Time: 45 minutes   **Date: 19.9.2020**

Total Marks: 30

True/False: (1/4 marks will be deducted for each wrong answer)   15×1=15

1. The '⊃' faithfully represents English 'if-then' statements.

Ans: False
Solution: There are enough differences between the English if-then and the horseshoe. E.g., the horseshoe is true even when the antecedent is false, which is not the case with English if-then.

2. Non-claim statements are false.

Ans: False.
Solution: Non-claim statements are neither true, nor false. One cannot meaningfully call them either true or false.

3. Consider the following:

Since "since" is a premise indicating word, every time you see it, you are looking at a premise of an argument.

In the argument above, there is no conclusion-indicator word.

Ans: True.

Solution: Conclusion indicator words are So, Therefore, etc. This argument does not have any conclusion indicator words.

4. The inductive leap is a leap from less probable to more probable.

Ans: False.
Solution: Inductive leap is a jump from the known to the yet unknown or from certainty to uncertainty; but not from less probable to more probable. The conclusion of an inductive argument is always outside the known premise-base, and thus there always remains an element of uncertainty about the conclusion.

5. Resilience in an argument is a desirable trait. It implies that the argument has the required clarity of issue.

Ans: False.
Solution: The given statement is false because resilience means the ability of the argument to address the objections against it.

6. In case of deductive invalidity, an argument may be somewhat invalid; that is, partly valid, and partly invalid.

Ans: False.
Solution: Deductive validity and invalidity both are all or none concepts. They do not allow degrees. They are not range concepts.

7. In non-standard form, all premises in an argument may not always be explicitly stated.

Ans: True
Solution: Sometimes it can happen that in ordinary, non-standard format, all premises may not be stated explicitly in an argument. In that case, the premises may be suppressed or may be assumed. This situation needs careful explication to bring the relevant premises out.

8. If the premises are true, a deductive argument must be sound.

Ans: False.
Solution: Soundness has two conditions, all premises must be true, plus the argument must be valid. So, the truth of the premises does not necessitate soundness. Moreover, it is possible for an argument with all true premises and true conclusion to be invalid. It happens when the truth of the conclusion does not follow from the truth of the premises. Hence, an argument, even with true premises, may be invalid, and thus unsound.

9. In "*Let us reflect in another way, and we shall see that there is great reason to hope that death is good; for one of the two things - either death is a state of nothingness and utter unconsciousness, or as men say, there is a change and migration of the soul from this world to another*", there is no conclusion.

Ans: False.
Solution: In the given statement 'Death is good' is the conclusion.

10. "*Carpenters in this area must be very bad. I saw the handiwork of Mohan. He built some shelves which did not fit the cabinet, and then he built a bed that collapsed as soon as I sat on it.*"----This is a medium strong inductive argument.

Ans: False

Solution: The given statement is an example of inductive argument which is based on a small number of observations: Two cases of carpentry by one person, named Mohan, who may not be the representative sample of carpenters in the area, form the basis of this inductive argument. Here speaker has drawn a generalization about carpenters in the area based on only two previous experiences of what might be a non-representative sample. This inductive argument is a weak argument.

11. A Penguin would be the *black swan event* for the induction by simple enumeration 'All birds are feathered bipeds".

Ans: True.

Solution: Penguins are not feathered, but they are birds. So, they provide the counter example to the inductive generalization by enumeration.

12. In "*Vitamin C really works. For, I used to have at least one winter cold every year. Last year before the winter months, the doctor prescribed some pain reliever tablets. I usually avoid the pain relievers, because they give me stomach cramps*" ---- This argument does not have relevant premises.

Ans: True.

Solution: The statements offered as premises do not support why the conclusion should be the case. Hence the claim, the given argument does not have relevant premises, is true.

13. From 'Retired and unemployed citizens are exempt from taxes', it follows validly that 'All those who are exempted from taxes are retired and unemployed'.

Ans: False.

Solution: The given statement is false because the conclusion does not logically follow from its premise.

14. If $\{p\}$ is a logically consistent set of statements, then a statement q cannot be its member unless q is always true.

Ans: False.

Solution: Being logically consistent means every member of the set is true together at least once. It does not require that the members must <u>always</u> be true.

15. From 'some Germans are not shepherds', we can validly deduce 'some non-shepherds are Germans'

Ans: True.

Solution: The conclusion is contained in the premises. Thus, if the premises are true, it conclusively establishes the truth of the conclusion. If there is a German who is not shepherd, it follows that there is some non-shepherd who is a German. Hence, the given statement is true.

MCQ: 2.5×6=15

16. She said so many things: (i) The whatsapp message seemed authentic with a name, a contact number and email address. (ii) How terrible it must be to be duped! (iii) Only Mount Kilimanjaro among all the mountains is 17000 Ft tall. (iv) How unfortunate it is that we can no longer recognize a fake news piece.

