Introduction to Human Sciences
Spring 2025

Philosophy Module

Total Marks: 30
Approx. time: 90 minutes

Keep your answers precise and to the point.

Section A: Answer all four questions **4 x 5: 20 marks**

1. Briefly describe the three laws of logic. Bring out the difference between logical impossibility and physical impossibility. Give an example to illustrate your answer. (3+1+1)

   three laws of logic (1 mark each; 0.5 marks for the label + 0.5 marks for the description; total 3 marks)
   - **Law of noncontradiction**
     - something cannot both be A and not-A at the same time
       - alternatively, Nothing can both have a property and lack it at the same time
   - **Law of identity**
     - everything is identical to itself
       - alternatively, A = A
   - **law of excluded middle**
     - Either A or not-A
       - for any property, everything either has it or lacks it

   logical vs. physical impossibility (0.5 + 0.5)
   - anything which is inconsistent with the laws of logic is logically impossible,
     - whereas anything which goes against the laws of physics is physically impossible.

   Example (1 mark)
   - Look for any example that shows how something that is logically possible is physically impossible
     - or alternatively, any example that shows how something is physically impossible is logically possible
     - e.g., Archimedes saying, "Give me a lever long enough and a fulcrum on which to place it, and I shall move the world" represents a physical impossibility but a logical possibility.

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2. **Bring out the differences between: (2+2+1)**
   (a) sophistry and fallacy
   (b) ad hominem (abusive) and ad hominem (circumstantial)
   (c) formal and informal fallacies

   Sophistry vs. fallacy (1 + 1)
   sophistry (1 mark; look for any one of the below):
   - the intentional use of fallacies to mislead people into believing arguments that are illogical

- art of deluding an audience with arguments that one knows to be illogical or misleading

fallacy (1 mark)
- when an illogical argument is used innocently, without the speaker's being aware that it is, in fact, illogical, then it is called a fallacy

<u>ad hominem (abusive) vs. ad hominem (circumstantial) (1+1)</u>

ad hominem (abusive) (0.5 marks for each of the underlined parts captured; 1 mark)
- an <u>attack against the person</u> rather than against the argument whereby the attack is <u>directed against the character of the person</u>

ad hominem (circumstantial) (same as above; if they have already mentioned the first part in the above definition, they need not repeat it here.)
- an <u>attack against the person</u> rather than against the argument whereby the attack is <u>against the circumstances of one who makes the claim</u>

<u>(c) formal and informal fallacies (1)</u>

distinction between formal and informal (0.5 marks + 0.5 marks)
formal fallacies are fallacies that are based on the <u>form/structure of the argument,</u> whereas informal fallacies are fallacies that arise from the <u>content/language of the argument</u>.

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3. Outline any 3 features that distinguish inductive from deductive arguments. What is the principle/ground upon which inductive inferences are founded, and why does this make it an instance of a circular argument?What is the principle/ground upon which inductive inferences are founded, and why does this make it an instance of a circular argument? (3+1+1)

<u>3 features that distinguish inductive and deductive arguments; look for any three of the below; 1 mark each)</u>

(1) In **inductive arguments**, the truth of the premises makes the conclusion more or less likely/probable, whereas in a **deductive argument**, the truth of the premises guarantees the truth of the conclusion.
(2) **Inductive arguments** are either strong or weak, whereas **deductive arguments** are either valid or invalid/sound or unsound.
(3) **Inductive arguments** rely on sense experience (a posteriori), whereas **deductive arguments** rely on rationality (a priori).
(4) **Inductive arguments** are NOT truth-preserving, whereas **deductive arguments** are truth-preserving (i.e., if the premises are true in a valid deductive argument, the conclusion HAS TO BE true).
(5) additional premises can make a strong **inductive argument** weak (and vice-versa; they are non-monotonic), whereas additional premises cannot make a valid **deductive argument** invalid.
(6) **inductive arguments** give us only probability, whereas **deductive arguments** give us certainty.

(7) **inductive arguments** provide new information (ampliative), wheres deductive **arguments** do not provide any new information (non-ampliative).

The principle/ground upon which inductive inferences are founded (1 mark)
the principle of the uniformity of nature which tells us that the future will be like the past is what grounds inductive inferences.

