

Chittagong Veterinary and Animal Sciences University  
MS in Microbiology Final Examination  
January-June Semester 2014  
Course title: Industrial Microbiology  
Course code: IMB-601  
Full marks-40, Time – 2 hours

**Answer any four (4) questions**

- |   |   |   |   |
|---|---|---|---|
| 1 | A | What are the different types of fermentor which are used in industry?   | 2 |
|   | B | Illustrate an ideal fermentor which is widely used in industry.   | 4 |
|   | C | Give an account of different types of centrifuge machine used in the industry.  | 4 |
| 2 | A | What is biofuel? Why people are interested in biofuel now?  | 2 |
|   | B | Mention the application of ethanol in industry.   | 3 |
|   | C | Discuss the role of different carbohydrase in the biotechnology field.  | 5 |
| 3 | A | How can you make industrial waste water into potable water?   | 6 |
|   | B | What do you mean by patent? Describe the different components of a patent.  | 4 |
| 4 | A | Mention some fermented food products.   | 1 |
|   | B | List the bacteria which are involved in production of different cheese.   | 4 |
|   | C | How sauerkraut is produced industrially?  | 5 |
| 5 | A | What is biosafety?  | 1 |
|   | B | You are appointed as an in-charge of a microbiology laboratory? What are the points you will consider to prepare a manual for guide lines of laboratory staff | 3 |
|   | C | Discuss the salient feature of BSC II and III   | 6 |

**Chittagong Veterinary and Animal Sciences University**  
**MS in Microbiology Final Examination**  
**January-June Semester, 2014**  
**Course Title: Mycology and Microbiology of Atypical Bacteria**  
**Course Code: MMA 601**  
**Total Marks: 40      Time: 2 hours**

**Figures in the right margin indicate full marks. Answer any four questions.**

1. a) Enumerate the features of the sexual spores of fungi in the phyla *Ascomycota*, *Basidiomycota* and *Zygomycota*. Describe the different ways by which fungi reproduce asexually. 6  
b) Give a summary of the methods employed for the examination of fungal elements in clinical specimens. 4
2. a) List the species of fungus associated with subcutaneous mycoses. 2  
b) Briefly describe the different phases of the chlamydial life cycle in host cells. How will you diagnose chlamydial infections through laboratory investigations? 8
3. a) Write down the principal characteristics and virulence factors of *Mycoplasma*. 4  
b) Mention the factors influencing the production of mycotoxin. How does aflatoxin work? 6
4. a) Write down the colonial appearance of the dermatophytes which commonly affect dogs. State the microscopic morphology of the dimorphic fungi in animal tissue and in cultures. 7  
b) How will you isolate and identify *Candida albicans* from clinical specimens? 3
5. a) Enumerate the members of the *Rickettsiales* of veterinary importance and the cell types which they target. 4  
b) Point out the phenotypic properties of *Coxiella burnetii*. Give an overview of genotyping techniques currently used for typing of *Coxiella burnetii*. 6

Chittagong Veterinary and Animal Sciences University  
MS in Microbiology Final Examination  
January-June Semester 2014  
Course title: Advanced General Virology  
Course code: AGV-601  
Full marks-40, Time – 2 hours

**Answer any four (4) questions**

- |   |   |  |   |
|---|---|--|---|
| 1 | A | Virus is unique- Justify the statement.  | 2 |
|   | B | You are supplied with NDV infected cell lysate. What will be your strategy to purify NDV from that sample? | 8 |
| 2 | A | Discuss virus mediated apoptosis.  | 7 |
|   | B | How does virus evade host defense mechanism?   | 3 |
| 3 | A | Describe the transcription mechanism of positive sense, negative sense and retro viruses.                  | 6 |
|   | B | How does the virus get rid from the cell?  | 4 |
| 4 | A | Mention the biological role of interferon.   | 7 |
|   | B | Explain one step growth curve.   | 3 |
| 5 | A | Describe structure of a typical virus.   | 1 |
|   | B | Explain virus versus cell interaction.   | 3 |
|   | C | What are the ways you can check viral replication in a host?   | 6 |

Chittagong Veterinary and Animal Sciences University

MS in Microbiology Final Examination

January – June Semester 2013

Course title: Food Microbiology

Course Code: FBM-601

Full Marks- 40, Time- 2 Hours

Answer any four questions; Figure in the right margin indicate full marks

1. a) Write the name of contaminating microorganisms of meat 2.5  
b) What are the sources of contamination in meat? 2.5  
c) Describe in brief the spoilage of meat under aerobic condition 5
  
2. a) Define Food borne disease and classify it with example. 5  
b) Describe the growth, pathogenicity and toxin production mechanisms of Enteropathogenic *E. coli*. 5
  
3. a) Discuss briefly the steps of food borne disease outbreak investigation. 5  
b) Write down the principles of food preservation and enlist commonly used methods of food preservation. 5
  
4. a) What are the sources of contamination of fish? 2.5  
b) What are the factors influencing kind and rate of spoilage in fish? 5  
c) Write down the Physical and chemical symptoms of rotten fish. 2.5
  
5. Write short note on any four - 2.5×4  
I) HACCP =10  
II) Antimicrobial constituents of food  
III) Intrinsic parameters of foods that affect microbial growth  
iv) Ropiness of milk  
v) Single cell protein(SCP)

Chittagong Veterinary and Animal Sciences University  
MS in Microbiology Final Examination  
January-June Semester, 2014  
Course title: Advanced General Bacteriology  
Course Code: AGB-601  
Full Marks: 40; Time: 2 hours

