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UNIVERSITY OF GHANA

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UGRC 150: Critical Thinking and Practical Reasoning

DISTANCE EDUCATION PROGRAMME

First Semester 2010-2011

INSTRUCTIONS:

CHECK TO SEE THAT ALL YOUR QUESTION SHEETS contain no repetitions, no blank sheets, and are very legible.

Once you Start Work you cannot get a new set of question sheets.

Answer ALL questions. RETURN ALL SHEETS.

Indicate your ID number clearly on EVERY sheet where indicated.

CIRCLE only ONE letter for one alternative for each question.

Do NOT tick, shade, strike out or check your answer. Circle ONLY ONE letter for your answer or you will lose marks.

Section A = 25 points

Section B = 33 points

Section C = 42 points

Section A = 1 point per question

1. Choose the alternative that restates as an *imperative* the following italicized statement:

Kofi is working harder than Kwame.

- A. Kofi, are you working harder than Kwame?
- B. Kofi, you must work harder than Kwame.
- C. Amazing! I can't believe Kofi is working harder than Kwame!
- D. Kwame, you are not working as hard as Kofi.
- E. Kofi and Kwame must be working harder than anyone.

2. Choose the alternative that best expresses an *interrogative* using the meaning content of the particular declarative sentence in italics:

This plant needs more water.

- A. Give this plant more water.
- B. Please, did the technician water this plant today?
- C. Does this plant need more water?
- D. It's so tedious; this plant needs more and more water!
- E. None of A – D will complete the instructions correctly.

3. From the following items, choose the one which is a *sentence fragment*:
 - A. What are you doing?
 - B. Go now; otherwise you will be late.
 - C. Gracious God, look at what you are doing; are you mad?
 - D. *Light soup.
 - E. None of the alternatives illustrates a sentence fragment.

4. Of the following items, identify which best illustrates an *emotive expression*:
 - A. Rice and stew.
 - B. Come quickly; we have a long journey.
 - C. Where are we?
 - D. Gracious God, are you mad? *
 - E. None of the alternatives illustrates an emotive expression.

5. Which of the following might be described as both a *moral judgment* and also an *imperative*?
 - A. Are you going to the farm tomorrow?
 - B. You can't leave the church service without giving alms for the poor!
 - C. This is the last time you will be able to get transport to Accra before tomorrow.
 - D. He's so handsome; don't you think so?
 - E. None of (A-D) displays both a moral judgment and an imperative.

6. Identify which of the following is a genuine *interrogative*.
 - A. Can't you keep quiet?
 - B. Is your cousin a graduate of KNUST or of Legon?
 - C. Don't you just wish you could own such a car as that!
 - D. Isn't Miss Ghana 2009 the most beautiful young woman anyone has ever seen?!
 - E. How can you ask such a question? How rude can you be?

7. Consider which of the following is a *sentence fragment*.
 - A. Last year's Miss Ghana.
 - B. Meet Miss Ghana, a graduate of KNUST.
 - C. When are we supposed to graduate?
 - D. How can you ask such a question? How rude can you be?
 - E. None of (A-D) is a sentence fragment.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

8. What kind of linguistic utterance (speech act) is being illustrated by the following sentence in italics?

Tolerating corruption, extortion and confiscation of public funds amounts to spiritual heresy and will be avenged upon the generations yet unborn.

- A. Value judgment (moral)
 - B. Definition
 - C. Value judgment (non-moral)
 - D. Factual statement
 - E. Emotive utterance
9. Identify which of the following clearly is *not* a (moral or non-moral) value judgment.
- A. Is it true that you have more cousins than I do?
 - B. This house is the most magnificent example of the Tudor period in the province.
 - C. The chief is the most important person in this region; he is also the richest and the most resourceful.
 - D. It is an unfortunate tendency in this region to contest the stool over generations ceaselessly in the way that these two families have been doing; it's disgraceful.
 - E. All of the above are value judgments.

Items 10-24 are concerned with various topics. Some of these items involve answering questions. Others involve completing a phrase in order to create a true statement.

