

PROPOSITIONAnswer the following questions :-

1. What is a proposition?

Ans:- (A proposition is a statement of a certain relation between two terms.) There are two terms in a proposition and a certain relation between these two terms stated in a proposition. (A proposition must consist of three parts, namely two terms and the sign of relation between them. Of these two terms, one is the subject and other is the predicate.) (The sign of relation is known as Copula.) (For example; man is mortal, here 'man' and 'mortal' are two terms, 'is' is the copula) which stands as the sign of relation between two terms.

2. How does a proposition differ from a sentence?

Ans:- In English grammar, a sentence is a combination of words conveying a definite meaning. There are points of difference between a grammatical sentence and a logical proposition which are as follows:-

i) Every grammatical sentence has two parts, namely, subject and a predicate. But a logical proposition consists of three parts, namely, subject, predicate and a predicate.

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ii) In a grammatical sentence we need not mention clearly the quality and quantity. But in every logical proposition we must mention the quality and quantity.)

iii) A grammatical sentence may be used in any tense, past, present and future. But a logical proposition must always be used in the present tense.)

iv) In grammar various kinds of sentences are used. But in logic only assertory sentences are used as logical proposition.

v) Grammatical sentences may be true or maybe false and also neither true nor false. But logical propositions are either true or false.

### 3. Classify proposition according to traditional logic.

Ans: According to the principle of composition, propositions are classified into two, simple propositions which expresses a single statement only, for example, all men are mortal and compound proposition which is one that consists of two or more propositions combined together, for example, Ram is a boy and Sita is a girl.

According to the principle of relation, proposition are classified into 2; categorical proposition is one in which the predicate is affirmed or denied of the subject without any restriction or condition.

for example, no men are perfect and conditional proposition is one in which the predicate is either affirmed or denied of the subject under a certain condition of a form 'if.... then', or 'either.... or', for example, if it rains then the ground is wet. According to the principle of quality, propositions are divided into two types, affirmative proposition is one in which the predicate is affirmed of the subject, for example, some men are wise and negative proposition is one in which the predicate is denied of the subject, for example, some men are not wise.

According to the principle of quantity, ~~pro~~ propositions are <sup>classified</sup> ~~divided~~ into two types, affirmative universal proposition is one where the predicate is either affirmed or denied of the whole subject, for example, all men are mortal and particular proposition is one in which the predicate is either affirmed or denied of the part of the subject, for example, some

According to import of significance, proposition is classified into two, verbal or analytic proposition is that in which the predicate merely states the connotation or the part of the connotation of the subject, for example, all men are rational and real or synthetic proposition is that in which the predicate does not state the connotation or part of the connotation

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of the subject but gives us a new information about the subject, for example, all men are biped.

According to modality, propositions are classified into three, necessary proposition is that in which the relation between the subject and the predicate is based on their very nature and constitution and expressed with the highest degree of certainty, for example two and two must be four and Assertory proposition is that in which the relation between the subject and the predicate is based on our experience and hence started to be true in so far as our experience goes, for example, some men are wise and problematic proposition is one in which the relation between the subject and the predicate is based on insufficient knowledge of the real state of things and is thus related to be merely probable, for example, He may be a poet.

#### 4. Define Singular and General Proposition.

Ans: A singular proposition is one in which the subject is a singular terms, E.g; Ram is mortal.  
A general proposition is one where the subject is a general term where we take its in its entire denotation. E.g; All men are mortal.

#### 5. Define Exclusive and Exceptive Proposition.

Ans: An Exclusive proposition is that in which the predicate is limited in its application to the subject of the words like only, Alone, None- but etc. Eg; God alone is perfect.

An Exceptive Proposition is that in which the subject is limited in its application by the word like, except, Some but etc. Eg; All students but one are present.

