Solution

ORGANISATION OF DATA WS 1

Class 11 - Economics

Section A

1. **(c)** Qualitative Classification
   Explanation: Ability to play a specific game, is a quality.
2. **(d)** Spatial Classification
   Explanation: Spatial classification is a classification based on the analysis of spatial objects related to its spatial characteristics, such as areas of region, roads, and ponds or rives.
3. **(d)** First
   Explanation: Classification is first step for tabulation.
4. **(b)** All of these
   Explanation: Data may be presented through any of the tables, diagrams or graphs.
5. **(d)** Chorological Classification
   Explanation: When data are observed over a period of time the type of classification is known as chronological classification. In chronological classification the collected data are arranged according to the order of time expressed in years, months, weeks, etc., The data is generally classified in ascending order of time.
6. **(c)** Quantitative classification
   Explanation: Because quantitative method always deals with numerical terms and numbers.
7. **(a)** Quantitative Classification
   Explanation: Quantitative classification refers to the classification of data according to some characteristics that can be measured, such as height, weight, income, sales, profits, production, marks, etc.
8. **(d)** chronological classification
   Explanation: The chronological classification of data emphasizes the occurrence of time. Under this type of data classification, data is classified on the bases of differences in time.
9. **(d)** Chronological classification
   Explanation: In chronological classification the collected data are arranged according to the order of time expressed in years, months, weeks, etc., The data is generally classified in ascending order of time. For example, the data related with population, sales of a firm, imports, and exports of a country are always subjected to chronological classification.
10. **(a)** The class mid-points
    Explanation: Statisticians maintain that most values of a variable concentrate on respective mid values of classes.
11. **(a)** Uniformity of data
    Explanation: Classification indicates uniformity of data
12. **(c)** qualitative classification
    Explanation: The qualitative classification of the data emphasizes certain qualitative phenomenon of the data which cannot be measured. Under this type of data classification, data is classified on the basis of qualitative measurements.
13. **(a)** Dichotomy
    Explanation: Dichotomous variables are nominal variables which have only two categories or levels. For example, if we were looking at gender, we would most probably categorize somebody as either "male" or "female". This is an example of a dichotomous variable (and also a nominal variable).
14. **(b)** Either ascending or descending.
    Explanation: Wheather increasing or decreasing, both are included in order of a series.
15. **(c)** A is true but R is false.
    Explanation: All the units having similar characteristics are placed in one class or group. The facts are classified into homogeneous groups by the process of classification.
16. **(d)** A is false but R is true.

Explanation: Statistical series are prepared to present the collected and classified data in a properly arranged way because seriation is a logical and systematic arrangement of items into a particular order and sequence in different classified categories while classification is concerned with the division of the data into various groups.

17. **(a)** Both A and R are true and R is the correct explanation of A.
Explanation: The process of classification enables one to form a mental picture of objects of perception and conception because summarised data can easily be understood and remembered.

18. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation: Classification is meant for removing ambiguity. It is very necessary that various classes should be so defined that there is no room for doubt and confusion and must have a class for each item of data in one of the classes.

19. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation: The classification process eliminates unnecessary details and makes the mass of complex data, simple, brief, logical, and understandable. When these massive figures are classified then the structure according to various attributes and nature of the population can easily be understood.

20. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation: Both A and R are true but R is not the correct explanation of A.

21. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation: Classification of data enables one to make comparisons, draw inferences and locate facts. Classification of students into various classes on the basis of marks obtained by them will make such comparison easy.

22. **(c)** A is true but R is false.
Explanation: Individuals may be ranked according to the quality of attributes. The ranks are sometimes used as their numerical values for purpose of statistical analysis.

23. **(b)** Both A and R are true but R is not the correct explanation of A.
Explanation: Both A and R are true but R is not the correct explanation of A.

24. **(a)** Both A and R are true and R is the correct explanation of A.
Explanation: The collected data in the unorganized form is called raw data because of the limitation of the human mind to understand such complex, varied and unorganized data, it is necessary to make them available for comparison, analysis, and appreciation by proper and suitable grouping and arranged in condensed form.

25. **(c)** Spatial
Explanation: Classification based on the analysis of spatial objects related to its spatial characteristics, such as areas of region, roads, and ponds or rives is known as spatial classification.

26. (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

27. **(c)** Qualitative classification
Explanation: Data collected about a categorical variable will always be qualitative. Qualitative data is a categorical measurement expressed not in terms of numbers, but rather by means of a natural language description. In statistics, it is often used interchangeably with "categorical" data.

