Rayat Shikshan Sanstha's

Yashavantrao Chavan Institute of Science, Satara
(Autonomous)

Department of Microbiology

B.Sc.III Sem VI

Course Code : BMiT601

Title of course:Microbial Genetics

Question Bank

Q. 1 (2 Marks/Question)

1. Define-Isoschizomers
2. Define -Palindrome
3. Define -Star activity
4. Define -Genetic engineering
5. Define transposition
6. Define extra chromosomal inheritance
7. Define transposon or transposable element or jumping genes or movable elements or mobile elements
8. Define cistron
9. Define gene
10. Define -Cloning
11. Define-Plasmids
12. DefineLinkers
13. DefineAdapters
14. Define Homopolymertailing
15. Define Cosmids
16. Define Operon
17. Define regulatory gene
18. Define operator
19. Define Promoter
20. Define structural gene
21. Define transcription attenuation
22. Define regulon
23. Define modulon
24. Define riboswitches
25.

Q. 2 Long answer questions (10 M /question)

1. Give an detailed account on sangers method.
2. Explain in detail PCR technique with application, advantages and disadvantages
3. Explain replicative transposition.
4. Explain in detail Kappa particle.
5. Explain in detail different types of transposons.
6. What is engineering? Explain in detail Restriction endonuclease enzymes
7. What is r-DNA? Describe in detail Cloning vectors
8. Define Cloning. Describe various methods used to isolate desired DNA sequence.
9. What is Recombinant DNA? Describe methods for selecting r-DNA.
10. What is gene regulation Discuss regulation of tryptophan Operon by tryptophan repressor with neat label diagram
11. . Discuss regulation of expression, gene expression by attenuation in tryptophan Operon with neat labell diagram
12. .What is catabolite repression. Discuss explain with necessary diagrams
13. . Discuss gene regulation at the level of translation with neat labelled diagrams
14. .
15. .

Q. 3 Short notes (5 Marks/Question)

1. 1.describe in brief insertion sequence element.
2. Describe in brief composite transposon
3. Describe in brief complex transposon
4. 4.Conservative transposition
5. 5.southern blotting
6. 6.Explain cis trans test
7. 7.Describe in short One gene one polypeptide hypothesis.
8. Plasmids
9. Cosmids
10. PBR 322
11. PUC 19
12. Shotgun method
13. Lingers and adapters
14. DNA probes
15. Restriction endonuclease enzymes
16. Describe in short about structure of yeast chromosome
17. Discuss regulation of tryptophan Operon when condition of tryptophan is low, with diagram
18. Discuss regulation of tryptophan Operon when condition of tryptophan is high, with diagram
19. Describe with diagram folded fibre model of E.coli

20. . Describe regulation of gene expression by Riboswitches in transcription elongation. Draw neat labelled diagram
21. . Describe regulation of translation of translation by Riboswitches with neat labelled diagram
22. . Write on what is global regulation. Give two examples of global regulatory network in bacteria.
23. .
24. .
25. .
26. .
27. .
28. .
29. .
30. .
31. .
32. .

****

Rayat Shikshan Sanstha's
Yashavantrao Chavan Institute of Science, Satara
(Antonomous)
Department of Microbiology
Question Bank 2021-20222
B .Sc .III Microbial Biochemistry
B.MiT. 602
Essay type questions

1. Describe in brief assimilation of carbon.
2. Describe in brief assimilation of ammonium form of nitrogen.
3. Describe in brief assimilation of dinitrogen.
4. Describe in brief gel filtration chromatography.
5. Describe in brief ion exchange chromatography.
6. Describe in brief mechanical methods of cell disruption.
7. Describe in brief non mechanical methods of cell disruption.
8. Describe in brief affinity chromatography.
9. What is meant by enzyme immobilization? Describe in brief dsorption as a method of enzyme immobilization.
10. Describe in brief glyoxylate by-pass
11. Describe in brief pentose PK pathway
12. Describe in brief how Pyruvic acid works as a key intermediate.
13. Describe in brief bacterial bioluminescence.
14. Describe in brief Entner Daudoroff's pathway.
15Define Km. Derive a Michaelis Menten equation.
16. Define enzyme. Describe in brief the mechanism of enzyme action by Lock & Key hypothesis.
17. Define enzyme. Describe in brief the mechanism of enzyme action by Induced Fit model.

Short notes

1. Salting out for enzyme extraction
2. Describe any two support materials used for enzyme immobilization.
3. Dialysis in enzyme extraction.
4 Covalent binding in enzyme extraction
5. Ultrafiltration .
6. Entrapment for enzyme immobilization.
7. Important features of Pentose phosphate pathway.
8. Significance of glyoxylate by-pass
9. Calvin cycle.
10. GOGAT.
11. Applications of FISH
12. Procedure of FISH
13. Applications of ELISA
14. Applications of DNA microarray
15. Procedure of ELISA.