## 6. What is four fold scheme of proposition?

Ans: If the two principle, that is quantity and quality are mixed together according to the mixed principle of quantity and quality, proposition is of 4 kinds. This kind of classification of proposition. This is also called traditional scheme or Four fold scheme of proposition. The four fold proposition are :-

i) Universal Affirmative Proposition: In this kind of proposition. The predicate is affirmed of the whole of the subject. This is symbolised as 'A', Eg; All mothers are kind-hearted.

ii) Universal Negative Proposition: In this kind of proposition, the predicate is denied of the whole of the subject. This is symbolically represented as 'E', Eg; No men are perfect.

iii) Particular Affirmative Proposition: In this kind of proposition the predicate is affirmed of the part of the subject. This is classmate

symbolised as 'I'. Eg; some men are wise.

- (iv) Particular Negative Proposition: In this kind of proposition the predicate is denied of the part of the subject. This is symbolically represented as 'O'. Eg; some men are not wise.

7. Explain the modern analysis of proposition.

Ans. Modern logicians like Bradley, Johnson and others have analysed a proposition into its constituents and components. According to them, the elements in which proposition can be analysed are called constituents. The elements which combine other elements of proposition is called components. Eg; Ravi hates John. Here, 'Ravi', 'John', 'Hate' are three constituents of the proposition because these are the three elements into which this proposition can be analysed. The constituent 'hates' combines the constituents 'Ravi' and 'John'. So, 'hates' is a Component.

8. How does a Component differ from other Constituents of a proposition?

Ans. i) Any element of a proposition is called constituents, whereas only that element which combines other elements of a proposition is called component.

ii) A component is Universal while the constituent can be particular.

11) The constituent indicate the content of a proposition. The form of a proposition depends upon the way the constituents are combined.

### 9. Explain the modern classification of proposition.

Ans: (In modern logic propositions are broadly classified into two kinds - elementary propositions and non-elementary.) (Elementary propositions again are of two types - Simple proposition and Compound proposition.) (Non-elementary proposition assume only one form and i.e; General Proposition). (Thus in modern logic propositions mainly are of three kinds :- Simple Proposition, Compound Proposition and General Proposition)

### 10. What is Simple Proposition? Explain its different kinds.

Ans: (Simple proposition is a proposition that consist of only one statement.) In a simple proposition we do not find more than one component statement as such proposition conveys only one information or fact. Eg; It is raining today. Simple propositions are classified into four types :-

a) Subject Less Proposition : It is the most primitive and simplest kind of proposition. In this type of proposition there is no

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Subject though the proposition makes a definite and meaningful statement. Subjectless propositions are of two types:-

- 1) Exclamatory Proposition; e.g; Snake! Snake!
- 2) Impersonal Proposition; e.g; It rains.

b) Subject Predicate Form: In the subject predicate form of proposition, a statement is made about an individual as possessing some attribute e.g; the ball is red.

c) Relational Proposition: When in a proposition a relation is indicated between two or more terms, it is called a relational proposition. Eg; the teacher teaches the student.

d) Class Membership Proposition: The proposition which expresses that an individual or an object is a member of a class is called class membership proposition. Eg; Rabindra Nath was a poet.

11. What is Compound Proposition? Explain its different kinds.

Ans: (A Compound Proposition is that which contains two or more statement.) There are various ways in which propositions are combined and on the basis of the ways of combining propositions, compound proposition is classified into four kinds:-

a) Conjunctive Proposition: A Conjunctive proposition is a kind of Compound proposition,

formed by combining two or more simple Proposition with the Conjunction 'and'. Eg; Ram is a boy and Sita is a girl.

b) Implicative Proposition: An implicative proposition is a kind of compound proposition which is formed by combining two or more simple propositions in which one of the constituent proposition implies the other implicative proposition. Eg; If you read then you will pass. Here, the constituent propositions are:  
(i) You read (ii) You will pass. The first proposition implies the second one.

c) Alternative Proposition: An alternative proposition is a kind of compound proposition in which there are two or more alternatives. In alternative proposition one of the alternative is asserted to be true. This proposition contains the expression not both, e.g; He is not both intelligent and good looking.

d) Disjunctive Proposition: A disjunctive proposition is a kind of compound proposition which asserts that both the ~~constituent~~ constituent propositions cannot be false but can both be true. In this proposition the disjuncts are joined by 'Either --- Or'. Eg; Either he is good looking or intelligent. Here, the disjuncts are  
i) He is good looking ii) He is intelligent.  
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12. What is General Proposition? Explain its different.