**Answer any 4 (FOUR) questions.**

1. Write down the properties of Cyanobacteria. What are the basic differences between the constituents of Gram positive and Gram negative bacterial cell walls? How do bacteria move within their growing media? 10
2. Enumerate the major categories of bacterial nutrients. What do you mean by bacterial growth and what should be done to obtain optimal bacterial growth? How does protonmotive force form and function in bacteria? 10
3. What are the characteristics of respiratory catabolism and how does it differ from fermentative catabolism? Describe the Embden-Meyerhof-Parnas pathway for the catabolism of glucose in bacteria. 10
4. Write in brief the growth characteristics of bacteria in liquid media. Enumerate the functions of different domains of tRNA. How mRNA is formed in bacteria? 10
5. What is mutation and how does it differ from genetic recombination? Write down the consequences of point and deletion mutations in bacteria. How many kinds of plasmids are seen in bacteria and what are the functions they serve? 10

M. S. EXAMINATION - 2014

Course Name: Advanced Molecular Biology

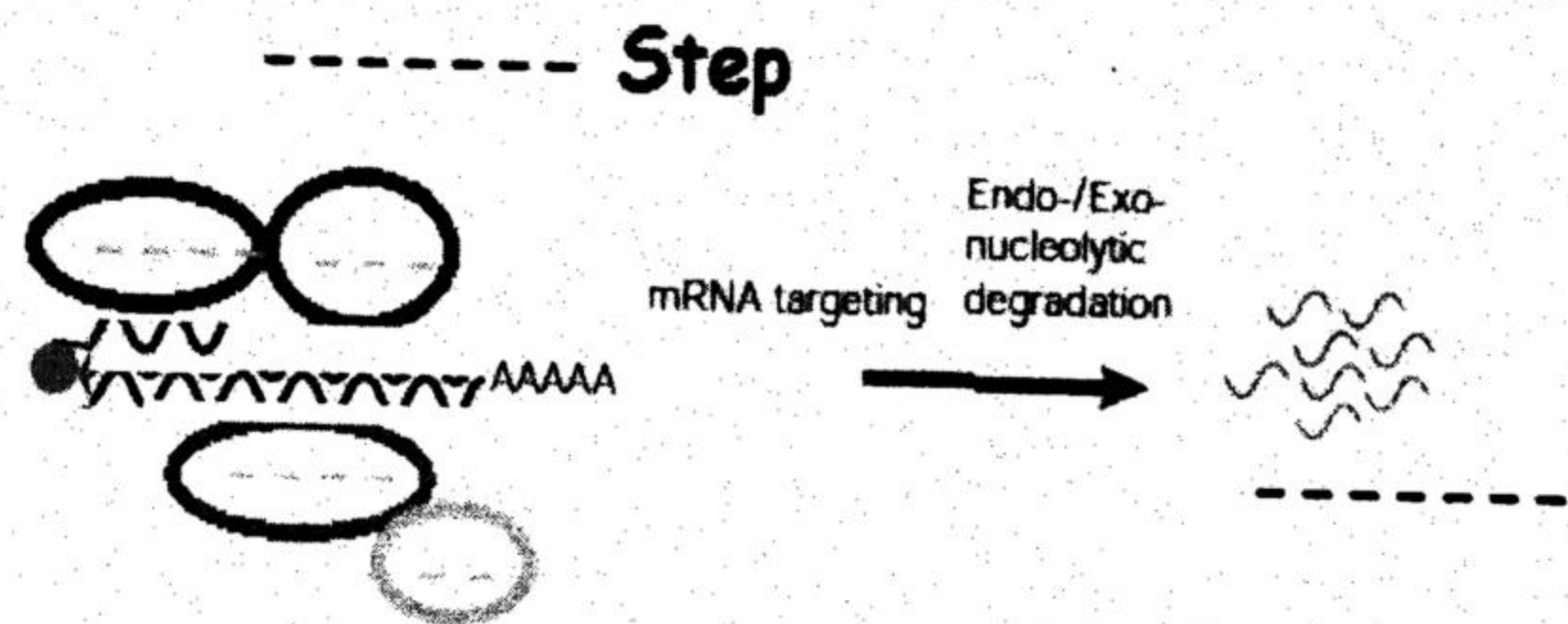
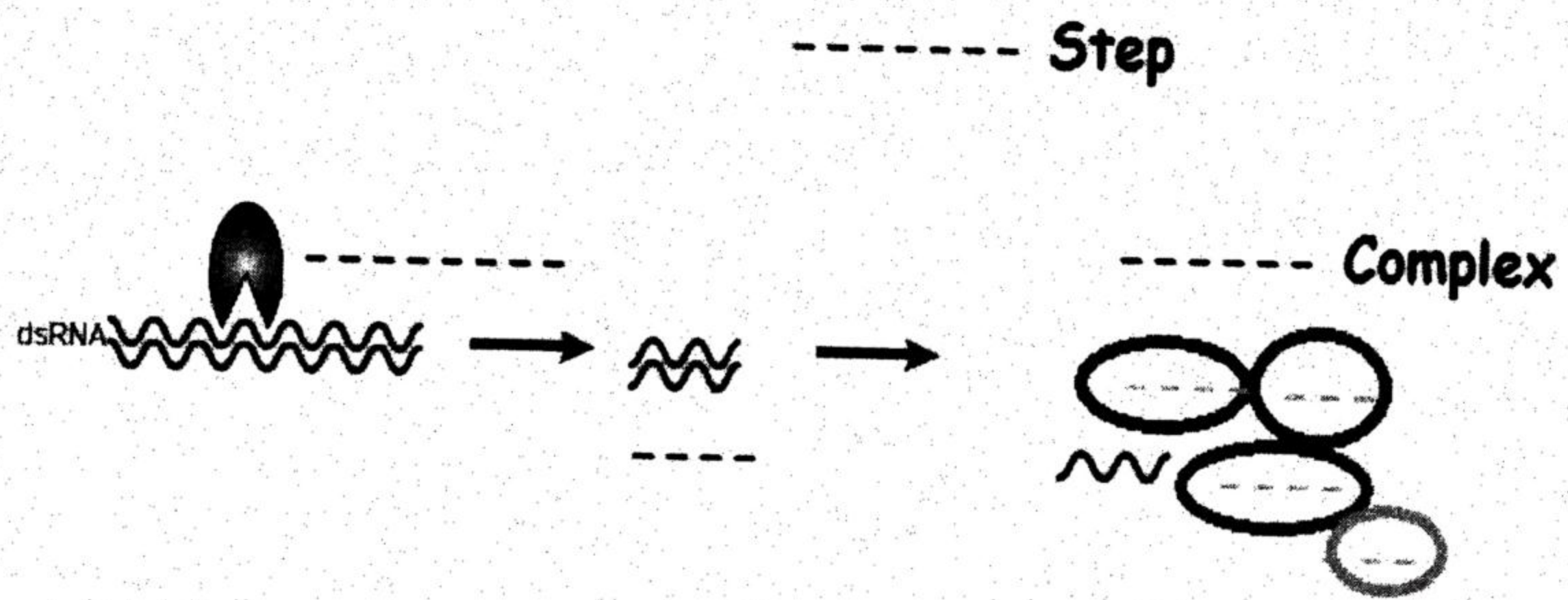
Full Marks - 40