10. Which of the following departments fall under the Humanities?
- A. English, performing arts, philosophy, modern languages
 - B. history, English, linguistics, psychology
 - C. history, psychology, political science, religions
 - D. English, sociology, drama, linguistics
 - E. None of the alternatives above includes only Humanities disciplines

WRITE YOUR ID Number VERY CLEARLY HERE: _____

11. Violation of the following sorts of law can attract some kind of penalty or reprobation except:
 - A. moral law
 - B. customary law
 - C. criminal law
 - D. constitutional law
 - E. natural law

12. Which type of law is not dependent upon social observance or enforcement by a governing agency in order to remain effective?
 - A. natural law
 - B. customary law
 - C. constitutional law
 - D. moral law
 - E. criminal law

13. Which one of the following units of a university is *not* designed to train students for certified practice in a specific profession?
 - A. Faculty of Law
 - B. Medical School
 - C. Faculty of Science
 - D. Business School
 - E. School of Nursing

14. Choose the best alternative to complete the italicized phrase:
The objective of studying in the Faculty of Arts is to learn ...
 - A. how to do empirical research to understand the way human beings interact and societies contrast and change.
 - B. the precise ways that measurable features of the physical world impact upon human institutions in quantifiable ways.
 - C. to find the best laws for societies to modernize and develop themselves.
 - D. to establish using statistical analysis what is universally and indubitably true for all time about the human world.
 - E. how to do creative things and how to value things done creatively.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

15. State which of the following has the danger of resulting in the fallacy of confusing a correlation with a causal connection.
- A. Method of agreement
 - B. Method of concomitant variation
 - C. Joint method of agreement and difference
 - D. Method of difference
 - E. None of the above
16. The joint method of agreement and difference is a way of conjecturing . . .
- A. that a particular event type of A was necessary for a particular event of type B to occur.
 - B. whether the event B was always destined to occur.
 - C. two things: that event A was a sufficient condition for event B, and that an event of type A is a necessary condition for the occurrence of a type B event.
 - D. whether more people agree that type A events are the cause of B than the number who disagree with this view of the connection between A and B.
 - E. None of the above.
17. Which of the following is *not* one of the ancient Trojans' reasons for supposing that logical deduction from basic principles of mathematics is the only way to build a natural scientific picture of reality?
- A. human beings are figments of the cosmic mind's imagination.
 - B. human beings are immoral and untrustworthy.
 - C. human beings are fallible creatures.
 - D. human beings are biased creatures.
 - E. none of the above are considerations entering into ancient Greek reasoning on the basis of sense experience to conclusions about nature.
18. If we want to explain events occurring in the world as it existed before the evolution of homo sapiens, which sorts of law would not feature at all in our hypotheses?
- A. civil
 - B. mathematical
 - C. chemical
 - D. logical
 - E. physical

43

WRITE YOUR ID Number VERY CLEARLY HERE: _____

19. Which one of the following statements is *false*?
- A. No statement that can be characterised as factual can also convey a value judgment.
 - B. No statement that can be a value judgment can also express a factual judgment.
 - C. No speech act that falls under the category of factual statement can be false.
 - D. Every linguistic expression in the category of factual statement is true.
 - E. All of the statements (A-D) above are false.

20. Consider the following passage and choose the option which BEST analyses the argument it contains:

Our former Vice President and favourite future presidential candidate died last month in road accident on the way to Accra and he was in Toyota. His widow is my auntie, my mother's cousin and they have been close since childhood. So I advise you never to believe the car-safety reports that consumer agencies publish. Toyota car sellers use those statistics in their advertising. But despite what the statistics tell you, I happen to know from experience that Toyota is the most dangerous vehicle on the road.