Ans: A general proposition is that which asserts that one class is wholly or partially included in or excluded from another class. In other words a general proposition is that which asserts relation between two classes.  
E.g; i) All men are mortal  
ii) No men are monkeys

General Propositions are of three kinds :

- a) Existential Proposition : An existential proposition is that which directly affirms or denies the existence of something. E.g; i) Mountain Exist  
ii) There is no golden mountain.
- b) One predicate Universal Proposition : An one predicate universal proposition is that which either affirms or denies a property about the whole class. E.g; i) All things change  
ii) Nothing is permanent
- c) General Proposition asserting relation between two classes : A general proposition asserting relation between two classes is that which states one class is wholly or partially included in or excluded from another class.  
E.g; i) All poets are men  
ii) Some Indians are not poets.

### 13. Explain Boolean Symbolisation of Categorical Proposition or Boolean Square of Opposition.

Ans: The Boolean interpretation of categorical proposition depends on the notion of an empty class. It is convenient to have a special symbol to represent it. For this purpose we use the symbol (zero) '0' to say that the class denoted by the term 'S' has no members, we write an equal sign between S and (zero) '0'. To assert that there are 'S's' is to deny the proposition symbolised by " $S = 0$ ". We symbolise that denial by drawing a slanting through the equality sign. Thus, the inequality  $S \neq 0$ , says that there are S's.

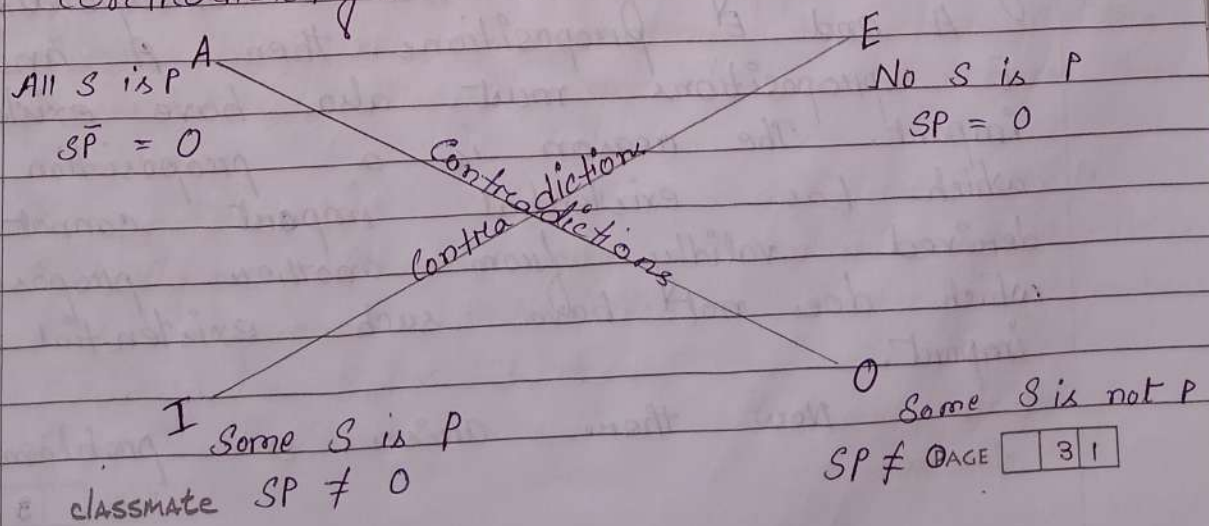
Standard form categorical proposition refer to two classes, where each of two classes is already designated by a symbol. The class of all things that belonged to all of them can be represented by twist opposing the symbols for the two original classes:

Now, we can symbolise 'E' and 'I' propositions as equations and inequalities. The 'E' proposition, 'No S is P' says that no members of the class S are members of class P. It means that product of the two classes is empty which is symbolised by equation ' $SP = 0$ '. The 'I' proposition 'Some S is P' says

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that at least one member of  $S$  is also member of  $P$ . This means that the product of the classes  $S$  and  $P$  is not empty and is symbolised by the inequality  $SP \neq 0$  (Zero).