16. ED pathway
17. Assimilation of ammonium form of nitrogen.
18. Assimilation of sulphur.
19. Biochemical mechanism of bioluminescence.
20. Pyruvic acid as key intermediate.
21 . Post transcriptional modification of RNAs
22. Activation of amino acids.
23. DNA polymerase.
24. RNA polymerase.
25. Initiation of translation
26. Initiation of transcription.
27. Important features of peptidoglycan biosynthesis
28. Termination of DNA replication.
29. Termination of DNA replication.
30. Elongation of polypeptide chain.
31. Lock & key hypothesis
32. Induced fit model
32 Negative way of enzyme regulation
33. lac operon
34. Catabolite repression
35. Active site of an enzyme.
36.Ara operon
37. Ribozyme.
38. Properties of allosteric enzyme.
39. Properties of enzyme
40. Specificity of enzyme

Two marks questions

1. Enlist two mechanical methods of disruption.
2. Enlist any two synthetic support materials.
3. Enlist any two precipitating agents for removal of nucleic acids
4. Enlist any two organic support materials.
5. Enlist any two organic solvents for precipitating enzymes
6. Enlist any two inorganic support materials.
7. Types of DNA polymerase enzymes with their role.
8. Enzymes involved in protein synthesis
9. Enzymes involved in assimilation of nitrogen.
10. Important features of peptidoglycan biosynthesis
11. Steps of DNA replication
12. Important features of ED pathway
13. Enzymes of lac. operon

14. Properties of enzymes
15. Enzymes involved in assimilatory sulphate reduction.
16 Define translation & write the concept of Central dogma
17. Steps of Calvin cycle
18. Phosphoketolase pathways
19. Names that explain mechanism of enzyme action.
20. Forms of nitrogen that can be assimilated.
21. Significance of Km
22. Importance of Pentose phosphate pathway
23. Post transcriptional modification of m RNA in Bacteria.
24. Locations of peptidoglycan synthesis.
25. Enlist the Hypothesis of ATP generation by oxidative phosphorylation.
26. Important features of DNA replication.
27. Proteins & enzymes involved in initiation of DNA replication.

TYBSc MBiT 606 Medical Microbiology
Question bank

One line questions

1. Define antibiotic or antibacterial agent
2. Define chemoprophylaxis
3. Define prophylaxis
4. Define immunoprophylaxis
5. Define chemotherapy
6. Define drug resistance
7. Define disease
8. Define Sign
9. Define symptom
10. Define pathogenesis
11. Define ELISA
12. Define FISH
13. Define DNA CHIP

Long ans questions

1. Define virus and give an account on influenza virus with respect to morphology, antigenic structure, laboratory diagnosis and treatment.
2. Define hydrophobia and describe in brief rabies virus with respect to morphology laboratory diagnosis, prophylaxis and treatment.
3. Give an account on hepatitis A virus with respect to morphology, antigenic structure laboratory diagnosis prevention and control
4. Explain hepatitis B virus with respect to morphology antigenic structure pathogenesis laboratory diagnosis prevention and control.
5. Give an account on mechanism of drug resistance and way out to drug resistance.
6. Give an detail account on general principles of chemotherapy
7. Define immunoprophylaxis and give detail account on live attenuated vaccines inactive vaccines, subunit vaccines and DNA vaccines
8. Define chemotherapy and explain in detail mode of action of antibiotics that inhibit cell wall synthesis and Protein synthesis
9. Define chemoprophylaxis explain in detail mode of action of antibiotics that inhibit nucleic acid synthesis and Protein synthesis.
10. Explain in detail mode of action of anti-viral and any two antifungal antibiotics.
11. Define Disease and give an account on tuberculosis respect to morphology, antigenic structure, laboratory diagnosis and treatment.
12. Explain in detail Mycobacterium tuberculosis with respect to colony characters, mode of transmission, pathogenicity , prevention and control
13. Explain in detail about Clostridium perfringens with respect to morphology, antigenic structure, laboratory diagnosis and treatment.
14. Explain in detail about Clostridium perfringens with respect to colony characters, mode of transmission, pathogenicity , prevention and control
15. Explain in detail about Pseudomonas aeruginosa with respect to colony characters, mode of transmission, pathogenicity , prevention and control

16. Explain in detail about Pseudomonas aeruginosa with respect to morphology, antigenic structure, laboratory diagnosis and treatment.
17. Write in detail about Elisa technique
18. Explain in detail types of Elisa and its advantages and disadvantages.
19. Explain in detail DNA microarray and its advantages and disadvantages.

Short ans. Questions

1. Explain in brief pathogenesis of rabies
2. Write a note on morphology and mode of transmission of hepatitis B virus
3. Describe in brief mode of transmission and control and treatment of the Dengue virus
4. Explain in brief pathogenesis of hepatitis A virus
5. Write a note on mode of transmission of influenza virus
6. Explain mode of action of penicillin
7. Explain mode of action of bacitracin
8. Explain mode of action of streptomycin
9. Explain mode of action of tetracycline
10. Explain mode of action of Quinolone
11. Explain mode of action of sulfonamides
12. Explain mode of action of ketoconazole
13. Explain mode of action of azidothymidine
14. Write a note on live attenuated vaccines with suitable example
15. Describe in brief recombinant vaccines which suitable example
16. Describe in brief subunit vaccine which suitable example
17. Write short note on pathogenesis of clostridium perfringens
18. Write short note on virulence factors on clostridium
19. Write short note on cholera toxin
20. Write short note on preventive measures and treatment of tuberculosis
21. Write short note on treatment of Pseudomonas infection
22. Write short note on gas gangrene
23. Write short note on food poisoning
24. Write short note on Microarray
25. Write short note on advantages and disadvantages of DNA microarray
26. Write short note on advantages and disadvantages of FISH