

## Unit 4 - Week 2: Scientific hypothesis and abstract writing

### Course outline

How does an NPTEL online course work?

Assignment "0"

Week 1: Introduction to the topic and on types of reasoning

Week 2: Scientific hypothesis and abstract writing

Lecture 4: Scientific Hypothesis

Lecture 5: Scientific Hypothesis (contd.)

Lecture 6: Testing the Hypothesis

Lecture 7: Introduction to Scientific Writing

Lecture 8: Writing an Abstract

Quiz : Assignment week-2

Feedback For Week 2

Week 2 - Assignment Solution

Week 3: How to write a research article

Week 4: Preparing figures and schematics, and oral communication

Lecture notes

Text Transcripts

VIDEO DOWNLOADS

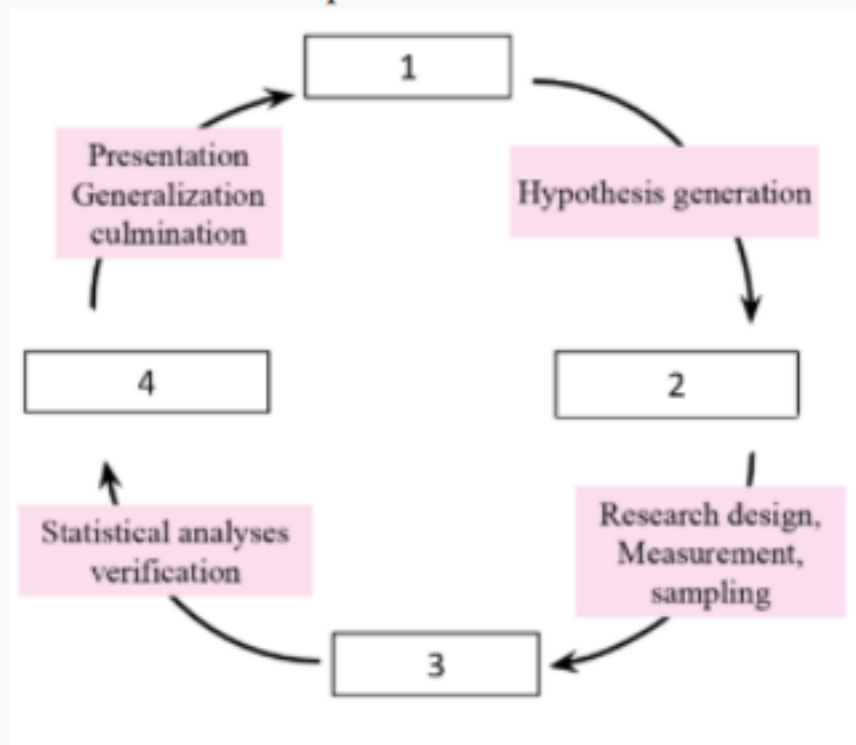
Live Sessions

## Assignment week-2

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

**Due on 2020-02-12, 23:59 IST.**

1) Given below is the schematic for developing an ideal research structure, where 1, 2, 3, 4 are the key points involved which leads to 1 point one mentioned in the pink boxes. State the correct sequence for the following?



- 1- theory; 2- verification; 3- data; 4- hypothesis  
 1- theory; 2- data; 3- hypothesis; 4- verification  
 1- theory; 2- hypothesis; 3- data; 4- verification  
 1- data; 2- verification; 3- theory; 4- hypothesis

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*1- theory; 2- hypothesis; 3- data; 4- verification*

2) Which one of the following does NOT identify a "Scientific hypothesis" ?

1 point

- It is testable  
 It is a suggestion, but the outcome could prove it wrong  
 It is a suggestion and the outcome will be as expected  
 Based on limited data set

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*It is a suggestion and the outcome will be as expected*

3) Given below are four statements:

- I. BMP signalling is necessary for bone and cartilage development.  
 II. The total energy radiated from a black body is equal to the fourth power of its absolute temperature.  
 III. The sun rises in the east and sets in the west.  
 IV. Every cat that we have observed purrs. Therefore, all cats must purr.

