17/08/21 **BT205** **TEST-1**

INSTRUCTIONS:

A) Answer the below questions to the point
B) DO NOT forget to write your name and roll number
C) Submit within the given time
D) Plagiarism will be checked

A) Answer the following in one sentence only **0.5x6=3.0M**

1. Write one common character of lipids and integral membrane proteins of the membrane.
2. Write any two functions of membrane proteins.
3. What is a heterodimer? Give an example.
4. Write any two characters of the membrane that are influenced by its lipids.
5. Write a common characteristic of all three cytoskeleton filaments.
6. What determines the specificity of Myosin cargo binding?

B) Answer the following in one to two sentences only **1x5=5.0M**

1. How does the length and saturation of lipids effect membrane fluidity?
2. Describe the amphipathic nature of cholesterol.
3. What would be the consequence for actin filament assembly/disassembly if a mutation prevented actin's ability to bind ATP?
4. How is nucleation event different in microfilaments and microtubules?
5. Most of the actin filament is composed of actin subunits bound to ADP. What is the reason?

C) Answer the following **1x2=2.0M**

1. A novel actin-binding protein (X) is overexpressed in certain highly malignant cancers. You wish to determine if protein X caps actin filaments at the (+) or (-) end. You incubate an excess of protein X with various concentrations of G-actin under conditions that induce polymerization. Control samples are incubated in the absence of protein X. The results are shown in the below figure. What do you conclude from this.