- A. The premises of the argument do not provide relevant evidence for the conclusion.
 - B. The evidence in the premises is a syllogistic argument.
 - C. There is insufficient sample size in the premises.
 - D. The overwhelming evidence forces us logically to draw this conclusion.
 - E. The conclusion follows by *reductio ad absurdum* from the given premises.
21. Read again the italicized passage presented for the previous question 20 above: Which of the following fallacies is committed in that argument?
- A. Fallacy of semi-attached figures
 - B. Fallacy of illegitimate appeal to authority
 - C. False analogy
 - D. Fallacy of misplaced vividness
 - E. The passage contains a valid deductive argument, so none of A-D apply.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

22. How would you evaluate statements (i) and (ii) below?
- (i) *The weatherman said it should rain tomorrow; so let's wait and see if there will be dry weather for the match.*
 - (ii) *The government should not burden itself with a Commission on Human Rights and Administrative Justice; people will just cause trouble if they are not happy and it is too expensive for a developing country.*
- A. None of the options below (B-E) evaluates (i) and (ii) correctly.
 - B. (i) is a value judgment and (ii) is a factual statement waiting for verification.
 - C. Both (i) and (ii) are factual predictions.
 - D. Both (i) and (ii) express moral value judgments.
 - E. (ii) is an implicit interrogative. (i) is a value judgment.
23. What type of fallacy is represented by the passage in italics below?
- There is ample evidence to prove that having a very badly stained finger causes fatal lung cancer. I know this because every corpse with advanced lung cancer that I examined as a medical student had stains all over the first and the second fingers usually of the right hand.*
- A. Genetic fallacy
 - B. Post hoc ergo propter hoc
 - C. Confusing cause with effect
 - D. Ignoring a common underlying cause
 - E. None of the above apply to this passage
24. *A valid deductive inference is one whose conclusion ought to be accepted if...*
(complete with the best alternative):
- A. all the premises are true; this is necessary for the argument to be valid.
 - B. at least one of the premises is true; this is sufficient for validity.
 - C. the argument is an *induction*; this is another label for a valid deduction.
 - D. all the premises are either imperatival or normative statements.
 - E. None of A-D captures the requirements for an argument to be deductively valid.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

25. Consider the proverb in italics, and choose the best one among the alternatives to describe its function:

One head does not go into counsel.

- A. A factual description of the limitations of heads in the world.
- B. An operational definition of the term 'head'.
- C. A value judgment or a directive about how decision making in governance should be conducted.
- D. A syllogistic argument about marital counseling.
- E. A law-like hypothesis based on research done in the field of political science.

Section B

Questions 26-36 involves analysis of passages

3 points each

Read carefully each of the following sample passages (A – I), and answer the questions 26-36 which make reference to these samples. In each sample one or more types of informal fallacy are represented. Answer the questions 26-36 by choosing ONLY ONE letter from the FOUR OPTIONS offered for that question, which supplies THE BEST answer to that question. If no single option offered for that particular question answers the question correctly, choose the letter Z.

Here are the Sample Passages for Questions 26-36:

- A. The new policy that will determine students' maximum credit load per semester was proposed by a committee that did not include any student. So clearly it cannot address the urgent needs or the best interests of students.
- B. The SRC president took the best decision by calling for a boycott of lectures to press home students' demand for improved facilities at lecture halls. So you have to support his actions, otherwise people will take you for a coward who always capitulates to authorities. Then you will never have friends and in future after your graduation, you will not get a good job in town and your life will be miserable.
- C. Initially a friend who was dying of AIDS refused treatment because of stigmatization. For his whole life he had never been to hospital or clinic. Finally he went to a hospital and was admitted for the first time where he was given anti-retroviral drugs for one week and then after some weeks he started to feel better under hospital care. Then after four weeks he died. So clearly the anti-retroviral drugs should be prescribed to everyone all over Africa who has AIDS.
- D. The Durban Declaration publicized in July 2000 at the AIDS Congress in South Africa which testifies the belief that HIV causes AIDS was signed by 5000 medical professionals. It is therefore obvious that HIV causes AIDS in Africa.
- E. What Ghana needs today is a stable political and social environment to attract foreign direct investment to enable her increase exports of basic commodities in the global economy. That way, the government will build up tax revenue and the nation will be stronger. This must be so since the message was given by the USAID representative at a Congregation Address in 2000. That man used to be the Director of AT&T, which is one of the biggest multinational corporations in the world and a major contributor to the World Bank. His family is also very wealthy.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

