૩(b) તથા પ્રશ્ન નં ૪(b) (ટુંકા પ્રશ્નો) વિદ્યાર્થીએ લખવાના નથી.

(b) Draw neat, clean and labeled diagram wherever necessary.

- Q.1(A) Give a complete account on components, functioning and applications of Polymerase Chain Reaction. 14
OR
- Q.1(A) (i) Write a note on: Ti plasmid as vector. 07
Q.1(A)(ii) Write a brief note on: Site-directed mutagenesis. 07
Q.1(B) Short Questions (Attempt any FOUR) 04
1) Mention recognition sequence and cut pattern of HindIII.
2) Mention the role of alkaline phosphatase in Genetic Engineering protocols.
3) What is a cosmid?
4) Enlist any three features which a vector must possess.
5) Define: Probes.
6) "Shuttle vectors usually contain more than one 'origin of replication' sequence." True or False?
- Q.2(A) Discuss in detail: Use of various marker genes for selection of recombinants. 14
OR
- Q.2(A) (i) Write on: Electroporation with its pros and cons. 07
Q.2(A)(ii) Write a note on: Western blotting. 07
Q.2(B) Short Questions (Attempt any FOUR) 04
1) Which enzyme is used to prepare cDNA?
2) What is the synonym of gene gun method?
3) What are the drawbacks of Electroporation method?
4) Enlist any three transfection methods.
5) What is blotting?
6) What is the role of IPTG during screening of recombinants using X-Gal?
- Q.3(A) Discuss in detail: Components, types and applications of electrophoresis. 14
OR
- Q.3(A) (i) Write a note on: Biotechnological applications of plant tissue culture. 07
Q.3(A)(ii) Write a note on: DNA microarray. 07
Q.3(B) Short Questions (Attempt any THREE) 03
1) Define: Cellular totipotency.
2) What is dedifferentiation?
3) Enlist various media used for plant tissue culture technique.
4) The chip for DNA microarray can be made up of which material?
5) State the principle of size exclusion chromatography.
- Q.4(A) Give a detailed account on bioleaching of ores emphasizing on unique features of microbes used. 14
OR
- Q.4(A) (i) Write a note on: IPR and Biotechnology. 07
Q.4(A)(ii) Write a note on: Recombinant insulin. 07
Q.4(B) Short Questions (Attempt any THREE) 03
1) Enlist any two enzymes with their therapeutic applications.
2) A person has invented unique food item. Should he go for filing a patent or a trade secret? Why?
3) Why there is a need to switch to biofuels?
4) Enlist any four microbes used as plant inoculants to increase crop yield.
5) Which component of milk is degraded upon the treatment of rennet?