[N.B.- The figures in the right margin indicate full marks. All questions are of equal value.  
Answer any four questions.]

- 1.a) Homology dependant gene silencing is a process executed through multiple routes. Explain. Clearly mention the deference between PTGS, TGS, VIS, & TIS. 1+4=5
- b) Differentiate between following terms: 1 x 5 =5  
RNAi, miRNA, siRNA, piRNA, and rasiRNA
- 2.a) What do you mean by genome mapping? Describe the importance of genome mapping in genome sequencing. How does shotgun sequencing bring benefits for genome mapping. 2 + 2 + 3  
=7
- b) Discuss the benefits of Poly A tail in mRNA sequences. What is the importance of un-translated region and advantages of 5' Cap? 1+2=3

3. a). Fill in the blanks in the following figure of RNA interference mechanism.

10



4. a). Mention the effective approach for interactome analysis.

1

b). MW of GEF and Ras are 20 & 27, respectively. You have found following three types of gel. What are the meanings of following diagrams?

3

x

3

=

9

Fig. A.

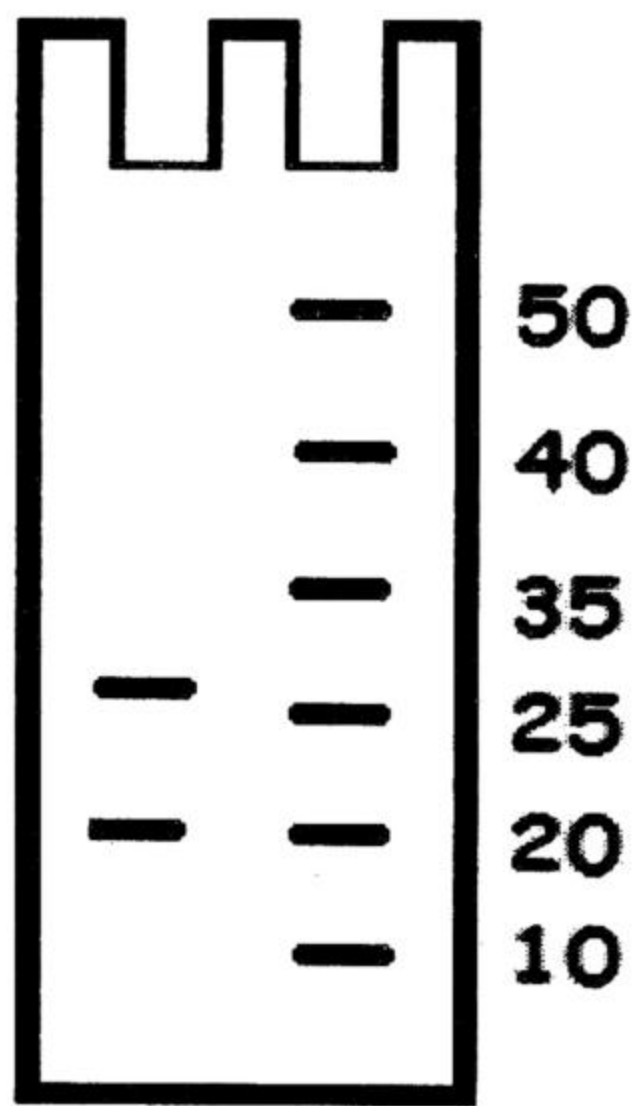


Fig. B.