- F. The government's new economic policy cannot be worth anything; I know this because it was criticized very thoroughly by the head of the Christian Council, during his sermon last week on Palm Sunday.
- G. HIV/AIDS is a terrible disease which is sexually transmitted. How can you deny the truth about such a devastating fact of so many poor and destitute African children's lives? Can't you feel for the poor AIDS orphans who are forced to grow up alone, hungry, themselves doomed to die early due to this terrible plague, through no fault of their own, but only because their thoughtless and brutal male relatives cannot control their insatiable and savage sexual impulses.
- H. During the strike period I didn't want to cook, so I went to the local market for some fried rice but it wasn't very wholesome. You could tell it wasn't freshly made. So I will not go to that market again. None of the caterers there is trustworthy.
- I. The Government should sell off all state manufacturing firms and public utilities. This is because if the government owns its manufacturing plants and utilities like water and sewerage, or electricity, which are all public utilities, then it will be following a socialistic policy.

The following questions refer to a subset of samples from A-I above:

26. Which ONE if any of the following passages illustrates the **genetic fallacy**?
- A.
C.
D.
H.
Z. None of the four passages A,C,D,H illustrates the genetic fallacy.
27. Which TWO if any of the passages denoted below illustrate the **fallacy of hasty generalisation**?
- A and B.
B and C.
C and H.
D and F.
Z. None of the alternative pairs listed above illustrate hasty generalisation.
28. Which of the following passages constitutes a valid deductive syllogism?
- D.
F.
H.
I.
Z. None of the passages D,F,H,I contains a valid deductive syllogism.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

29. Which of the options below corresponds to a passage that illustrates **begging the question**?
- B.
 - G.
 - H.
 - I.
 - Z. **None of the passages B,G,H,I most clearly commits 'begging the question'.**
30. Which of the following passages is an example of appeal to pity?
- B.
 - C.
 - F.
 - G.
 - Z. **None of the above passages B,C,F,G is an appeal to pity.**
31. Which of the following passages is an example of illegitimate appeal to authority?
- C.
 - E.
 - F.
 - I.
 - Z. **None of the options C,E,F,I illustrates illegitimate appeal to authority.**
32. Which of the following passages is an example of appeal to threats or fear?
- A.
 - B.
 - C.
 - D.
 - Z. **None of the options A,B,C,D is an appeal to threats or to fear.**
33. Which of these passages presents evidence that is irrelevant to the conclusion?
- A.
 - E.
 - F.
 - G.
 - Z. **All of the passages A,E,F,G feature evidence that is irrelevant to the conclusion.**

WRITE YOUR ID Number VERY CLEARLY HERE: _____

34. Which of the passages labelled below illustrates an **ad hominem**?
- B.
C.
D.
E.
Z. None of the passages B,C,D,E is an **ad hominem**.
35. Which of the passages labelled below is an example of the **fallacy of misplaced vividness**?
- B.
C.
F.
I.
Z. None of the passages B,C,F,I contains an example of **misplaced vividness**.
36. Which passage labelled below is an example of the deductive fallacy *reductio ad absurdum*?
- D.
E.
H.
I.
Z. *Reductio ad absurdum* is not a type of deductive fallacy. So none of the above.

Section C

Question 37 = 4 points

Questions 38-56 = 2 points each

37. In the passage below, a development economist (A. Oduro) gives reason to believe one of the statements (A-D). Identify which conclusion follows from the reasoning given in the passage.

