Biyani Girls College

Model test paper A

M.Sc Zoology Previous

Molecular Biology and Biotechnology

Time allowed: 3hrs **Max Marks=100**

Q1 is compulsory. Attempt any 5 in all.

Q1. Answer the following very briefly:

(i) What is the function of Rnase H during replication?

(ii) What is the role of sliding clamp loader?

(iii)What is unit used to measure sedimentation velocity?

(iv)What is meant by abortive initiation during transcription process in bacteria?

(v) Draw a clover leaf model for secondary structure of RNA.

(vi) What is alternative splicing?

(vii) What is meant by animal trafficking?

(viii) What is peptidyl transfer reaction?

(ix) ICSI stands for _____.

(x) Which factor co operatyes with EF-G and IF-3 to recycle Ribosome after polypeptide release in eukaryotes

(xi) Define Nucleotide excission repair.

(xii) What is the function of Rec A protein?

(xiii) What is the importance of AFLP analysis?

(xiv) What is the function of SSB Protein?

(xv) Which transcription factor recognizes TATA element?

(xvi) what is meant by degeneracy of genetic code?

(xvii) Write the 3 chain terminating codons.

(xviii) What is the function of topoisomerase II at the replication fork?

(xix) What does pluripotency mean?

(xx) What is transgene?

Q2. Describe the steps involved in the formation of Pre-Preplicative Complex in Eukaryotes **20**

OR

Write short note on:
(10+10=20)

- RNA editing
- Replication of telomeres by Telomerase

Q3. Explain the steps of spliceosome mediated splicing reaction **20**

OR

Describe in short:
(10+10=20)

- Initiation of translation in Prokaryotes
- Nucleotide excision repair in *E.coli*

Q4. Write short notes on:
(10+10=20)

- ICSI
- Bioethics in care and breeding experimental animals

OR

Briefly explain the application of RFLP in genetic counselling and pedigree analysis **20**

Q5. Write in short:
(10+10=20)

- Eukaryotic polyadenylation and termination
- Cre-lox recombination

OR

What is the importance of embryo sexing and cloning in assisted reproductive technology and how it is carried out?**20**

Biyani Girls College

Model test paper B

M.Sc Zoology Previous

Molecular Biology and Biotechnology

Time allowed: 3hrs **Max Marks=100**

Q1 is compulsory. Attempt any 5 in all.

Q1. Answer the following very briefly:

(i) Define hn-RNA.

(ii) What is the role of reverse transcriptase?

(iii)Which box in the eukaryotic promoter is analogous to bacterial pribnow box?

(iv)Write the name of UAA, UAG, UGA termination codons.

(v) What is Proteomics?

(vi) Write two applications of amniocentsis

(vii) What is the full form of RAPD?

(viii) Which enzyme is called as molecular scissors?

(ix) During transcription RNA polymerase holoenzyme binds to a gene promoter and assumes a saddle like structure. What is its DNA binding sequence?

(x) Write the sequence that represents mRNA coded from a DNA Segement having a sequence CTCGCGTGT.

(xi) Where does RNA synthesis take place in a eukaryotic cell.

(xii) Who invented PCR?

(xiii) What is Repliosome?

(xiv) What is the function ligase enzyme?

(xv) Which factor is responsible for initiation of transcription in prokaryotes?

(xvi) What is recombinant DNA?

(xvii) Write two applications of genetic engineering

(xviii) What is the function of DNA gyrase?

(xix) What are ES cells?

(xx) Give an example of transgenic fish?

Q2. Give a detailed account of DNA repair.
20

OR

Write short note on:
(5x4=20)

- RNA stability
- Amniocentesis
- Holliday Junction
- RNA Polymerases

Q3. Explain different types of post-transcriptional modifications in eukaryotes
20

OR

Describe in short:
(5x4=20)

- ES cells
- RAPD analysis
- Genetic Map
- Nuclear export of mRNA

Q4. Write short notes on:
(10+10=20)

- GIFT
- Elongation and termination of translation in Eukaryotes

OR

Briefly explain the post translational modifications
20

Q5. Write in short:
(10+10=20)

- FISH
- Amino-acyl t-RNA synthetase
- Proteolytic cleavage
- N and O-Glycosylations of proteins

OR

What are the preferred methods for creating transgenic animals? What are its applications & the bioethics realted to it.
20