To symbolise  $A$  and  $O$  propositions it is inconvenient to introduce a new method of representing class compliments. The compliments of the class "All men" is the class of all things that all are not men, where the letter, ' $S$ ' symbolises the class of all men. We symbolise the class of all non-men by  $\bar{S}$  ( $S$  bar). The ' $A$ ' proposition, 'All  $S$  is  $P$ ', says that all members of the class  $S$  are also members of the class  $P$ . It is symbolised by the equation,  $S\bar{P} = 0$ . The ' $O$ ' proposition 'Some  $S$  is not  $P$ ', which is logically equivalent to  $I$  proposition 'Some  $S$  is non- $P$ ' is symbolised by the inequality  $S\bar{P} \neq 0$ . It is obvious that  $A$  and  $O$  proposition are contradictory, when they are symbolised as  $S\bar{P} = 0$  and  $S\bar{P} \neq 0$ . And, it is equally obvious that ' $E$ ' and ' $I$ ' propositions  $SP = 0$ ,  $SP \neq 0$  are contradictory.



Q4. Write a note on existential import and its impact on the traditional square of opposition.

Ans: A proposition is said to have 'existential import' if it asserts the existence of objects of some kind, e.g., 'There are books on my desk' has existential import because it asserts the existence of books on my table. But the proposition 'there are no ghosts' has no existential import because this proposition does not assert the existence of ghost. The difficulty can be appreciated when we consider 'I' and 'O' propositions. These propositions have existential import because these propositions say that there exists at least one member. But if that be so, we face a problem. The opposition which exists between A and I proposition follows validly from its corresponding A proposition. We also know that the sub-alternation opposition exist between E and O proposition. But if I and O proposition have existential import and they follow validly from their corresponding A and E propositions then A and E propositions must also have existential import. The reason is a proposition which has existential import cannot be derived validly from another proposition which does not have such existential import.

Now there arises a problem

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which is very serious. According to the traditional square of opposition A and O propositions are contradictories. We know that two contradictories cannot both be true or false at the same time. But if the corresponding A and O propositions have essential import as mentioned above then both contradictions could be false. This means that there is some defect in the traditional square of opposition. According to the traditional square of opposition A and E propositions validly imply their corresponding I and O propositions. If it is correct then A and O propositions cannot be contradictions and in that case the square is not correct.

To rid the traditional square of such difficulties, the notion of pre-supposition has been introduced. We may say that A, E, I, O pre-suppose that the classes to which they refer are not empty classes, they have members.

The essential pre-supposition is criticised on the following ground-

- a) If we make the pre-supposition we shall never be in a position to assert the proposition that denies that the class has members.
- b) Some propositions are then in which it is not supposed that the class has members.
- c) often we reason making ~~any~~ classmate

any pre-supposition as we do in science and theoretical studies. Such criticisms show that we cannot accept the blanket existential pre-supposition.

### 15. Explain Aristotle's square of opposition.

Ans: Aristotle has used 'Opposition' in the popular or ordinary sense. He says that if both of the two propositions are true at the same time, we cannot say that there exist an opposition between them. He rejects the sub-alternation and sub-contrary opposition on this basis. He recognises only two kinds of opposition, viz; Contrary opposition and Contradictory opposition.

1) Contrary Opposition: Contrary opposition is relation between two propositions which have same subject and same predicate but which differ in quantity only. Eg;  
A - All men are mortal  
E - No men are mortal.

Here, if one of the proposition is true, the other is false but not conversely.

2) Contradictory Opposition: Contradictory opposition is the relation between two propositions having the same subject and same predicate but differing in both quality and quantity. Eg;  
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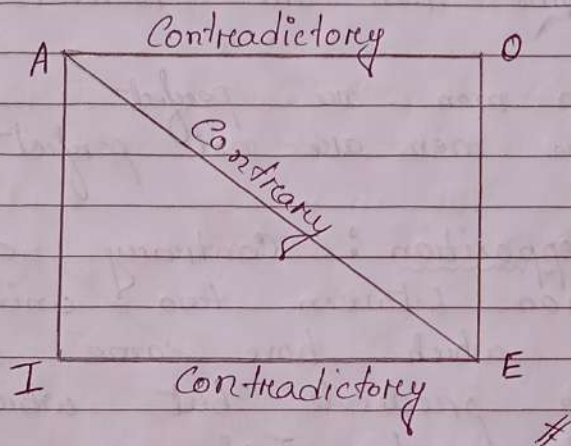
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{ A - All men are mortal  
O - Some men are not mortal

