

Total pages: 3

PG (NEW) CBCS
M.Sc. Semester-IV Examination, 2019
ZOOLOGY
PAPER: ZOO-403(Special)
(Genetics)

Full Marks: 40**Time: 2 Hours**

Use separate Answer-scripts for Group-A & Group-B

GROUP-A

Recombinant DNA and Molecular Analysis

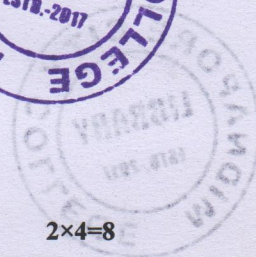
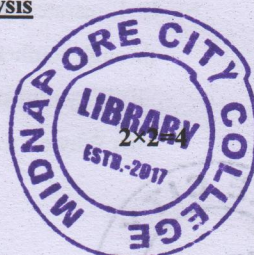
Marks-20

1. Answer any two questions from the following:

- a) How are SNPs used as genetic marker?
- b) What is homo polymer tailing?
- c) State the principle of DNA foot printing.
- d) State the difference of between micro and mini satellite.

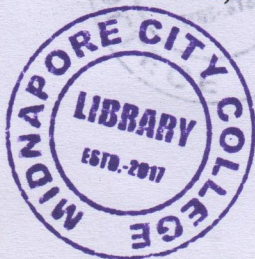
2. Answer any two questions from the following:**2×4=8**

- a) State the principle of pyro sequencing and state its advantages over traditional Sanger method. **3+1**
- b) Illustrate how does RNA molecules be hybridized and detected through Northern Blotting.
- c) State the basic principle of FISH. Compare florescence with phosphorescence. **2+2**
- d) i)What do you mean by ligation?
 ii)Why is calcium chloride used in transformation? **2+2**

(Turn over)

(2)

3. Answer any one question from the following: 1×8=8
- a) i) State the difference and uses of semiqualitative and quantitative real time PCR.
 ii) State the properties of fluorescent probes used in real time PCR with example. 2+2+4
- b) i) Illustrate how does DNA molecules are hybridized and detected through southern Blotting.
 ii) Why nitrocellulose membrane is used in blotting?
 iii) Why do we use methanol in transfer buffer? 4+2+2

**Group-B****Applied Genetics****Marks-20**

4. Answer any two questions from the following: 2×2=4
- a) Why CpG sequence tends to disappear from human genome?
 b) What are the sources of antibody variability?
 c) What do you mean by RNA induced silencing complex?
 d) What is VNTR and STR?
5. Answer any two questions from the following: 2×4=8
- a) Briefly describe the Si RNA therapy for HIV and bacterial disease control.
 b) With a suitable diagram state the characteristic features of BAC vector.
 c) State the function of V (D) J recombinase.
 d) What is a lambda light chain? What is IgG lambda myeloma? 2+2

(Turn over)

(3)

6. Answer any one question from the following:

1×8=8

- a) Five human genomic DNA clones present in YAC vectors were tested by hybridization for the presence of six sequence-tagged sites designated STS 1 through STS 6. The results are given in the following table, a plus indicates the presence of STS and a minus indicates the absence of the STS.

		1	2	3	4	5	6
YAC CLONES	A	+	-	+	+	-	-
	B	+	-	-	-	+	-
	C	-	-	+	+	-	+
	D	-	+	-	-	+	-
	E	-	-	+	-	-	+

- i) What is the order of the STS sites on the chromosome?
 ii) Draw the contig map defined by these data.
- b) What do you mean by gene silencing? Briefly illustrate the methods of gene silencing with antisense oligonucleotides. What is ribozyme? How does ribozyme work for gene silencing? 1+2+2+3