Your choices are:

    a. Only (i) is a claim
    b. Only (ii) and (iii) are claims
    c. Only (iii) and (iv) are claims
    d. Only (i) and (iii) are claims

Ans: d

Solution: A claim is a statement that can be either true or false. So, by that definition only statement (i) and (iii) are the claims. As for statement (ii) and (iv), we cannot meaningfully call them true or false. They are exclamatory statements and non-claims. Hence, the right choice is option D.

17. Which of the following is an argument?

    i. The kidnapped West German Envoy was killed by the rebels. The Guatemalan Government is at present busy in negotiation with its trade partners.
    ii. Genetically transformed food crop could be dangerous. No one knows for sure what ingestion of such food crops can do to us and to our health. We are confronted with a powerful technology, and it is being rapidly deployed with almost no thought to the consequences.
    iii. Any government which can take care of the basic needs of the people will be popular. For, everyone wants the basics; they want a clean liveable environment, a safe, peaceful and prosperous life for themselves and for their family.
    iv. Since the beginning of history, societies after societies have chosen their leaders. It is also true that sometimes the leaders have chosen their people.

Your choices:

a. Only (ii)
b. Only (ii) and (iii)
c. Only (ii) and (iv)
d. Only (i) and (iii)

Ans: b

Solution: An argument is a set of claims that has a principle claim (conclusion) which is at issue and is to be argued for, and other claims that are providing supporting evidence for accepting the principal claim. A certain kind of logical relationship must exist between the main and supporting claims in an argument. By that definition statement (ii) and (iii) qualify as arguments, and statement (i) and (iv) do not. So, the right choice is option B.

18. Consider the following passage which contains an argument:

It is very unlikely that research using animals will be unnecessary or poorly done. For, before an experiment using a vertebrate animal is carried out, I am sure the protocol for that experiment must be reviewed by an institutional committee that includes a veterinarian and a member of the public. During the research the animal's health and care is monitored. Researchers need only healthy animals for study in science and medicine, because unhealthy animals could lead to erroneous results. This is a powerful incentive for scientists to make certain that any animals they use are healthy and well-nourished. Furthermore, research involving animals is expensive; high-quality research will require that the animals used for research are well taken care of.

Which of the following can be correctly said about the argument?

i. This argument establishes that the use of animals in research is absolutely essential.
ii. This argument concludes that the use of unhealthy animals leads to wrong results.
iii. This argument seems to trust that the experiment protocol would always go through a review.
iv. This argument uses a premise that the health and well-being of the animals is important for the sake of research at least during the research.

Your choices are:

a. Only (i)
b. (i) and (ii)
c. (i) and (iii)
d. (iii) and (iv)

Ans: d

Solution: From the given argument we cannot conclude statement (i) and (ii). The argument does not establish that animal usage is absolutely essential; its conclusion is that research using animals is unlikely to be unnecessary or poorly done. It uses 'the use of unhealthy animals leads to wrong results' as a supporting claim or a premise. On

the other hand statement (iii) and (iv) are right about the argument. Hence, D is the right choice here and rest are not.

19. The jury listened intently to the detailed arguments offered by both the prosecution and to the defence and scrutinized the evidence put forth. Finally, the jury announced their verdict that they found prosecution's explanation of the crime scene and the possible perpetrator more likely than that of the defence.

 The above is an example of:
   (a) Unsupported claim.
   (b) Novelty in the conclusion.
   (c) Enumerative induction
   (d) Abductive reasoning.

Ans: (d)

Solution: The given argument is an example of abductive reasoning. Abductive reasoning is a form of argument that selects a hypothesis that best explains an observed fact /incident. In the given argument the jury was more convinced of the prosecution's explanation; and thus, announced the verdict in their favour.

20. The members of the Bannerjee family are related to Chatterjee family; and the family ties of Chatterjee family with the Mukherjee family is well-known. The entire Bannerjee family must have family links with the Mukherjees.

The argument above is:
   a. Deductive
   b. Inductive
   c. Abductive
   d. None of the above.

Ans: a

Solution: The given argument is an example of deductive argument.

21. What can you say, about (a) validity or invalidity, and (b) soundness or unsoundness of an argument which contains the following statements among its premises (the conclusion is not known)?

- Anyone who takes Tarot card reading seriously must be crazy

-Aman is my sister, and no sister of mine has a crazy husband

- Mihir is Aman's husband.

- Mihir never takes a step in life without consulting a Tarot card reader's advice.

-Anyone who decides the next step in life as per the advice of a Tarot card reader takes numerology seriously.

Your choices are:

    (a) Cannot say anything without knowing the conclusion
    (b) The argument is valid
    (c) The argument is sound.
    (d) The argument is invalid.

Ans: (b).

Solution: Even without knowing the conclusion, we can say that the argument will be valid. Though unsound, but valid. For, it has inconsistent premises set. All its premises cannot be true at the same time; at least one would be false. Thus, technically it is not invalid; it is not the case that premises are all true, but conclusion is false. Hence, the argument is valid. From inconsistency, anything follows trivially.