The third Millennium Development Goal (MDG) is to promote gender equity and empower women by 2015. This goal is critical in a country such as Ghana that has norms and practices which discriminate against women and girls. A weakness of the goal is that it focuses only on education. The chief shortcoming of the third MDG resides in the inadequacy of the indicators used to track and monitor progress towards achieving this goal. One of the indicators is to study the progress in the ratio of literate women to men aged 15-24 years. This ratio was highest in the Upper West region in both 1997 and 2003 according to data from the Ghana Statistical Service (2004). The data shows that the number of women who go to school in the Upper West has come closest to the number of men in school and they have done so in a shorter period of time than in other regions of Ghana. However, the literacy rate amongst the population of men and women aged 15-24 years in the Upper West region in 2003 was less than 50%, whilst the literacy rate of women in aged 15-24 years in the Greater Accra region in 2003 was over 80%. Since this data about enrolment in school is an MDG indicator of the empowerment of women people are likely to draw the conclusion that women in the Upper West region of Ghana have greater opportunity to become literate than women do in other regions of the country.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

This conclusion is . . .

- A. erroneous, because only 50% of the people overall in the Upper West region are literate, whereas in Greater Accra the literacy rate is over 80%.
- B. correct, because the data is analysed by United Nations consultants so it must be the most accurate reflection of what is true in Ghana.
- C. true but irrelevant, because women and men do not need to go to school if they are going to farm or work in the informal sector, as most people in the North do.
- D. true since it is based on statistics that are precise.
- E. true but uninteresting since it is about women in Northern Ghana where many people including young women themselves don't want them to go to school.

Questions 38-56 = 2 points each.

38. Read the following two passages (I) and (II). Compare their contents. Choose the alternative A-E which best analyses the nature of these disputes from a critical thinker's point of view.

(I) *Kofi: Did you meet your TA yet?*

Kwame: I can't. I don't have a TA.

Kofi: What do you mean? The guy running the tutorial, Mr. Appiah, he's your TA.

Kwame: No he's not. He is a National Serviceman. So he can't be a TA.

Kofi: Yes he is. He's assisting the teacher in the course. So he's a Teaching Assistant. That's what 'TA' stands for.

(II) *Kwame: Did you meet my friend Roland? He is a Muslim just like you. He was ordained in the United States into the Nation of Islam.*

Kofi: You mean that man we saw at the mosque today? He is not a real Muslim because he does not fast during Ramadan. How can you call him a Muslim if he is not obeying the laws of Islam? Fasting is required by the Qur'an during Ramadan.

Kwame: But lots of people who fast during the day at work go home and drink alcohol all night and fornicate during the rest of the year. Aren't they Muslims?

Kofi: No; that is exactly my point. That sort of behaviour is not what the label Muslim is meant to denote. Anybody knows that.

- A. Both of these are purely verbal disputes.
- B. Both of these are substantive disputes.
- C. The speakers in (I) are engaged in a substantive disagreement; those in (II) are involved in a merely verbal dispute.
- D. (I) illustrates a purely verbal dispute; (II) illustrates a substantive difference in opinion.
- E. The people speaking in (I) and (II) clearly hold different views so there is no point in analyzing what they are saying, because everyone is entitled to his or her own opinions so people are always going to disagree.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

39. *The contrast between proof and confirmation is illustrated by . . .*

- A. the way mathematical theorems are established by collecting evidence from conducting experiments in the laboratory with balls and inclined planes. Physics by contrast uses proofs.
- B. the fact that Descartes and Bacon thought the same way about the power of sense experience to act as a controlled basis for information about the way the world functions.
- C. the way that Aristotle deduced his theory of gravitation from data made available by Johannes Kepler; this method counts as proof, not confirmation.
- D. Aristotle was famous for his inductive refutation of Kepler's views with his introduction of the telescope to the court of appeals. Kepler provided proofs using the same data.
- E. Galileo's thought experiment refuting Aristotelian explanation of free fall by *reductio ad absurdum* is an example of a proof. His refutation of Aristotle when he dropped cannonballs from the leaning Tower of Pisa is an example of an inductive confirmation that Aristotle was wrong.