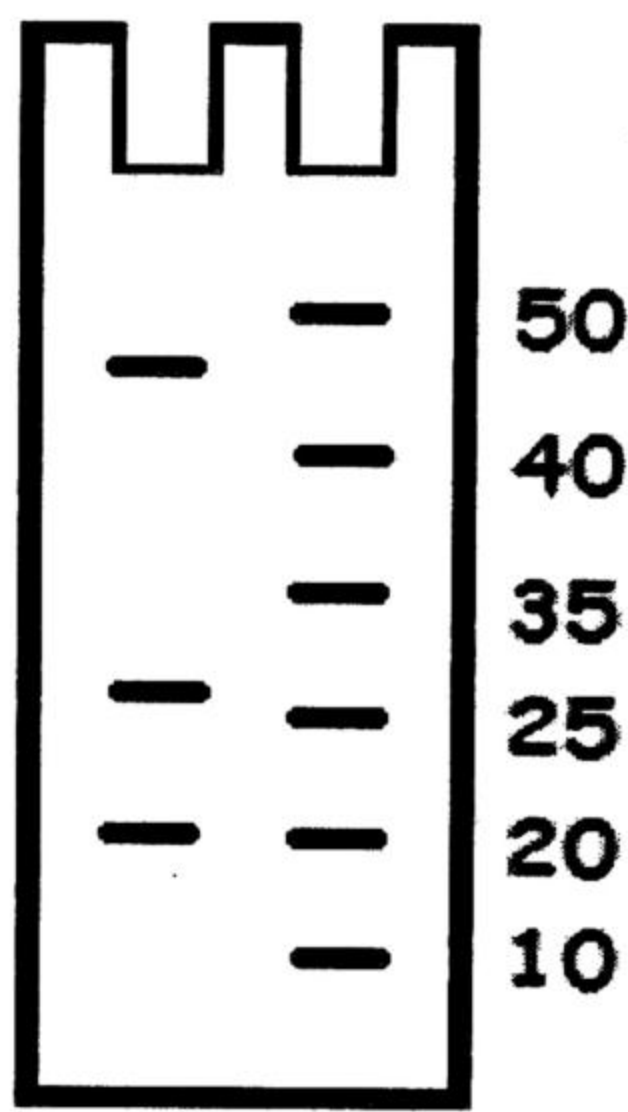
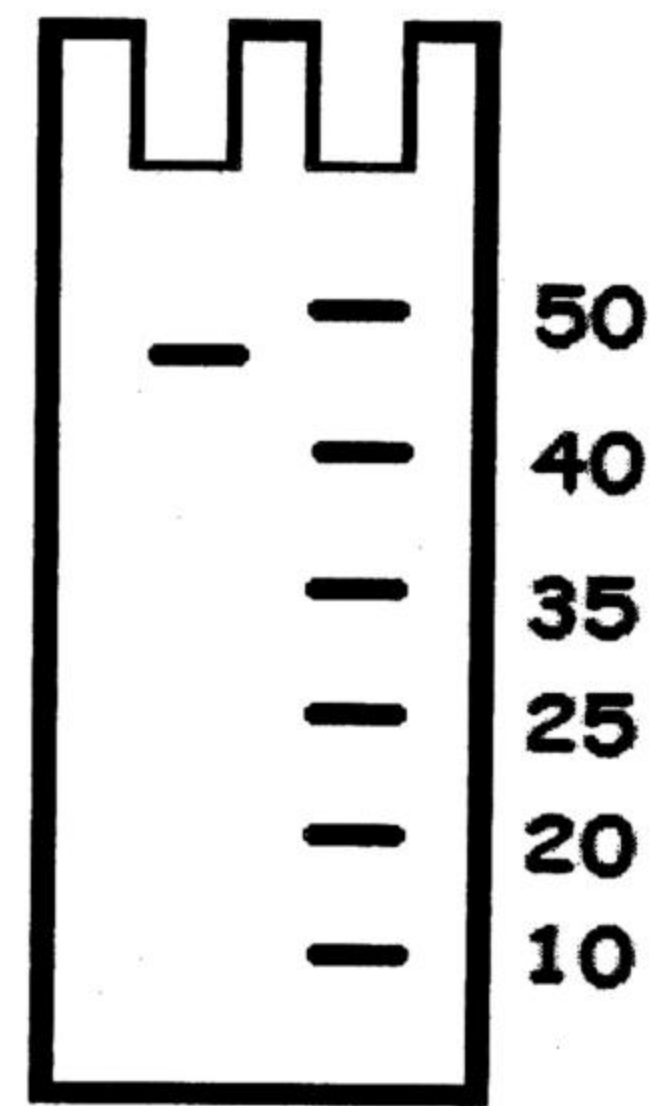
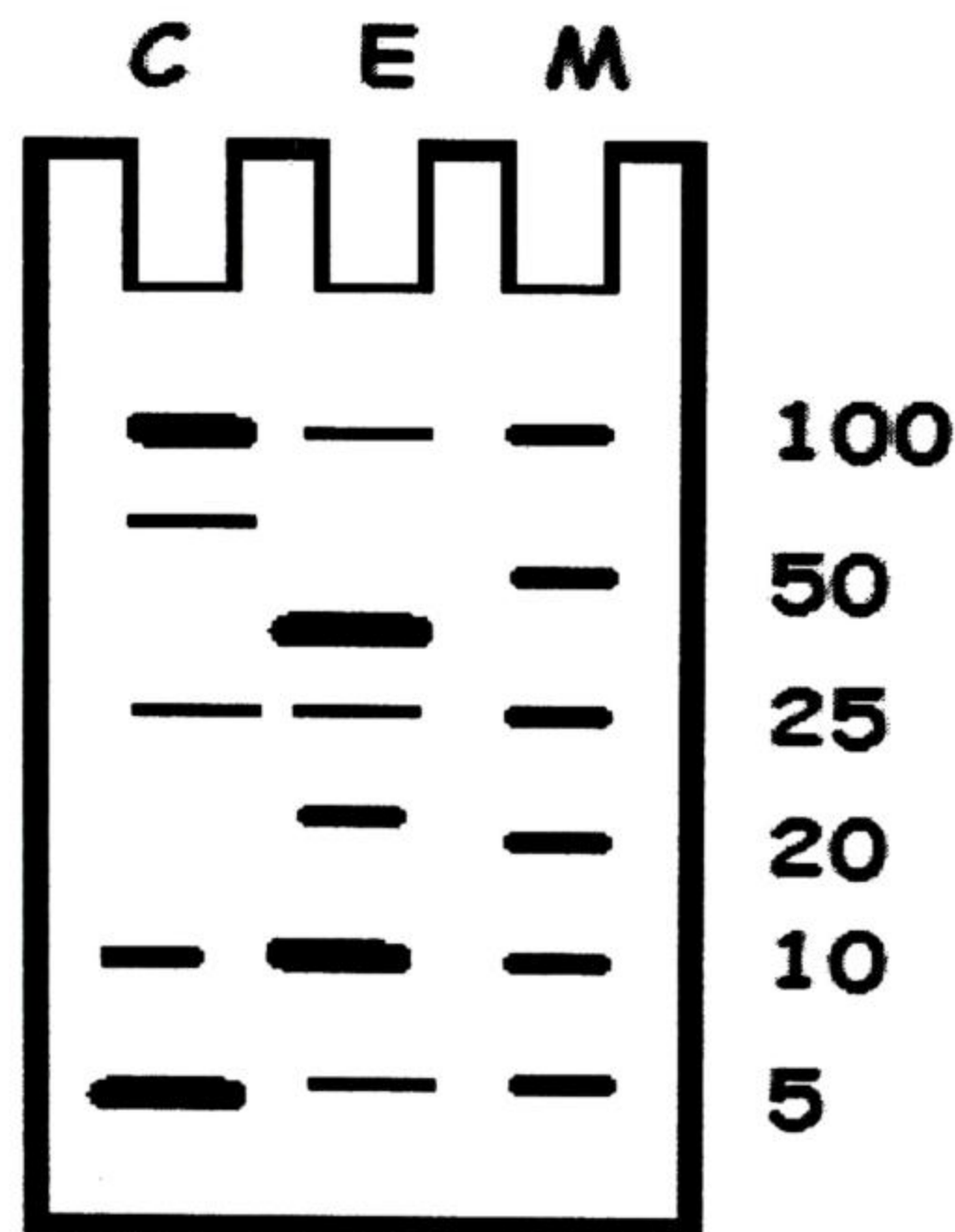