28. **(b)** Chronological
Explanation: When data are observed over a period of time the type of classification is known as chronological classification

29. **(a)** Manifold classification
Explanation: If a population is divided into a number of mutually exclusive classes according to some given characteristic and then each class is divided by reference to some second, third, etc. characteristic, the final grouping is called a manifold classification.

30. There are different basis of classification of data, a few of them are as under:
    i. Qualitative characteristics.
    ii. Quantitative characteristics.

31. If the data is classified into only two classes then it is referred to as simple classification. Here data are divided on the basis of existence or absence of a quality.

32. The data collected by the investigator from primary and secondary sources are raw data. The raw data are very large and difficult to handle. It is difficult to draw meaningful conclusions from them as they do not yield to statistical methods easily. Classified data, on the other hand, are comprehensible and concise. It is easier to draw meaningful conclusions from them. Thus classified data are better than raw data.

33. An attribute refers to the quality of a characteristic. It is the phenomenon which is not capable of being expressed numerically, e.g. beauty, honesty, intelligence etc.

Section B

34. Organisation of data is a systematic arrangement of collected figures so that the data becomes easy to understand and more convenient to use for further statistical treatment. Some IT experts apply this primarily to physical records, although some types of data organization can also be applied to digital records.
35. Objectives of Classification:
    a] To simplify complex data
    b] To facilitate understanding
    c] To facilitate comparison
    d] To make analysis and interpretation easy.
    e] To arrange and put the data according to their common characteristics.
36. Classification is the process of arranging data into sequence and groups according to their common characteristics or separating them into different but related parts. This can be of particular importance for risk management, legal discovery, and compliance. Data classification enables the separation and classification of data according to data set requirements for various business or personal objectives. It is mainly a data management process.
37. Yes, there are many advantages of classifying things. The following are the advantages associated with classification:
    1. Saves Time and Energy- Classification of things not only saves our time but also our energy which would otherwise be utilised in searching for an entire lot of things.
    2. Quick Information- Information can be easily collected from the classified things.
    3. Easy Classification- Classification facilitates comparisons and helps in drawing fast conclusions or inferences.
    For example, we can classify our clothes on the basis of formal wear and informal wear and arrange them on separate shelves in a cupboard. This will help us to select clothes easily and quickly.
38. **The objectives of the classification of data are as under:**
    i. To condense the mass of data in a brief and simple form, so as to make them easily understandable.
    ii. To clearly reveal the points of similarities and dissimilarities in the statistical data, e.g., married and unmarried, employed and unemployed.
    iii. To facilitate the comparison of data.
    iv. Classification facilitates arrangement of data in a scientific manner which their reliability.
    v. To make the data attractive and effective.
    vi. To provide the basis for tabulation. No tabulation is possible without classification.
    vii. Classification enhances the utility of the data as it brings out similarity within the diverse set of data.
39. When we group data in a continuous series as shown below, we get to know only the fact that 4 students have marks more than equal to or more than 0 and less than 10 but we do not know the exact figures.

Marks	**Frequency**
0-10	4
10-20	7
20-30	4
30-40	3
40-50	2

    Suppose all 4 had 1 mark, they will be in class 0-10 and even when all 4 have 9 marks, they will be in class 0-10. It is called loss of information in organized data.
    The classified data summarises the raw data making it concise and comprehensible, it does not show the details that are found in raw data. Once the data are grouped into classes, an individual observation has no significance in further statistical calculations. Further, the statistical calculations are based on the values of the class marks, ignoring the exact observations of the data leading to the problem of loss of information.
40. The characteristics of an ideal classification of data are as under:
    i. Classification of raw data into classes should be absolutely clear and simple.
    ii. It should be stable.
    iii. It should be flexible.
    iv. It should be comprehensive so that each and every data gets represented through a group or class.
    v. It should be suitable to the objectives of the statistical enquiry.
    vi. The data classified in a class should be homogeneous, i.e. all items in a class must be similar to each other.
    vii. It should be elastic.

Section C

41. **Spatial Classification:**
    In spatial classification, data are classified according to geographical areas.
    Example: State wise classification of production of food grains in India: State Production of food grains (in tonnes)

State	**Production of food grains (in tons)**
Orissa A. P U. P Assam	3,00,000 2,50,000 22,00,000 1,00,00,000

    (ii) Chronological classification.
    In this type of classification, the data are classified according to different time periods.

Example: Population of India for different time periods.

