

# **Bio Physics Interview Questions And Answers Guide.**



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## Bio Physics Job Interview Preparation Guide.

### Question # 1

What are the advantages and disadvantages of transgenic animals for neuroscientific studies?

#### Answer:-

the advantages are

- \* in medical research, transgenic animals are used to identify the functions of specific factors in complex homeostatic systems through over- or under-expression of a modified gene (the inserted transgene);
- \* in toxicology: as responsive test animals (detection of toxicants);
- \* in mammalian developmental genetics;
- \* in molecular biology, the analysis of the regulation of gene expression makes use of the evaluation of a specific genetic change at the level of the whole animal;
- \* in the pharmaceutical industry, targeted production of pharmaceutical proteins, drug production and product efficacy testing;
- \* in biotechnology: as producers of specific proteins;

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### Question # 2

What are the basic principles of regulation?

#### Answer:-

Principle for Regulation (especially of Gene expression) lies in either positive control(eukaryotes) or negative control(prokaryotes and lower eukaryotes) It depends on certain cis acting elements like promoter,enhancer,etc. and trans acting elements like repressors,transcription factors etc.

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### Question # 3

What is the use of HPLC, how we use the columns, what is important in the pharma field?

#### Answer:-

HPLC is high performance liquid chromatography, it is used for analytical purpose for identification of impurity in drugs during its synthesis. during preparation phase it helps in understanding the solvent to be chosen and RT of the component. it can also separate different component of drug based on their Retention time. RT varies with column used and the mobile phase used.

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### Question # 4

Explain the terms MS-DOS and WINDOWS?

#### Answer:-

MS dos is a command user interface(cui) and windows is graphical user interface (gui) means user can interact with os only through the set of internal and external dos commands whereas in windows it can be done by just a clicking on items  
directory in dos is called folder in windows

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### Question # 5



What is the Church or Turing thesis?

**Answer:-**

Turing and Church had considered various computational models, such as Turing machines, random-access machines, and so on. All these computational models could be implemented through physical systems subject to the laws of classical mechanics. While studying many such computational models, computer scientists came up with the following Holy Grails:

1

1. Church-Turing thesis: This states that any computational model

is as powerful as the Turing machine. In other words, given any computational model, we can simulate computations on that model using the Turing machine. The simulation may of course involve a blow-up

in time taken as well as in space used.

2. Strong Church-Turing thesis: This states that for any computational model, a polynomial-time algorithm for a decision problem in that computational model can be simulated by a polynomial-time algorithm

in the Turing machine model. In looser language, if we think of polynomial time as the notion of tractability, then tractability in

any computational model is equivalent to tractability in the Turing machine model.

3. Strong Church-Turing thesis (randomized version): This states that for any computational model, a bounded-error probabilistic polynomial time algorithm for a decision problem in that computational model can be simulated by a bounded-error probabilistic polynomial time algorithm for the problem in the Turing machine model.

In looser

language, if we think of BPP as the notion of tractability, then BPP

is any computational model is equivalent to tractability in the Turing machine model.

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### Question # 6

What are the properties of dynamic systems?

**Answer:-**

drug action in our body

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### Question # 7

What are neuromodulators?

**Answer:-**

Neuromodulators modulate regions or circuits of the brain. They affect a group of neurons, causing a modulation of that group.

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### Question # 8

What is Movements?

**Answer:-**

As plants are fixed to the ground, they cannot move bodily but their protoplasm is sensitive to certain external factors act as stimuli such as heat, light, gravity, chemicals, electricity etc.

Movements may be classified into two main groups.

1. Autonomic or Spontaneous.

2. Paratonic or Induced.

Spontaneous Movements. It is the movements of creation organs of plants without the influence of any external stimuli e.g. movement of protoplasm and cilia, brisk movement of many desmids movement of protoplasm and cilia, brisk movement of many desmids etc..



This type of movements may be of two kinds.

(a) Movement of variation:- These movements are due to variation in turgidity of cell. This movement is exhibited by pulsation.

This kind of movement is seen in Indian telegraph plant.

(b) Movement of growth:- This is movement of growing regions due to unequal growth of organs on different sides. This kind is seen in some creepers and trailers and this type of movement is very slow.

Induced Movement:- This is movement of plant organ are induced by some external stimuli. These induced movements are of following kinds

- (a) taxes
- (b) tropisms
- (c) nasties

(a) Taxes:- Taxic movements are the movements of free organs or entire free organism induced by external sources at temperature, light and chemical substance. Ciliated bodies as Zoospores and antherozoids show this kind of movement. These bodies either show positive or negative movement by the stimulus.

(b) Tropism:- In this type of movement the organ concerned moves either towards the source of the stimulus or away from it. These movements are also influenced by external stimulus as contact, gravity and moisture. These movements are of following kinds according to nature of stimulus.

(c) Haptotropism:- This movement is induced by contact with foreign body. Climbers, Tendrils and twinning stems show this kind of movement, when climbers or tendrils come in contact with any support, the opposite side of contact continues to grow while the growth of contacted side is checked. This opposite side continues to grow while the growth of contacted side is checked. This opposite side continues to grow until it coils around the object. Some climbers climb clockwise some move anticlockwise.

(d) Phototropism:- These movements of plant organs are due to influence of light. Some organs of plants are attracted by light and grow towards it as shoots. These are positively heliotropic or positively phototropic but some organs e.g. roots grow away from light are known to be negatively phototropic or negatively heliotropic. Dorsiventral leaves are said to be Diaheliotropic these grow at right angles to the direction of light so their upper surface is only exposed to light.

(e) Geotropism:- This kind of plant movement is due to influence of force of gravity. The roots show positive geotropism but stem shows negative geotropism.

(f) Moisture:- This movement of plant organs is due to moisture and is known as hydrotropism. Roots show a great tendency to grow towards the source of moisture and these are therefore known as positively hydrotropism.

(g) Nasties or Nastic Movements:- Nasties or nastic movements are movements dorsiventral or like petals, leaves induced by external stimuli as contact, light, and temperature. These movements not like tropic movements, as in these directions of movements is not determined by direction of stimulus.

Two types of movements are found under these which are as follows

(h) Scismonasty:- This type of movement is so called as this is brought about by some mechanical stimuli as contact with a foreign body; drops of rain etc.

Examples of plants which show this kind of movements are sensitive plant, *Neptunia*

Nyctinasty:- This type of movement is due to alternation of day and night i.e. light and darkness. Leaves are mostly affected by this kind of movement. Leguminous plants show this kind of movements.

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### Question # 9

What is a turnover number of an enzyme? Is that always an evaluation parameter of the activity of the enzyme?

**Answer:-**

turnover number of enzyme is number of substrate it converts into product per minute. turnover number is depended on substrate affinity, physical condition of the enzyme (pH, temperature).

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### Question # 10

HOW IS BLOOD FORM?



**Answer:-**

CELLS TOGETER GHJKL

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**Question # 11**

Ammeter burns out when connected in parallel. give reasons?

**Answer:-**

I don't think so. because ammeter measure current, for which resistant should be low. this is possible only when ammeter is connected in parallel order. one case may happen if resistant is extremely low then maximum current will pass, then only there are chances of burning the ammeter.

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**Question # 12**

What is information?

**Answer:-**

The result that has been generated after processing of raw data is called information.

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