Fig. C.

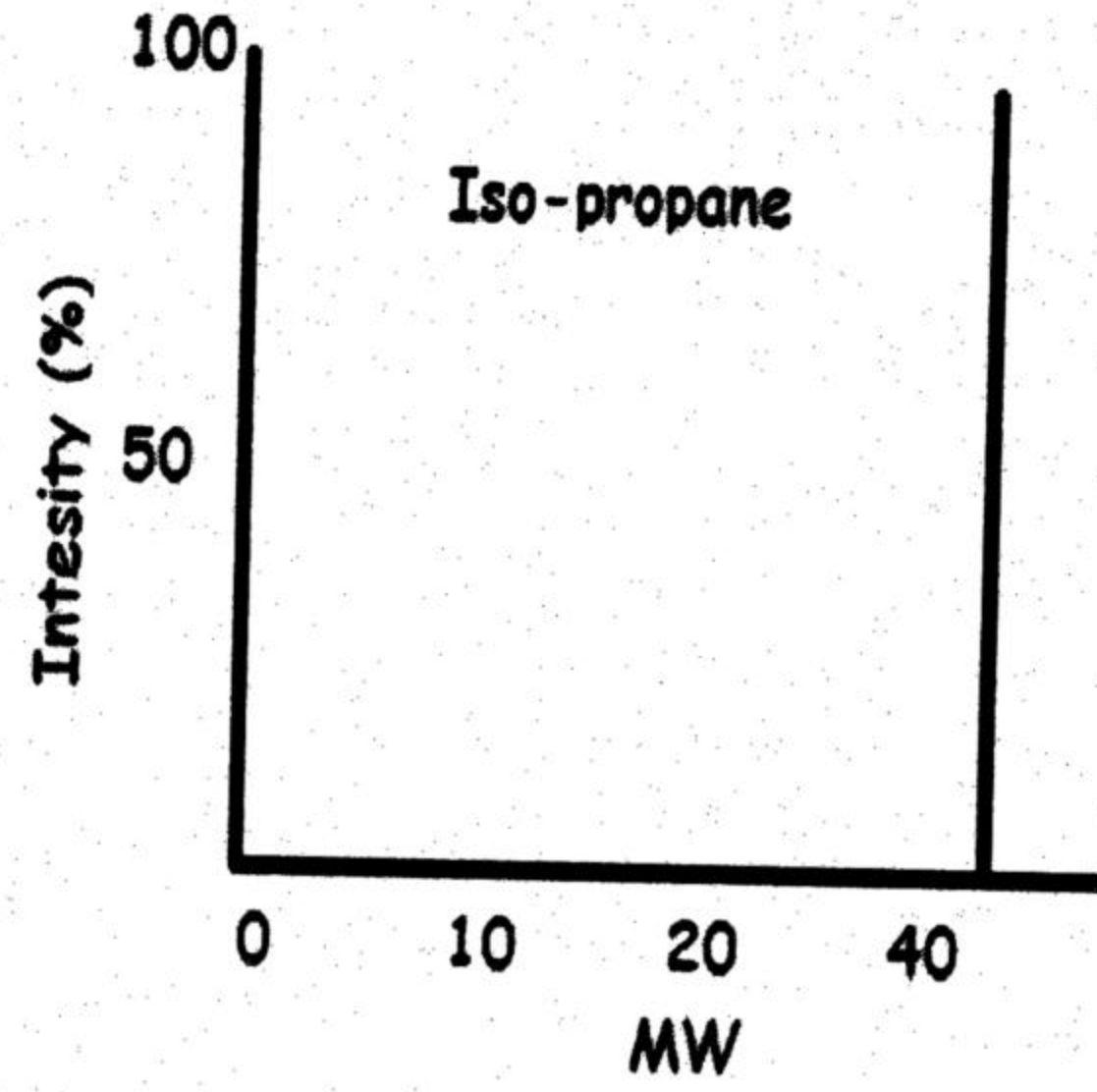
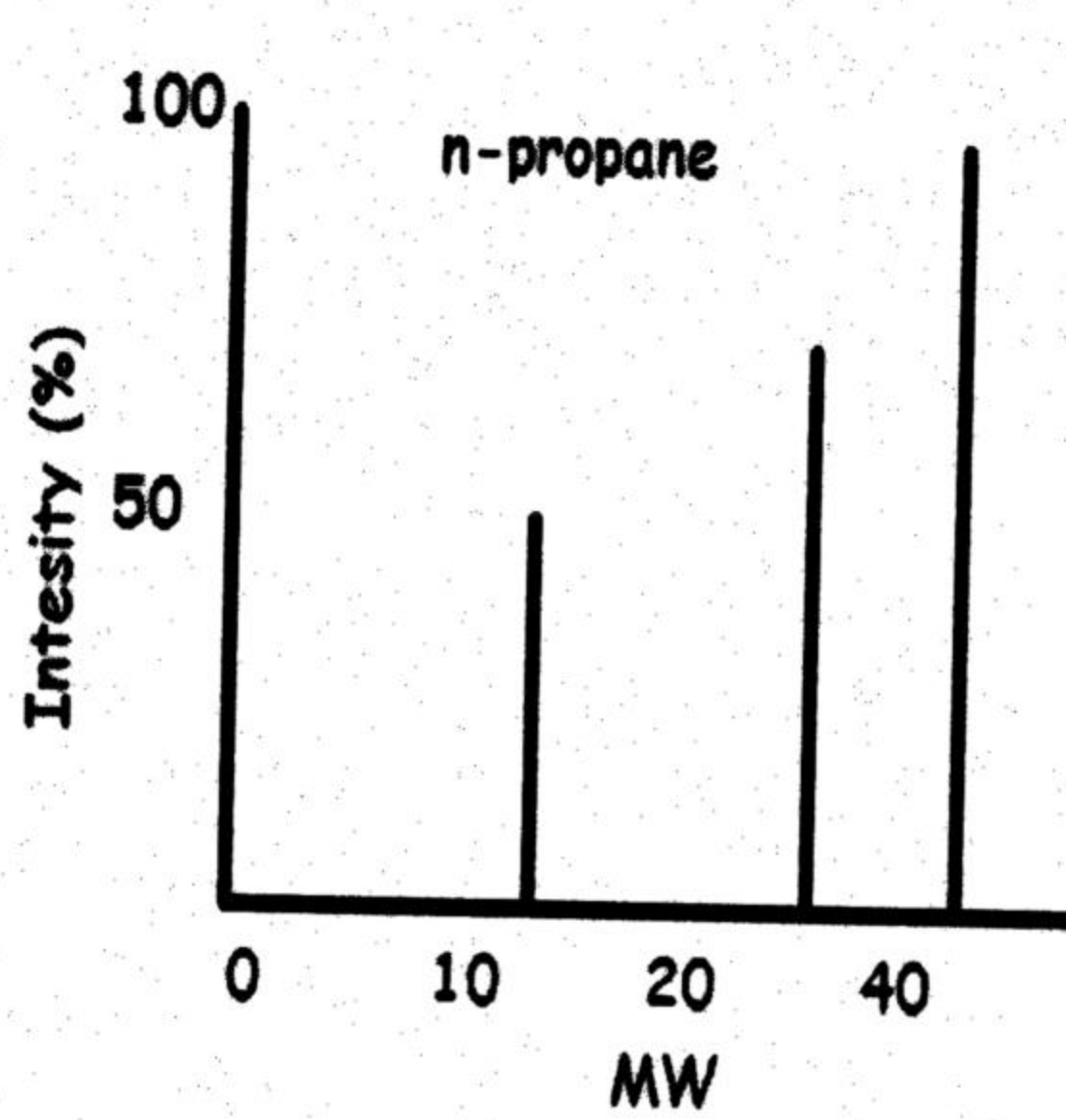