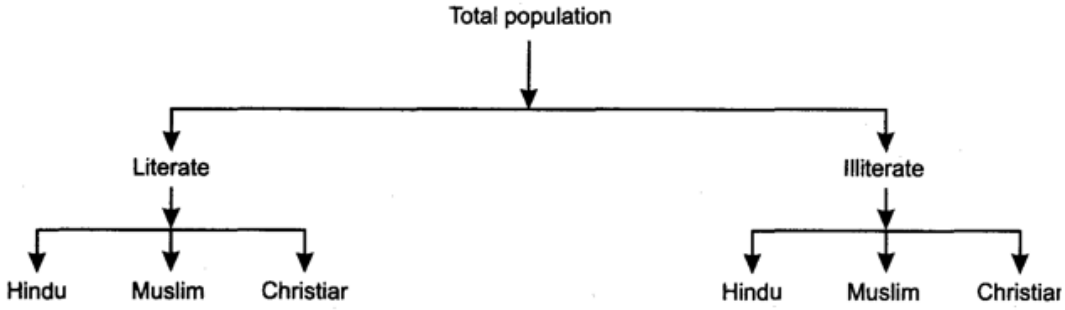
Profits of a business establishment over different years.

Year	Population (in crores)
1921	24.8
1931	27.3
1941	31.8
1951	35.6

42. The essential characteristics of a good classification are:
    1. Clarity- Classification of data must be clear. There should be no confusion in classification of data.
    2. No overlapping- The classification of data must be done in an exhaustive manner.
    3. Suitability- Classification must be performed according to the subject matter of enquiry.
    4. Flexible- A classification must possess flexibility so that the relevant changes can be made according to the situation.
    5. Stability- The data must be classified on the basis of some criteria.
43. A classification is an ordered set of related categories used to group data according to its similarities. It consists of codes and descriptors and allows survey responses to be put into meaningful categories in order to produce useful data. To be meaningful, classification should have following characteristics.
    a. **It should be unambiguous:** Classification aims at removing ambiguity. It is a must that all classes should be defined in such a way that there is no room for doubt and confusion and each item must fit to at least and at most one class.
    b. **The classes must not overlap:** None of the item should be eligible to be a part of more than one class.
    c. **It should be stable:** Without stability, classified data will not be fit for comparison.
    d. **Classification should be according to purpose of enquiry.** For example, if I need to classify my students into two groups for bus arrangement, it will be better to use geographical classification. If the purpose is judging their academic performance the quantitative classification is more suitable. If purpose is judging their value system then qualitative classification is recommended.
    e. **It should be mathematically accurate:** The test of mathematical accuracy is confirmation of total items in the series with total items in the universe.
    f. **It should be flexible:** It should be flexible. It should be possible to adjust the series to new situations and circumstances. With change in time some figures may become obsolete and other may become more relevant.
44. i. Quantitative classification: In quantitative classification the data are classified according to some characteristics that can be measured numerically such as height, weight, production, income, marks secured by the students etc. Example: Students of a college may be classified according to there weights as given in the table

Weight (in Kg)	No of students
30-40	20
40-50	25
50-60	40
60-70	45

ii. **Qualitative classification:** In qualitative classification, the data are classified on the basis of attributes or quality such as sex, colour of hair, literacy, religion etc.



Section D

45. Fill in the blanks:
    (i) 1. Comprehensive Data
    (ii) 1. Variable
    (iii) 1. Qualitative
    (iv) 1. Statistical series
    (v) 1. Data classification

Section E

46. **(c)** A is true but R is false.
    Explanation: A is true but R is false.
47. **(b)** Both A and R are true but R is not the correct explanation of A.
    Explanation: Both A and R are true but R is not the correct explanation of A.

48. **(b)** geographical
Explanation: geographical

49. **(a)** Statement 1 is incorrect and statement 2 is correct
Explanation: Statement 1 is incorrect and statement 2 is correct

50. **(b)** Both the statements are correct
Explanation: Both the statements are correct

51. **(d)** Descriptive
Explanation: Descriptive

52. **(d)** A is false but R is true.
Explanation: A is false but R is true.

53. **(c)** A is true but R is false.
Explanation: A is true but R is false.

54. **(b)** time-series
Explanation: time-series

55. **(c)** Statement 1 is incorrect and statement 2 is correct
Explanation: Statement 1 is incorrect and statement 2 is correct

56. **(a)** i, ii and iii
Explanation: i, ii and iii

57. **(a)** Both the statements are correct
Explanation: Both the statements are correct

58. **(d)** A is false but R is true.
Explanation: A is false but R is true.