40. Choose the passage that represents a syllogism called negating the consequent.

- A. All Vandals are courageous. Anyone who is courageous is also reliable. So all Vandals are reliable.
- B. All Vandals are reliable young men. Kofi is unreliable. So Kofi cannot be a Vandal.
- C. All Vandals are reliable young men. Kofi is in Akuafo Hall. So Kofi must be unreliable.
- D. All Vandals are reliable young men. Kofi is unreliable. So no Vandals are reliable.
- E. None of the above illustrates the syllogism called negating the consequent.

41. Evaluate these passages by choosing the one that is not a valid hypothetical syllogism.

- A. *All these freshmen are tall; and all tall people are good at racing. So all these freshmen are good at racing.*
- B. *Anyone who is smart can be a lawyer. Anyone who is smart can be a doctor. So anyone who can be a lawyer can be a doctor.*
- C. *All the law graduates in class 2009 are now practicing commercial law. All the smartest students in logic became law graduates in 2009. So all the smartest students in logic are now practicing commercial law.*
- D. *Anyone who is hardworking in the sciences can be a poet. And anyone who can be a poet is very intelligent. So anyone who is hardworking in the sciences is very intelligent.*
- E. All of the above (A-D) are valid hypothetical syllogisms.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

42. Consider the following statement in italics as the conclusion of a valid syllogism. Then select the alternative premises among A-D to which this conclusion would follow deductively.

All goats are easy to breed

- A. *This creature is a herbivore. All herbivores are easy to breed. Therefore...*
- B. *All goats are herbivores. The herbivore lying in the shed is not a goat and is hard to breed. Therefore ...*
- C. *No goats require vaccinations. Creatures that require no vaccinations are not easy to breed. Therefore ...*
- D. *Every herbivore is easy to breed. All goats are herbivores. Therefore...*
- E. The given conclusion does not follow deductively from any of these premises.

43. Analyse the following passage reporting a study, and choose the best ONE of the alternative rejoinders A-E that follow

It is commonly believed that HIV is sexually transmitted. But in 1997 a ten year study was published by a team of researchers in Australia, who demonstrated the infectivity rate for male to female transmission is extremely low, "approximately 0.0009 per contact, while female to male transmission is eight times less efficient." In other words, an HIV-negative woman may convert to HIV positive on average only after one thousand unprotected contacts with an HIV-positive man. HIV negative men on average contract the microbe only after eight thousand contacts with an HIV positive woman. A similar study was conducted in Uganda in 2002, and the results were comparable.

The data from these two studies suggest that contrary to the popularly received claims. HIV may not be a sexually transmitted microbe after all. Whether from male to female or female to male, other factors must account for the HIV prevalence among those tested for the antibodies, as well as for the symptoms of immuno-deficiency among those never tested for the antibodies.

- A. The passage reflects how two recent studies have proven the hypothesis that unprotected sex causes HIV/AIDS.
- B. The passage reflects examples of enumerative induction in support of the hypothesis that HIV is sexually transmitted.
- C. The passage reports evidence that weakens the hypothesis that the cause of AIDS is only and always sexually transmitted.
- D. The passage confirms the widely recognized truth that HIV/AIDS is preventable by sexual behavior modification.
- E. None of the above is a correct analysis of the evidence reported in the passage.

¹ Nancy Padian, et. al., "Heterosexual Transmission of Human Immunodeficiency Virus (HIV) in Northern California: Results from a Ten Year Study," *American Journal of Epidemiology* (August 15, 1997) Vol. 146.4: 350-357.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

44. Read the following passages (I) – (III) and determine which evaluation (A-E) that follows is the best way to analyse the content of the passages from a critical thinkers' point of view.