Why does this make it an instance of a circular argument (1 mark)
it is inductive inference which underpins the principle of uniformity of nature which in turn underpins the legitimacy of the inductive inference. Hence, the circularity.

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4. Describe *modus ponens* and *modus tollens* in terms of their valid form as well as their fallacious forms. (2.5 + 2.5)

Modus ponens (1.5 marks; 1 mark for getting the valid form; 0.5 for labeling it as 'affirming the antecedent')

If A, then B;
A
Therefore, B

The valid form of modus ponens is called **affirming the antecedent**

Modus tollens (1.5 marks; 1 mark for getting the valid form; 0.5 for labeling it as 'denying the consequent')

If A, then B;
Not B
Therefore, not A

The valid form of modus tollens is called **denying the consequent**

Fallacious forms (2 marks; they can write these under either modus ponens or tollens)

Fallacy of affirming the consequent (0.5 for label + 0.5 for form)
If A, then B;
B,
therefore A

Fallacy of denying the antecedent (0.5 for label + 0.5 for form)
If A, then B
not A,
therefore, not B

5. **State whether the following arguments are <u>inductive or deductive</u>. Also identify the <u>type</u> of inductive and deductive arguments they are (in terms of the labels that apply to each type in terms of sound/unsound/weak/strong/valid/invalid).**

   0.5 marks for inductive/deductive; 0.5 marks for valid/invalid/weak/strong
   'Soundness' you can ignore for these questions.

   (a) If computers can play chess, then they can think. But computers cannot think. Therefore, computers cannot play chess.
   ○ **Deductive, valid**

   (b) I checked my pockets and my room and can't seem to find my phone. I am sure I have lost my phone.
   • **Inductive, weak**

   (c) When Jack took his car in for service, the mechanic charged him for lots of work that didn't need to be done. The same thing happened to Niki and Claire. Apparently mechanics these days are just a bunch of crooks.
   • **Inductive, weak**

   (d) If eggs do not contain cholesterol, then they are healthy to eat. But eggs do contain cholesterol. Thus, eggs are not healthy to eat.
   • **Deductive, invalid**

   (e) The arctic ice cap has been shrinking for several years as a result of global warming, and that trend is expected to continue. Therefore, since arctic polar bears depend on that ice for survival, the arctic polar bear population will likely shrink in the years ahead..
   • **inductive, strong**

Section C:

6. **Identify the following informal fallacies. Give reasons for the same. Note that each of these is representative and uniquely identifiable as the <u>instance of a single specific fallacy</u>. Provide the specific fallacy each falls under. <u>Do not write multiple answers for the same question</u>.**

   5 x 1: 5 marks

   <u>**0.5 marks for label; 0.5 marks for explanation**</u>
   NO marks for giving the broader category (relevance, defective induction, presumption, ambiguity).
   NO marks if they give more than one answer to any question

(a) Frank Larsen argues for stricter gun control. It appears that Frank wants to abolish access to guns altogether. But if law-abiding citizens can't own a gun, then they will have no means of defending themselves against criminals. Obviously Frank's argument is no good.

- **Straw man**
  - **there is a straw man being drawn from the first premise (arguing for stricter gun control to the second premise (wants to abolish access to guns altogether)**

(b) United Airlines flight 863 was late arriving in Houston, and flight 722 was late getting into LA as was flight 429. Apparently all United Airlines flights are late these days.

- **Hasty generalization**
  - **generalizing from a sample of only three flights to saying that all UA flights are late is a hasty generalization**

(c) Whatever you do, never buy a lottery ticket. If you do, soon you'll be betting on horses. Next it will be slot machines in Las Vegas, and then black jack and high stakes poker. In the end you'll be totally broke.

- **Slippery slope**
  - **there is a slippery slope being drawn from buying a lottery ticket to being totally broke.**

(d) Collins is not a good student. And since all students are human beings, Collins is not a good human being.

- **Equivocation**
  - **'good' is a relative term. There is an equivocation here being made between being a good student and being a good human being.**

(e) Most of the residents of the City Heights neighborhood are illiterate. Therefore, it would be a good idea to close the City Heights library.

- **Missing the point**
  - the argument misses the point of having libraries to alleviate illiteracy.

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