{ E - No men are perfect  
I - Some men are perfect

Here, the truth of one implies the falsity of the other and conversely. The diagram representing the Aristotelian Square of Opposition as follows :-



16. Distinguish between Aristotle's Square of Opposition and Traditional Square of Opposition.

Ans: Opposition of proposition may be defined as the relation between two categorical propositions having the same subject and predicate but differing in quantity only as in quality only or both in quality and quantity.

The square of opposition which is a diagram represents the four kinds of opposition of proposition.

The four kinds are :-

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i) Sub-alternation : Sub alternation is the relation between two propositions which have the same subject, same predicate and also the same quality but which differ in quantity only. It is not regarded as opposition by some thinkers because the two sub-alterns may both be true or false at the same time which is not the actual meaning of opposition.

Eg; { A - All men are mortal  
I - Some men are mortal

{ E - No men are perfect  
O - Some men are not perfect

ii) Contrary opposition : Contrary opposition is relation between two universal proposition which have same subject and same predicate but which differ in quality only. Eg;

A - All men are mortal

E - No men are mortal

Here, if one of the proposition is true the other is false but not conversely.

iii) Sub-Contrary Opposition : Sub-Contrary Opposition is a relation between two particular proposition which have the same subject and same predicate but which differ only in quality. The falsity of one implies the truth of the other but not commonly.

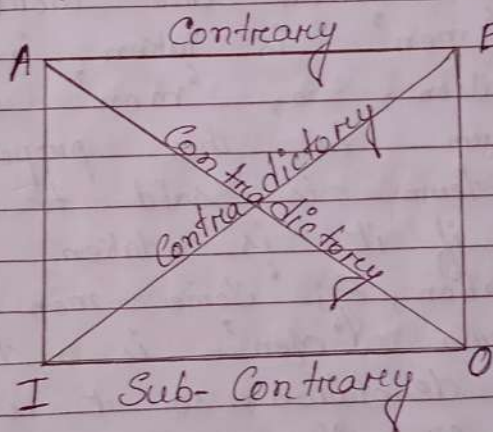
Eg;  
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$\begin{cases} \text{I - Some men are honest} \\ \text{O - Some men are not honest} \end{cases}$

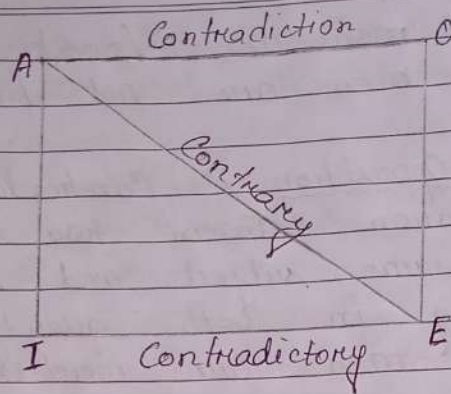
(iv) Contradictory Opposition: Contradictory opposition is the relation between two propositions having the same subject and same predicate but differing in both quality and quantity.  
 Eg;  $\begin{cases} \text{A - All men are mortal} \\ \text{O - Some men are not mortal} \end{cases}$

$\begin{cases} \text{E - No men are perfect} \\ \text{I - Some men are perfect} \end{cases}$

Here, the truth of one implies the falsity of the other and conversely.



Aristotle has used opposition in the popular or ordinary sense. He says that if both of the two propositions are true at the same time, we cannot say that there exist an opposition between ———. He rejects the sub alternation and sub-contrary opposition on this basis. He recognises only two kinds of opposition, viz; Contrary Opposition and Contradictory Opposition.



17. What do you mean by distribution of terms? Explain how terms are distributed in each of the categorical Proposition.

Ans: A term is said to be distributed when it is taken in its entire denotation, Eg; 'All men are mortal', here, the term 'men' is taken in its entire denotation. So, 'men' is a distributed term in this proposition.