- I. *If I want to pass this course, I must get the textbook. But if I buy the textbook then I will be unable to afford the medicine necessary to keep from getting sick. If I don't use the money for the medicine then I cannot study. If I don't study I will fail even if I have the book. My friend suggested I could use her book sometimes. That is my only option. Since I cannot buy the book and must buy the medicine, I will sometimes have to borrow my friend's book.*
- II. *The lecturers went to the Vice Chancellor with their proposal to help ease the problem of marking. But the plan was not accepted. Then it was decided that all courses on campus should be set up like Distance Education courses, so that lectures were no longer mandatory. Lecturers would instead be available for tutoring, according to arrangements that the students themselves set up.*
It was decided that this would be too confusing if undertaken on a massive scale without central organisation.
Finally lecturers felt they had no alternative and went on strike. The administration told them that they would have to petition the Ministry of Education because that is where the decisions on the budget for universities are finally made. Then someone had the idea of approaching the Ministry of Finance, so the Secretary of the Teachers Union will make an appointment to see the Director of the Budget next week.
- III. *Before beginning to study for an exam it is important to understand the course overall, to capture the point of all the readings and to get a feel for what the lecturer was trying to do with the material. This way you can tell what to emphasize and what to search for in the readings. Without a theme and guiding principle you can get lost and overwhelmed in details. The lecturer's focus will depend upon the discipline in which the course is taught. So you need to glance through a few introductory texts in that discipline whether they are assigned or not, in order to get a broader picture of where your course fits into a larger body of knowledge. You also need to do some of your own reading to show ingenuity and creativity when you answer questions. Do not just rewrite the material you received in your lectures onto the exam, if you want a high grade. Normally this will not be adequate to get a good mark.*

- A. Passage I is an argument; II is a narrative, and III is a set of instructions.
B. Passage I is a narrative; II is a set of instructions; and III is an argument.
C. Passages I and II are narratives; and III is a verbal dispute.
D. None of the passages (I-III) above constitutes an argument.
E. None of the above descriptions captures the passages I-III correctly.

For questions 45 – 48: Read the passages A-D on the next page and decide which will supply the best answer to the questions that follow.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

For questions 45-48:

- A. The seedlings were planted in the laboratory on January 25, 1999. Six weeks after the planting they measured for height and foliage growth to find that on average each plant grew four inches and had over twelve leaves. The plants with less than two inches of growth were removed for further analysis. The seeds that did not germinate at all were dug up for further analysis also. In the mycology laboratory, the seeds were found to have crystalline mould surrounding the seed case. This is the same mould that was found in the seed factory where the seeds were packaged for sale. Not even one of the stunted seedlings less than two inches in height were free of this mould. Yet all the seedlings over four inches had no mould on them. We may conclude from these test findings that the mould is responsible for the stunted growth and failed germination of certain seeds. It was decided to shut down the operation site temporarily for thorough fumigation to remove the mould from the premises.
- B. We went to the clinic on Monday and waited for the doctor. But he was not there. Someone suggested to try the hospital where he gives consultations. So we travelled to the hospital. They told us there that this was his day off. So after two hours of waiting we went home again.
- C. A poll was taken and it was discovered that all of the first class students have 'COMPAQ' computers that they use frequently. John is the best student in my class. He is going to get a first class. So he must have a brand new COMPAQ computer in his room.
- D. To get to town it is best to wait for a tro-tro as early as 5:30 a.m. It is sometimes better to go to Madina first and take a tro-tro or car from the first stop there. Then at least you avoid a very long queue. If you don't bring exact change then the trip may cost you extra money because you may not get a correct balance.

Questions 45 – 48 following refer to passages A-D above.

45. This passage illustrates a set of instructions.
- A.
- B.
- C.
- D.
- E. None of the passages A-D above illustrates a set of instructions.
46. This passage presents an example of causal reasoning using joint method of agreement and difference.
- A.
- B.
- C.
- D.
- E. None of the passages A-D above have these characteristics.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

47. This passage contains just a narrative.

- A.
- B.
- C.
- D.
- E. None of the passages A-D contains just a narrative.

48. This passage contains a *modus ponens* deductive argument. It also may be read as an enumerative induction.

- A.
- B.
- C.
- D.
- E. None of the passages A-D is a *modus ponens* argument that also may be regarded as enumerative induction.

49. Read carefully the following three statements.

- (i) *The planet earth has an elliptical orbit.*
- (ii) *All planets in our solar system have elliptical orbits.*
- (iii) *Any planet in our galaxy either has an elliptical orbit or it does not.*

Choose the correct analysis from A–E below which compares and analyses these three empirical hypotheses about planetary orbits.

