

**BECS-184**

**BACHELOR'S DEGREE PROGRAMME**

**[B.A.G/ B.Com G/B.Sc G/ B.A.(H)]**

**ASSIGNMENT 2021-22**  
**(July 2021 cycle and January 2022 cycle)**

**COURSE CODE: BECS-184**

**DATA ANALYSIS**



**SCHOOL OF SOCIAL SCIENCES**  
**INDIRAGANDHINATIONALOPENUNIVERSITY**  
**MAIDAN GARHI, NEW DELHI-68**

Dear Student,

As we have informed you in the Programme Guide, evaluation at IGNOU consists of two parts: i) continuous evaluation through assignments, and ii) term-end examination. In the final result, assignments of a course carry 30% weightage while 70% weightage is given for term-end examination.

You will have to do three Tutor Marked Assignments (TMA) for a six credit course and two TMAs for a four credit course. This Assignment booklet has TMAs for the core course **BECS-184 Data Analysis** which is a four credit course. The booklet therefore has two TMAs whose total marks add up to 100 and carry a weightage of 30 %.

Assignment One is intended to test your ability to understand the topic in a systematic, to-the-point and coherent manner.

Assignment Two questions require you to first analyse the topic in terms of arguments and explanations and then write the answers in a concise manner. They are meant to test your ability to distinguish, compare and contrast, or clear understanding of the concepts and processes.

Before you attempt the assignments, please read the instructions carefully provided in the Programme Guide. It is important that you write the answers to all the TMA questions in your own words. Remember, writing answers to assignment questions will improve your writing skills and prepare you for the term-end examination.

As mentioned in the Programme Guide, you need to submit all the assignments within the stipulated time for being eligible to appear in the term-end examination.

**The assignments should be submitted to the Coordinator of your Study Centre as per the following schedule:**

1. **By 30<sup>th</sup> April, 2022** by the students who took admission in the Academic Cycle July, 2021.
2. **By 31<sup>st</sup> October, 2022** by the students who took admission in the Academic Cycle January, 2022.

You must obtain a receipt from the Study Centre for the assignments submitted and retain it. If possible, keep a xerox copy of the assignments with you.

The Study Centre will have to return the assignments to you after they are evaluated. Please insist on this. The Study Centre has to send the marks to the Student Evaluation Division at IGNOU, New Delhi.

We expect you to answer each question as per guidelines for each category as mentioned in the assignment. You will find it useful to keep the following points in mind:

- 1) **Planning:** Read the assignments carefully, go through the Units on which they are based. Make some points regarding each question and then rearrange them in a logical order.
- 2) **Organisation:** Be a little selective and analytic before drawing up a rough outline of your answer. Give adequate attention to your introduction and conclusion.

Make sure that your answer:

- a) is logical and coherent;
- b) has clear connections between sentences and paragraphs, and

c) is written correctly giving adequate consideration to your expression, style and presentation.

3) **Presentation:** Once you are satisfied with your answer, you can write down the final version for submission, writing each answer neatly and underlining the points you wish to emphasize. Make sure that the answer is within the stipulated word limit.

**DATA ANALYSIS**  
**Tutor Marked Assignments**

**Course Code: BECS-184**  
**Assignment Code: Asst /TMA /2021-22**  
**Total Marks: 100**

**Assignment One**

Answer the following questions. Each question carries 20 marks

$2 \times 20 = 40$

1. (a) A lead-free solder can be made using two different alloys. An important characteristic feature of a solder is its melting point, which is known to follow a Normal distribution. An experiment was conducted using a random sample of 21 pieces of solder made from the two different alloys (1 and 2). In each sample, the temperature at which each of the 21 pieces melted was determined. The mean and standard deviation of the sample for Alloy 1 were  $M_1 = 218.9^\circ\text{C}$  and  $S_1 = 2.7^\circ\text{C}$ ; for Alloy 2 the results were  $M_2 = 215.5^\circ\text{C}$  and  $S_2 = 3.6^\circ\text{C}$ . If it is required to test  $H_0: \mu_1 = \mu_2$  against  $H_A: \mu_1 \neq \mu_2$ , where  $\mu$  stands for the population mean, what would be the value of the test statistic? (10)
- (b) Discuss two different techniques each for conducting—(i) Bivariate analysis and (ii) Multivariate analysis. (10)
2. (a) An individual is handover a bag filled with balls of different colours. The table below gives the probability that a randomly chosen ball is of a specific colour, along with a missing probability value of picking a ball of white colour.

Colour	Red	Yellow	Green	Orange	Blue	White
Probability	0.2	0.2	0.1	0.1	0.3	?

Answer the following questions:

- (i) What value must the missing probability be?
- (ii) If a ball is drawn at random from the bag, what is the probability of each of the following events?
- I. It is either Blue or Red in colour.
- II. It is not Yellow in colour.
- III. It is neither Orange nor White in colour.
- IV. It is either Blue or Red or Yellow or Green or Orange or White. (5)
- (b) What are the various assumptions considered for running a multiple regression? Are these different from the ones considered under simple regression? (15)

## Assignment Two

Answer the following questions. Each question carries 12 marks.

$$5 \times 12 = 60$$

3. (a) Consider a distribution or a data set with different values of mean, median and mode. Comment upon the shape of such a distribution in terms of the spread of the frequencies. What will be the relation between the mean, median and mode in such a case? Compare the shape of such a distribution with the one whose mean, median and mode are equal to each other. (8)
- (b) What is meant by a standard score in Statistics? What is the need to calculate such a score? (4)
4. A research study aims at analysing the economic impact of COVID on the Indian economy. What can be some of the appropriate economic indicators in this case? Also enlist various data sources (primary/secondary) to gather data from in estimating these indicators. (12)
5. (a) Discuss various methods of collecting data for conducting a qualitative research. (6)
- (b) To collect data for a study an individual chooses to question people coming out of a mall directly. Identify this technique of collecting data. What is the significance of employing such a sampling technique? (6)
6. Discuss several examples of composite index numbers used as indicators of development in real life. Also write the various steps involved while constructing a composite index. (12)
7. Attempt answering the following:
  - (a) Define Dispersion as a measure of spread. Discuss various measures of Dispersion. (6)
  - (b) Coefficient of variance is considered a better measure of dispersion as compared to standard deviation. Do you agree? Give reason. (6)