A term is said to be undistributed if it is taken in its partial denotation, Eg; 'Some men are honest', here, the term 'men' is taken in its partial denotation, so it is undistributed term. 'A' - All Negroes are Black.

In this proposition the predicate is affirmed of the whole class of the subject 'Negroes'. So, it is taken in its entire denotation and therefore distributed. But the predicate term 'Black' is not taken in its entire denotation because the interpretation of the meaning of this proposition indicates that not all black things are beings.

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stence, undistributed. So, 'A' proposition distributes its subject only.  
'E' - No men are perfect

In this proposition, the predicate 'perfect' is denied of the whole of the subject 'Men'. This means the whole class of the subject is excluded from the class of the subject is excluded from the entire denotation of the subject and therefore both are distributed. So, 'E' proposition distributes both subject and predicate.  
'I' - Some students are clever.

In this proposition the predicate 'Clever' is affirmed of the part of the subject 'Students'. So, the subject is obviously in its partial denotation and therefore, undistributed. The interpretation of the meaning of the proposition indicates that the whole class of the proposition predicate cannot be covered by the subject. Therefore, the predicate is not taken in its entire denotation and thus, undistributed. So, 'I' proposition distributes neither subject nor predicate.  
'O' - Some mangoes are not sweet

Here, the predicate 'Sweet' is denied of the part of the subject 'Mangoes', So, it is obviously undistributed. The interpretation of the meaning of this proposition reveals that a part of the denotation of the subject is included in the entire denotation of the predicate and

18. Analyse the drawbacks of the traditional analysis of proposition.

b) According to traditional logicians if any proposition is not in the strict logical form, i.e; Subject - Copula - Predicate form then it must be reduced to that form by following the rule prescribed by them. But, then also the difference between the relation and the attribute cannot be bypassed. Such reduction is logically fertile and practically observed.

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19. What are the drawbacks of traditional classification of proposition?

Ans) a) Every proposition according to traditional logic is of the order of Subject - Copula - Predicate. But this order is not applicable to the modern logicians. A proposition may be constituted of only one word.

b) The traditional classification of proposition into A, E, I, O pre-supposed that every categorical proposition is one of this four forms. Thus, all propositions are believed to be 'S-P'. But Modern logicians objected reducing every proposition to 'S-P' form and confining it to this restricted scope. According to them there are other forms of proposition also. Modern logicians also criticise the traditional classification of proposition into Categorical, Hypothetical, -al, and Disjunctive. Specially, traditional treatment of disjunctive proposition is not at all satisfactory.

c) Hypothetical Proposition of the traditional logicians is really implicative in nature. There is a necessary relation or implication between the antecedent and the consequent of this kind of proposition. So, they are really Implicative Proposition.

20. Distinguish between General Proposition and Class Membership proposition.

Ans: A General Proposition asserts a relation between two classes. This relation is one of inclusion or exclusion either partially or wholly. Eg; All Cows are four footed. A class membership proposition on the other hand asserts and individual belongs to a class.

Eg; R. D. Verman is a good singer. General Propositions are about properties or attributes as such but not about the individual possessing this characteristics or properties. But class membership propositions asserts that the individual belongs to a class.

In the existential general proposition and one predicate general proposition something is stated about the class or a property or a characteristics but that this properties belong to an individual is not asserted.

## 21. Distinguish between General Proposition and Subject Predicate Proposition.

Ans: A General Proposition is one in which something is asserted about the existence of thing or that property or attribute belong to the whole universe or relation between two classes. Here, nothing is stated about an individual. Eg; 'All cases of Seeing is the case of believing'

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But in the Subject-Predicate form of proposition an attribute is affirmed or denied of an individual. Eg; The Student is Intelligent.

22. Distinguish between Subject-Predicate Proposition and Class Membership Proposition.

Ans: A class membership proposition is one which states that an individual is a member of a whole class. Eg; Socrates is a Great-Philosopher. But in Subject Predicate form of proposition an attribute is affirmed or denied of the individual. Eg; Ram is Wise.