5. a). Separation of ions on the basis of  $m/z$  is a basic point of MS analysis. Explain. 1
- b). Chose the appropriate band patterns from following diagram for exploring new targets by MS & draw your explanation. 3



- c). Explain the following diagrams appear during analysis of MS spectrum. 3  
 X  
 2  
 =





6.

Define blastx & tblastn

A nucleic acid (Fig.A) and protein sequence (Fig. B) were placed in NCBI data bases. The following windows were appear in NCBI databases. Draw the conclusion for all sequences on the basis of the sequence homology.

2  
+  
2  
3  
+  
3

Fig. A.

Seq.1.:atgaatccgggcctatacgccggcctatcc

Seq.2.:atgctataccgggcctatacgccggcctatcc

Seq.3.: atgaatccgggcctatacg

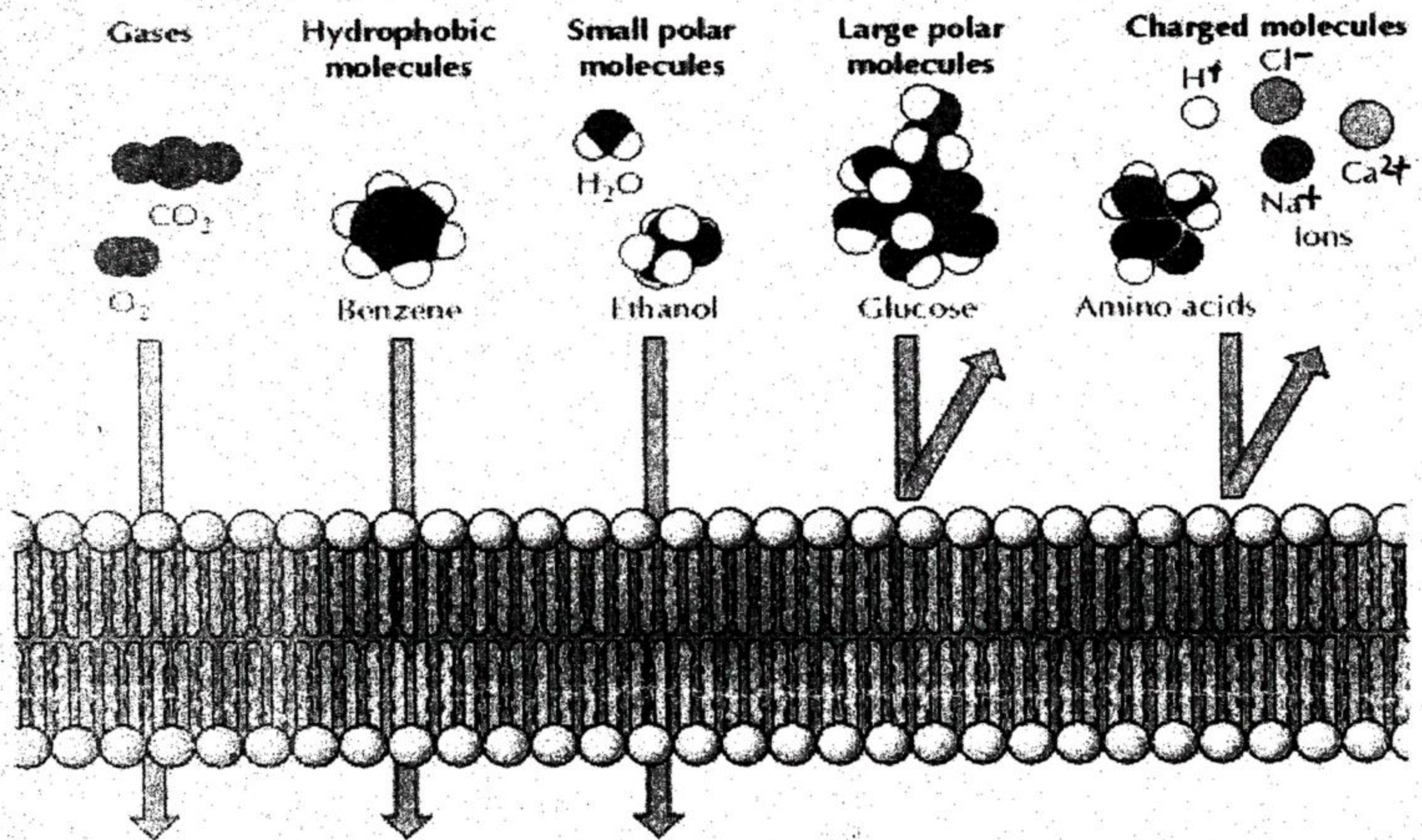
Fig. B

Seq.1.: MLKYML

Seq.2.: MLKL

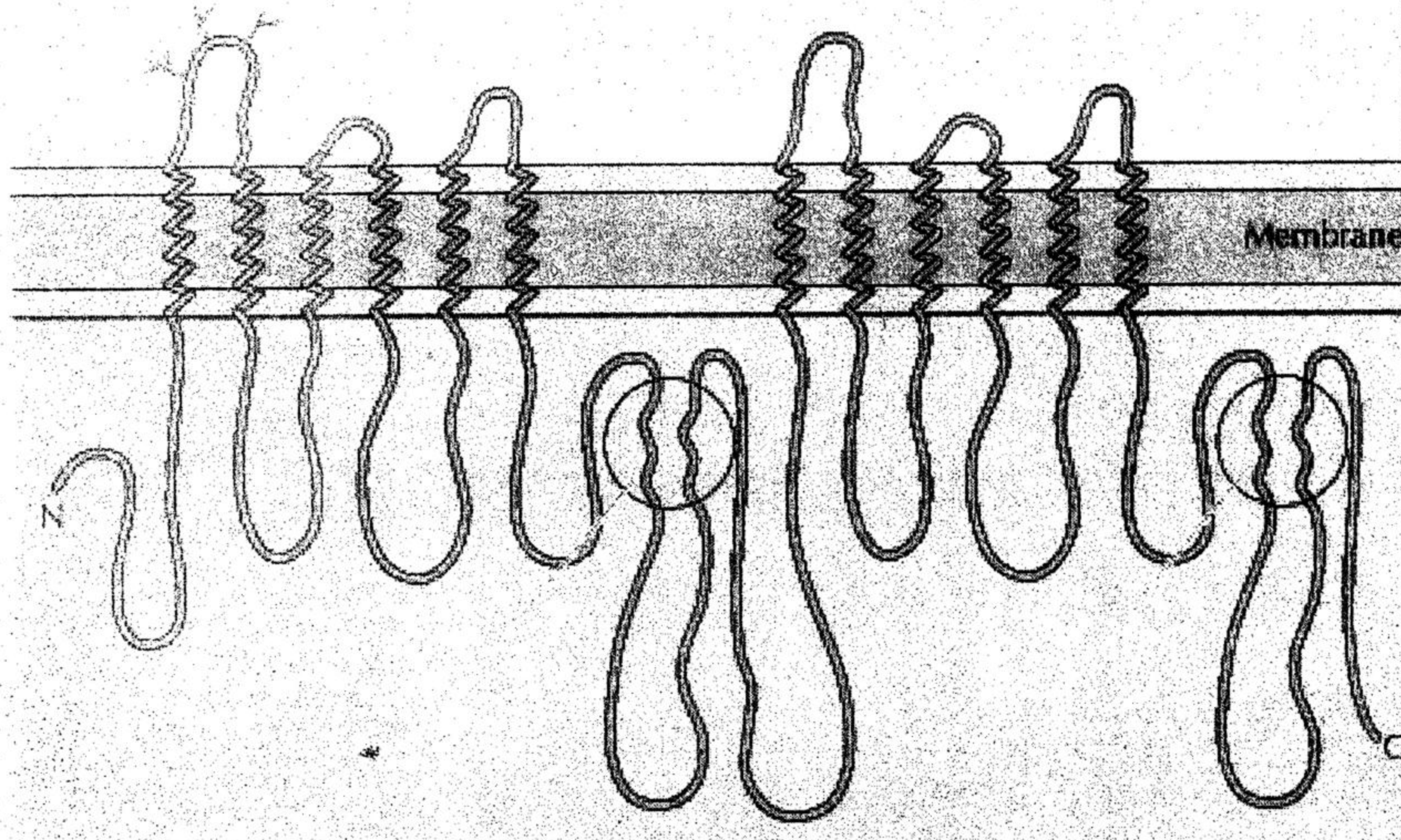
Seq.3.: MYL

[N.B.- The figures in the right margin indicate full marks. All questions are of equal value. Answer any four questions.]

