

UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 2004/2005

October 2004

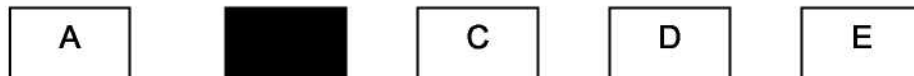
HPW 102 – Critical Thinking

Duration : 2 hours

Please check that this examination paper consists of **SEVENTEEN** pages of printed material before you begin the examination.

Instructions:

1. Answer **ALL** questions in Sections A and B.
2. For **ALL** questions in Section A, you should:
 - I. Answer them in the OMR forms provided.
 - II. Use a **2B** pencil to answer each question.
 - III. Blacken the correct answer.
 - IV. Erase completely if you need to change your answer.



SECTION A [50%]

TO ANSWER QUESTIONS 1 TO 26, PLEASE REFER TO THE FOLLOWING STATEMENTS:

- I. Only mathematicians are astrophysicists.
 - II. Some astrophysicists are mathematicians.
 - III. Some mathematicians are astrophysicists.
 - IV. No astrophysicists are mathematicians.
 - V. No mathematicians are astrophysicists.
 - VI. There is no astrophysicist who is not also a mathematician.
1. Which statements are NECESSARILY TRUE if statement I is TRUE?
- A. II, III and IV.
 - B. II and III.
 - C. Only VI is true.
 - D. IV and V.
 - E. There is no statement which is necessarily true.
2. Which statements are NECESSARILY FALSE if statement I is TRUE?
- A. IV and V.
 - B. IV, V and VI.
 - C. Only IV is false.
 - D. Only V is false.
 - E. There is no statement that is false.
3. Which statements are NECESSARILY TRUE if statement II is FALSE?
- A. IV and V.
 - B. IV, V and VI.
 - C. Only IV is true.
 - D. Only V is true.
 - E. There is no statement which is true.

4. Which statements are **NECESSARILY FALSE** if statement II is FALSE?
- A. I, III and VI.
 - B. I and III.
 - C. Only VI is false.
 - D. IV and V.
 - E. There is no statement which is false.
5. Which statement is **NECESSARILY TRUE** if statement VI is TRUE?
- A. I, II and III.
 - B. I, II, III and V.
 - C. II and III.
 - D. IV and V.
 - E. There is no statement which is true.
6. Which statement is **NECESSARILY FALSE** if statement VI is TRUE?
- A. IV and V.
 - B. II, III, IV and V.
 - C. Only IV is false.
 - D. Only V is false.
 - E. There is no statement that is false.
7. Which statement is a **CONTRADICTION** of (statement) I?
- A. II and III.
 - B. V .
 - C. II.
 - D. III.
 - E. No statement mentioned above is a contradiction to I.

8. Which statement HAS THE SAME MEANING as (statement) I?
- A. VI.
 - B. II, III and VI.
 - C. II and III.
 - D. IV and V.
 - E. No statement mentioned above has the same meaning as I.
9. Which statement is IMPLIED by (statement) I?
- A. II, III and VI.
 - B. II and III.
 - C. VI.
 - D. IV and V.
 - E. There is no statement in the above list that is implied by I.
10. Which statement is NECESSARILY TRUE if statement V is TRUE?
- A. Only IV is true.
 - B. IV and VI.
 - C. Only VI is true.
 - D. I, II, III and VI.
 - E. There is no statement that is necessarily true.
11. Which statements are NECESSARILY FALSE if statement V is TRUE?
- A. I, II, III and VI.
 - B. I, II and III.
 - C. Only VI is false.
 - D. II and III.
 - E. There is no statement that is necessarily false.

12. Which statements are **NECESSARILY TRUE** if statement III is **FALSE**?
- A. IV and V.
 - B. Only IV is true.
 - C. Only V is true.
 - D. I, III and VI.
 - E. There is no statement that is necessarily true.
13. Which statements are **NECESSARILY FALSE** if statement III is **FALSE**?
- A. I, II and VI.
 - B. I and II.
 - C. Only VI is false.
 - D. IV and V.
 - E. There is no statement that is necessarily false.
14. Which statement **MUST BE TRUE** if statement IV is **TRUE**?
- A. Only V is true.
 - B. V and VI.
 - C. I, II and III.
 - D. II and III.
 - E. There is no statement which is necessarily true.
15. Which statement **MUST BE FALSE** if statement IV is **TRUE**?
- A. I, II, III and VI.
 - B. I, II and III.
 - C. Only VI is false.
 - D. Only V is false.
 - E. There is no statement which is necessarily false.

