M.Sc.

2016

2nd Semester Examination

ZOOLOGY

PAPER—ZOO-204

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer *all* questions of the following.

Group — A

(*Parasitology*)

1. Answer any *two* questions of the following : 2×2

(a) What is paratemic host ? Give example.

(b) What do you mean by endemic and Pandemic disease ?

(c) Write the chemical composition of trematode tegument. Mention the functional significance of glycocalyx.

(d) Write scientific name of the causative organism of Pernicious malaria. Mention its Pathogenecity.

2. Answer any *two* questions of the following : 2×4

(a) Draw a labelled diagram of the thired larval stage of *Schistosoma*. Mention the functions of different glands in it. $2\frac{1}{2}+1\frac{1}{2}$

(b) Discuss briefly the distribution of old world and New World Leishmaniasis.

(c) What do you mean by gonotrophic cycle of mosquito ? Write the differences between the hard ticks and soft ticks. Mention the control measures of ticks. 1+2+1

(d) Distinguish between cyclo propagative and Cyclo development transmission. What is hyperparasite ? 3+1

3. Answer any *one* question of the following : 1×8

(a) Describe briefly the life cycle of Pathogenecity and Prophylaxis of *Paragonimus Westermani*. 5+2+1

(b) (i) State, in brief, the host and environmental factors in relation to epidemiology of filariasis.

(ii) What are the discase manifestations show in lymphatic filariasis ? 5+3

Group — B

(*Biotechnology*)

4. Answer any *two* questions of the following : 2×2

(a) What is bioleaching ? Give examples.

(b) Will the sequences 5′-GGCC-3′ and 3′-GGCC-5′ in a double stranded DNA molecule be cut by the same restriction enzyme ?

(c) What do you mean by Biostimulation and Biomagnification ?

(d) What is cryopreservation ? Mention its significance on animal husbandry.

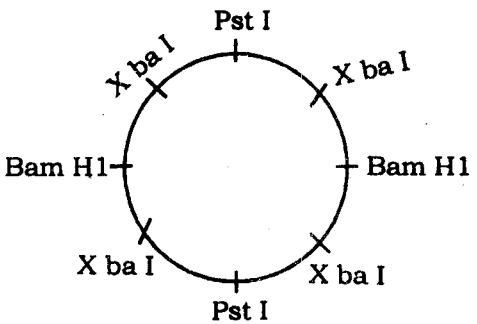
5. Answer any *two* questions of the following : 2×4

(a) What Properties are needed for effective biomarker ? Name one biomarker for Prostate cancer.

(b) What is cDNA library ? Describe Schematically the construction of cDNA library.

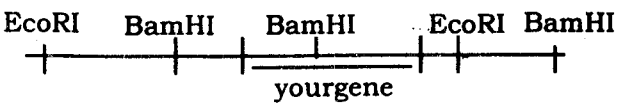
(c) Write notes on Oil eating bug or Superbug.

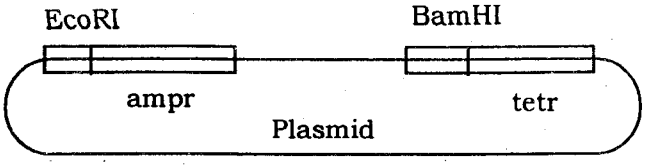
(d) The 8kb plasmid has restriction sites for the enzyme Pst I, xba I and Bam HI. What size fragments would be produced by digestion with each of the enzymes individually, with each possible pair of enzymes and with all three together ?



6. Answer any *one* question of the following : 1×8

(a) In the diagram shown here 'Yourgene' to be cloned in genomic DNA and two antibiotic resistance genes (ampicillin resistance, amp^r and tetracycline resistance, tet^r) in a plasmid. Also show the positions of restriction sites for EcoRI and Bam HI. The sites shown are the only sites present near your gene and in the Plasmid.





(i) Would you use ECORI on Bam HI or both to digest genomic DNA in preparation for cloning 'your gene'?

(ii) Would you use EcoRI or Bam HI on both to digest Plasmid DNA in Preparation for cloning your gene?

(iii) After digestion, mixing DNAs, ligation and transformation which antibiotic would you use to select bacteria that contain the Plasmid?

(iv) Among the bacteria that contain the plasmid, how would you use medium containing an antibiotic to identify those transformed cells that Potentially have inserted into the Plasmid?

(b) Explain the role of artificial insemination and cryopreservation in live stock management. Explain the different components of a typical movable frame hive used in beekeefing. Mention the advantages of vermicomposting. (2+2)+2+2