<p>1.a)</p>	<p>Plasma membrane selectively permits small molecule to enter into cell. Explain. Explain the following figure on the basis of molecular permeability.</p> 	<p>1+5 = 6</p>
<p>b)</p>	<p>Differentiate between carrier protein and channel protein.</p>	<p>2</p>

c) Mark the basic structural unit of following ABC transporter

2



2.a) Discuss the member of protein filaments responsible for cytoskeleton protein. How does they regulate formation of cyto skeleton?

3 + 2

b) Define the structure of microtubules. How can you purify tubulin from bovine brain?

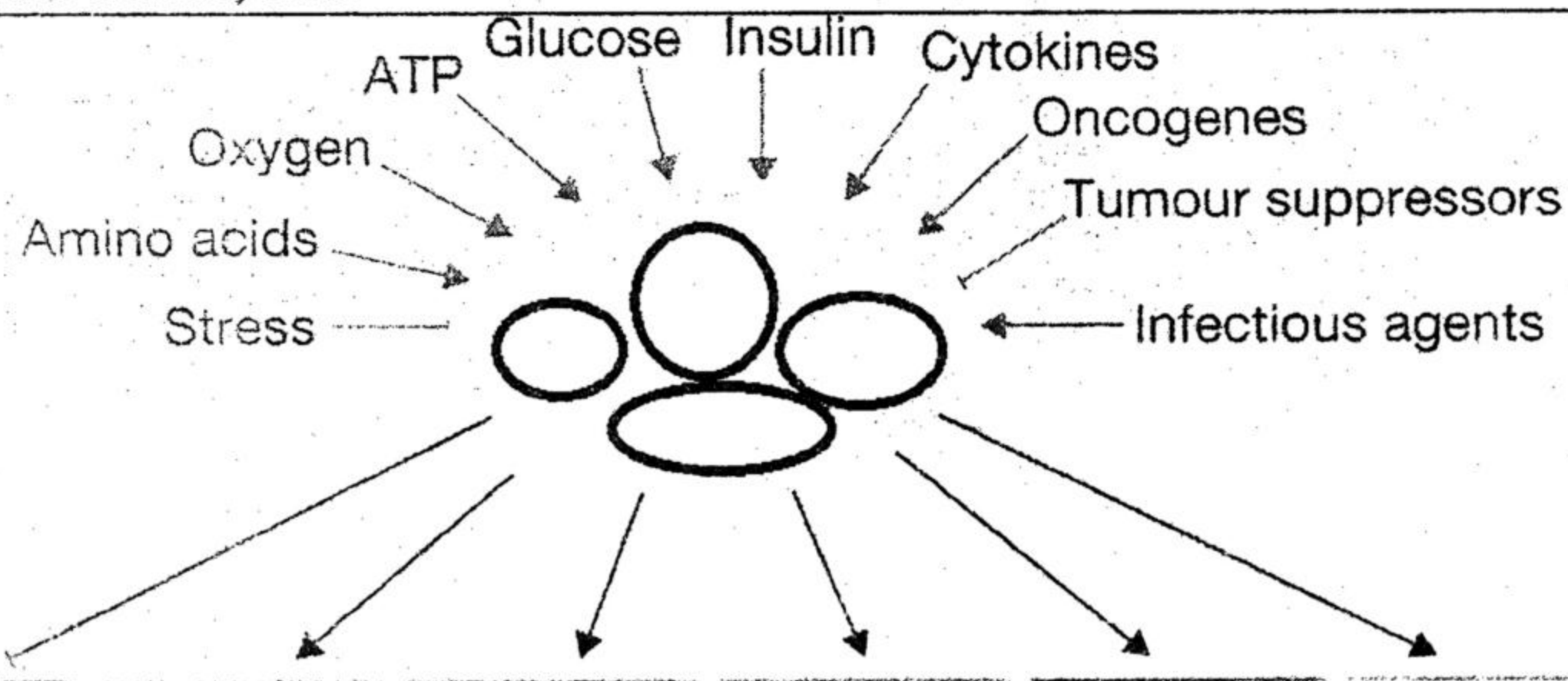
2 + 3

3. Clear the status of cell during following phase of cell cycle. Correlate the function of CDKs during the phases. Go, G1, M, S, G2, M.

10

4. a). Select appropriate molecule in following figure and mention the appropriate functions.

10



5. a). Does autophagy follow the rule of PCD? Differentiate between macro and micro autophagy.

2 + 3

b). Discuss the role of following protein in apoptosis

5

	i). Apaf1, ii), Caspase 3, iii). Caspase 9, iv) Cytochrome c v) PARP	
6.a).	Write down the morphological patterns of necrosis.	4
b).	Differentiate between Karyolysis, Pyknosis, and Karyorrhexis	6

Chittagong Veterinary and Animal Sciences University  
MS in Poultry Science final Examination  
Semester: January–June 2014  
Subject: Poultry Farm Planning and Management -Theory  
Course Title: PPM-602; Total marks: 40; Time: 2 hours

Answer any five questions of the following where question no. 5 is compulsory; Each question has equal marks, Figures in the right margin indicate full marks

- 1) What is plan, program, and organization? Discuss the general principles of farm planning 8
- 2) State the managerial roles of a poultry farm to maintain profitable production, and give a plan for maintaining strict bio-security and sanitary measurements 8
- 3) What is farm & farming system? Discuss the different factors that affect farm planning and design 8
- 4) Discuss the system properties and criteria for measurement of performance of ideal farming 8
- 5) Give an advisory plan or suggestions to a farmer who wants to produce twenty thousand day-old chicks from a breeder flock 8
- 6) Discuss market identification, benefits, and limitation of poultry farming shortly 8
- 7) Narrate the strategies or plans with which you can reduce the environmental pollution that is retrieved from poultry enterprises briefly 8
- 8) Give the schematic view with numerical calculation (cost: benefit analysis) for the argument that quail rearing is more profitable than chicken 8