1 point

Which one of the above statements is the most suitable example of a hypothesis?

- I  
 II  
 III  
 IV

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*I*

4) A researcher did an experiment to measure the amount of the protein "A" upon treatment of the cells with the compound "X". She observed an increased level of "A" in the cell upon treatment with "X". Based on her observation, she plans to build a suitable hypothesis. Which one of the following statements is the most appropriate hypothesis for her observation?

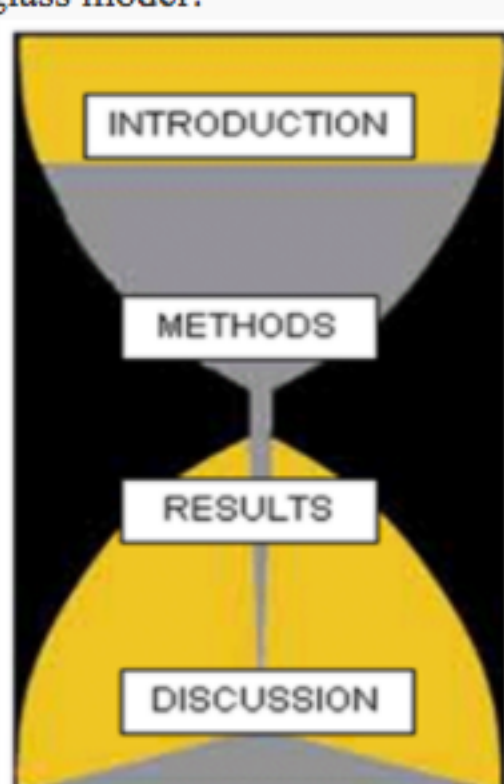
- Compound X is a positive regulator of the gene coding for protein A.  
 Compound X increases the level of protein A in cells.  
 The level of protein A increases in the presence of compound X.  
 None of these.

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*Compound X is a positive regulator of the gene coding for protein A.*

5) Shown here is the hourglass model for writing scientific research articles. Which one of the following options correctly explain the hourglass model?



- The hourglass indicates the timeliness of research communication  
 The hourglass represents the broad introduction, the focus of the study and its outcome, and the extrapolation of the observations  
 The hourglass represents the difficulty levels of writing different sections – writing methods and results being easier than introduction and discussion  
 The hourglass indicates the relative time that various sections of a research publication takes to complete

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*The hourglass represents the broad introduction, the focus of the study and its outcome, and the extrapolation of the observations*

6) In the advertisement image the person with white colour coat represents?

1 point



- being clean due to the usage of the soap  
 head of the family  
 research & development  
 a modelling career

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*research & development*

7) In scientific narration, the terms "given" and "new" refer to:

1 point

- Existing knowledge in the area | New knowledge in the area  
 Topic already introduced to the reader | New topic being introduced  
 Known data points | new data points  
 All of these

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*Topic already introduced to the reader | New topic being introduced*

8) The statement "The house mouse, *Mus musculus*, is common in most urban areas. *Mus musculus* originated in southern Asia and later introduced to America where it quickly thrived and became established." follows which one of the following writing principles?

1 point

- Theory and hypothesis  
 "Given-before-New" principle  
 "Cause-consequence" relationship  
 All of these

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*"Given-before-New" principle*

9) In scientific narration, the "LIGHT-before-HEAVY" principle refers to:

1 point

- Optics that are heavy  
 A simple topic followed by a complex concept  
 Short sentence followed by a very long sentence  
 All of these

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*A simple topic followed by a complex concept*

10) Which one of the following options correctly defines the abstract of a research article?

1 point

- It should be a concise digest of the content of the research article  
 It should not be a substitute for a research article  
 It should be a brief description of the research article  
 All of these

No, the answer is incorrect.  
Score: 0

Accepted Answers:

*All of these*