59. **(a)** Both A and R are true and R is the correct explanation of A.
Explanation: Both A and R are true and R is the correct explanation of A.

60. **(b)** quantitative
Explanation: quantitative

61. **(c)** qualitative
Explanation: qualitative

62. **(c)** Statement 1 is correct and statement 2 is incorrect
Explanation: Statement 1 is correct and statement 2 is incorrect

63. **(b)** Statement 1 is correct and statement 2 is incorrect
Explanation: Statement 1 is correct and statement 2 is incorrect

64. Broadly statistical series are of two types.
Types of series
1. Individual series
2. Frequency series
a. Discrete series Or frequency array
b. Frequency distribution or continuous series
Individual series are those series in which the items are listed singly after collection. They are not listed in groups. Suppose an investigator has obtained the following information from factory about the payment of daily wages of 6 workers, which is in unorganised form as shown
wages of workers (in Rs) : 25,50,35,40,20,45
It is now organised as shown below

Sr. No. of workers	Daily wages(in Rs.)
1	25
2	50
3	35
4	40
5	20
6	45

A discrete series or frequency array is that series in which data are prescribed in a way that exact measurements of items are clearly shown. The example in following table illustrates a frequency array.
Frequency array of the size of household

Size of the household	Number of household (Frequency)
1	5
2	15

3	25
4	35
5	10
6	5

A continuous series: It is that series in which items cannot be exactly measured. The items assume a range of values and are placed within the range of limits. In other words, data are classified into different classes with a range, the range is called class-intervals.

Frequency distribution or continuous series

Marks	Frequency
10-20	4
20-30	5
30-40	8
40-50	5
50-60	4
60-70	3

65. A classification is an ordered set of related categories used to group data according to its similarities. It consists of codes and descriptors and allows survey responses to be put into meaningful categories in order to produce useful data. Its objectives are as follows:
    1. To condense the data. Classification presents the huge unwieldy raw data in a condensed form which is readily comprehensible to the mind and attempts to highlight the significant features contained in the data.
    2. To facilitate comparisons. Classification enables us to make meaningful comparisons depending on the basis or criterion of classification. For instance, the classification of the students in the university according to sex enables us to make a comparative study of the prevalence of university education among males and females.
    3. To study the relationships. The classification of the given data w.r.t. two or more criteria, say, the sex of the students and the faculty they join in the university will enable us to study the relationship between these two criteria.
    4. To facilitate th statistical treatment of the data. The arrangement of the voluminous heterogeneous data into relatively homogeneous groups or classes according to their points of similarities troduces homogeneity or uniformity amidst diversity and makes it more intelligible, useful and readily amenable for further processing like tabulation, analysis and interpretation of the data.
    5. To prepare the data for tabulation:once, the data are classified it becomes more easy to tabulate it on the basis of different categories.
    6. To present the facts in simple form:once, the data are classified,it becomes more easy to understand facts so simply.
    7. To bring out similarities and dissimilarities within data.
66. Classified data is better than Raw Data.

    The classified data has following advantages over the raw data.

    1. Comprehensive-Raw data are large and entangled, whereas classified data are comprehensive and easily manageable.

    2. Quick Information- It is troublesome to pick up information from unclassified data. Information can be easily collected from the classified data.

    3. Conclusions - Classification facilitates comparisons and helps in drawing fast conclusions or inferences.

    4. Saves Time and Energy- Classified data not only save our time but also our energy, which would otherwise be utilised in searching from entire lot of things.
67. The raw data is classified in various ways depending on the purpose.
    1. **Chronological Classification**:- In such a classification data are classified either in ascending or in descending order with reference to time such as years, quarters, months, weeks etc.
    2. **Spatial Classification (Geographical classification):-** The data are classified with reference to geographical locations such as countries, states, cities, districts etc. These are classified either in the alphabetical order for reference or order of the size of the value, for immediate comparison.
    3. **Qualitative classifications:** Data are grouped with reference to quality or attributes which cannot be measured such as nationality, literacy, religion, gender, marital status etc. Yet these attributes can be classified on the basis of either the presence or the absence of a qualitative classification. They are of two types simple or manifold.
    4. **Quantitative classification:-** The collected data are grouped with reference to the characteristic which can be measured and numerically described such as height, weight, age, income, marks of students etc, are quantitative in nature. When the collected data of such characteristics are grouped into classes. It becomes a quantitative classification.
68. According to Horace Secrist, "A series as used statistically may be defined as things or attributes of things arranged according to some logical order." According to Prof. Connor, "If two variable quantities can be arranged side by side so that measurable difference in the one corresponds with measurable difference in the other, the result is said to form a statistical series."