- A. (iii) is the only statement above which is always true and therefore it is the hypothesis that carries the greatest *empirical content* of them all.
- B. (i) is less falsifiable than (ii), so (i) provides more *empirical information* than does (ii).
- C. (i) is less falsifiable than (ii), so (ii) has more *empirical content* and *predictive power* than does (i).
- D. Neither (i) nor (ii) are falsifiable.
- E. All the hypotheses (i)-(iii) are true and unfalsifiable and so none of them have any empirical content.

WRITE YOUR ID Number VERY CLEARLY HERE: _____

For questions 50-53 study the following evidence and the hypothesis drawn from it as a conclusion.

(Evidence): *All of the 5,000 swan birds observed in North America and Europe have been white feathered, and no non-white feathered swan birds were observed.*

(Hypothesis): *All swan birds are white.*

Background: This hypothesis was believed by ornithologists in Europe until the mid-1800s when Australia was first visited by foreign scientific expeditions, and black feathered swan birds were first discovered by European ornithologists. .

Instructions: Consider whether the confirmation of the hypothesis would be strengthened, weakened or unaffected if the sample were modified in the ways suggested below. Taken into consideration where applicable the significance of background information. In each of the following items choose the ONE alternative that describes the effect of the new evidence on the hypothesis. That is, decide whether the new evidence . . .

- (A) strengthens the hypothesis
- (B) weakens the hypothesis
- (C) has no effect on the predictive power of the hypothesis

Circle your answer.

50. Suppose 10,000 white feathered (and no other-coloured feathered swan birds) were observed.

A B C

51. Suppose only female swan birds had been observed, no male swan birds.

A B C

52. Suppose all the observations of swan birds were made only on Wednesdays and Saturdays.

A B C

53. Suppose the 5,000 swan birds were observed in Africa and Asia as well as North America and Europe.

A B C

WRITE YOUR ID Number VERY CLEARLY HERE: _____

Use the following diagram to answer question 54. Study it very carefully.



54. Of the three similar bracelets in the picture above, which two of them are identical?
(by Peter Grabarchuk)
- A. All three are identical.
 - B. The top two are identical.
 - C. The upper left and lower one are identical.
 - D. The upper right and lower one are identical.
 - E. None of them are identical.
55. Cognitive psychologists Bransford and Stein coined the acronym 'IDEAL' as a memory aid to capture certain steps for solving problems that they recommend: What are the steps?
- A. Identifying..., Duplicating..., Elaborating..., Analysing..., Locating error
 - B. Inducing..., Decoding ..., Enumerating..., Alphabetizing..., and Legitimizing
 - C. Imaging ..., Deducing ..., Extrapolating ..., Anticipating..., and Learning
 - D. Interrogating ..., Defining ..., Exploring ..., Acting ..., Looking back
 - E. None of the above lists the key words in the Bransford-Stein acronym IDEAL.

56. Two recommendations to overcome obstacles to creative thinking in problem solving were introduced in 1980 by psychologists Moates and Schumcher. What were these recommendations?
- A. Don't over-analyse or dwell over the problem, as this will reinforce its insoluble appearance; take in the points at issue as quickly as you can; and always let your first impression be your guide to the solution.
 - B. Take action in the direction of a solution without obsessing too much over whether you understand the problem or not; always avoid getting frozen in the state of analysis.
 - C. Avoid talking over the problem as this will lead to misleading influences, and stick with the problem until it is solved, avoid letting the problem fester in your unconscious; this is called the dangerous *incubation* period when problems are likely to become stale.
 - D. Talk over the problem with colleagues to help you understand it; and give the problem a rest; this is called the *incubation* period which allows your unconscious to 'work on' the problem.
 - E. Avoid the pitfall of coping; the more you cope with and adapt to your own limitations the more you become a prisoner to them. Don't self-evaluate too much because it leads to rigid thinking and habituates defeatist tendencies we have acquired that are best overlooked.

THE END