    On the Basis of Characteristics:

    (a) Time Series: When series of values of some variable which is represented according to successive points in time is called time series. In such a series, data are represented with reference to a time period which can be a year, week, month or day. An example is given below:

    Production in a cloth mill

Year	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Production (in 000 meters)	15	27	58	72	134	140

Or

Rainfall in a week

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Rainfall in cm	15	27	17	14	54	64	10

(b) Spatial Series: A series of values of some variable which is represented according to area under investigation i.e. geographical division of the universe is called spatial series. An example is given below:

Production -of wheat in different states of India in 2010

States	Punjab	Haryana	Maharashtra	Uttar	Bihar	Orissa
Production (in 000 tonnes)	1500	2700	580	720	134	140

(c) Condition Series: A series of values of some variables which is represented `according to condition which may be expressed in quantitative terms is called condition series.an example is given below:

	Grade			
	A	**B**	**C**	**Total**
Boys	13	25	11	49
Girls	7	20	6	33
Total	**20**	**45**	**17**	**82**

69. Broadly speaking, there are four types of classification. They are:
    i. Geographical classification,
    ii. Chronological classification,
    iii. Qualitative classification, and
    iv. Quantitative classification.

    These are described in detail as under:

    1. **Geographical Classification** : Under this type of classification, the data are classified on the basis of area or place, and as such, this type of classification is also known as areal or spatial classification. The areas may be in terms of countries, states, districts, or zones according as the data are distributed. For countries, states, districts, or zones according as the data are distributed. For the purpose of ready reference and ranking, the different classes form under the classification should be arranged in order of their alphabets or size of the frequencies respectively.Generally, in case of reference tables, alphabetical arrangements are made while in case of summary tables, ranking arrangements are made.
    2. **Chronological Classification :** Under this type of classification, the data collected are classified on the basis of time of their occurrence. As such, the series obtained under this classification is purely known as a time series. This type of classification is suitable for chose data which take place in course of time viz. population, production, sales, results etc. The different classes obtained under this classification are arranged in order of the time which may begin either with the earliest, or the latest period.
    3. **Qualitative Classification:** Under this type of classification, the data obtained are classified on the basis of certain descriptive character or qualitative aspect of a phenomenon viz. sex, beauty, literacy, honesty, intelligence, religion, eye-sight etc.As such, this sort of classification is also otherwise known as ‘descriptive classification’. Such type of classifications are usually dichotomous in nature in which the whole data are divided into two groups viz, a group with the absence of the attitude such as blind and not-blind, or deaf and not-deaf etc.
    4. **Quantitative Classification:** Under this type of classification, the collected data are classified on the basis of certain variable viz. mark, income, expenditure, profit, loss, height, weight, age, price, production etc. which is capable of quantitative is also otherwise known as ‘classification by variables’.

70. The main characteristics of classification are:
    1. **Homogenity:** The data classified in one group class should be homogeneous, i.e; all items in a group must be similar to each other.
    2. **Clarity:** Classification should be done in such a way that meaningful conclusion is possible. Each item of the data should belong to one particular class only. There should be no confusion about the group or class of a given item.
    3. **Flexibility:** Classification should be flexible and should able to adapt to new condition of the given inquiry. Some of the classes may have to be abandoned and new classes need to be added.
    4. **Diversification:** Classification should be done in such a way that every item of study can be classified into class. If all items are not included in the classes, arrangement of data will not be correct.
    5. **Suitable to objectives of study:** The basis selected for classification should be in accordance with the objectives of the statistical study. If basis selected for classification do not match the requirement, the entire exercise of investigation will be meaningless.

71. Qualitative classification can take the following two forms
    i. **Simple Classification** If the data are classified into only two classes, such a classification is termed as simple or dichotomous classification. It is based on the presence or absence of an attribute, example males or not males (females).

Population	
Male	Female

    ii. **Manifold Classification** Second and third stages of classification are called manifold classification where each class is divided into two classes on the basis of one attribute, employment and then each class is further divided into two subclasses on the basis of the second attribute, viz., marital status. This is shown as shown below:

Population			
Male		Female	
Employed	Unemployed	Employed	Unemployed

Married	Unmarried	Married	Unmarried	Married	Unmarried	Married	Unmarried