16. Which statement **MUST BE TRUE** if statement III is **TRUE**?
- A. Only II is true.
 - B. I, II and VI.
 - C. I and VI.
 - D. IV and V.
 - E. There is no statement that is necessarily true.
17. Which statement **MUST BE FALSE** if statement III is **TRUE**?
- A. IV and V.
 - B. IV, V and VI.
 - C. Only V is false.
 - D. Only IV is true.
 - E. There is no statement which must be false.
18. Which statement **HAS THE SAME MEANING** as (statement) III?
- A. II.
 - B. I, II and VI.
 - C. I and VI.
 - D. IV and V.
 - E. There is no statement with the same meaning as III.
19. Which statement **CONTRADICTS** (or **IS CONTRADICTORY TO**) statement III?
- A. IV and V.
 - B. IV.
 - C. II.
 - D. I, II and VI.
 - E. There is no statement which contradicts III.

20. Which statement IS CONTRARY TO (statement) I?
- A. IV and V.
 - B. IV.
 - C. V.
 - D. II and III.
 - E. No statement is contrary to I.
21. Which statement IS SUBCONTRARY TO (statement) I?
- A. II and III.
 - B. II, III and VI.
 - C. IV and V.
 - D. IV.
 - E. No statement is subcontrary to I.
22. Which statement is A CONTRADICTION OF (statement) V?
- A. II and III.
 - B. II.
 - C. I, II, III and VI.
 - D. I and VI.
 - E. No statement is a contradiction of V.
23. Which statement is CONTRARY to (statement) V?
- A. I and VI.
 - B. I, II, III and VI.
 - C. II and III.
 - D. IV.
 - E. No statement is contrary to V.

24. Which statement HAS THE SAME MEANING as (statement) V?
- A. IV.
 - B. I and II.
 - C. I, II, III and VI.
 - D. VI.
 - E. No statement has the same meaning as V.
25. Which statement is IMPLIED by (statement) IV?
- A. V.
 - B. V and VI.
 - C. I, II, III and VI.
 - D. VI.
 - E. No statement is implied by IV.
26. Which statement has the SAME MEANING as (statement) VI?
- A. I.
 - B. I, II and III.
 - C. II and III.
 - D. IV and V.
 - E. No statement has the same meaning as VI.
27. Please pay attention to the following claims:
- I. If a syllogism (syllogistic argument) is valid and its premises are false, then its conclusion must necessarily be false.
 - II. If a syllogism is valid and its premises are true, then its conclusion must necessarily be true.
 - III. If a syllogism is invalid and its premises are false, then its conclusion must be false.
 - IV. If a syllogism is invalid and its premises are true, then its conclusion must be true.

Question: Which of the above assertions are CORRECT?

- A. II.
- B. II and IV.
- C. I and III.
- D. I.
- E. There is no correct assertion.

28. Please focus on the following claims:

- I. If a syllogism is valid and its conclusion is true, then at least one of its premises must be true.
- II. If a syllogism is valid and its conclusion is false, then at least one of its premises must be false.
- III. If a syllogism is invalid and its conclusion is invalid and its conclusion false, then at least one of its premises must be false.

Question: Which of the above assertions is CORRECT?

- A. II.
- B. II and III.
- C. I.
- D. I and III.
- E. There is no correct assertion.

29. Please attend to the following arguments:

- I. Ludwig Wittgenstein is a genius, because anyone who is a Cambridge-trained analytic philosopher must be a real genius.
- II. This rock from Mars cannot contain microbial life. This is because every Mars rock that is found so far does not contain microbial life.
- III. I simply cannot trust Winston. Every important statement he has made is elusive and deceptive; and I expect him to continue his deception and elusiveness.
- IV. Mozart and Tchaikovsky must be real geniuses. There is no great classical music composer who is not a real genius.

Question: Which of the above are INDUCTIVE ARGUMENTS?

- A. II and III.
- B. II.
- C. III.
- D. I and IV.
- E. There is no inductive argument in the above list.

30. Please focus attention on the following arguments:

- I. Most astrophysicists are madmen, and Professor Stephen Hawking is a real good astrophysicist. So I expect him to be a madman.
- II. You will not find a crow that is not black, because all crows are simply black.
- III. Anyone who murders millions of fellow human beings must be insane; and Himmler, leader of the Waffen SS, has murdered millions of Jews, gypsies, Communists, and many other people. Therefore Himmler must really be insane.
- IV. If an action is moral, then it must be performed for its own sake. Saving the lives of poor people in Africa is a moral act. It is therefore an act that is performed for its own sake.

Question: Which of the above arguments are INDUCTIVE?

- A. Only I is an inductive argument.
- B. I and II.
- C. I and IV.
- D. Only III is an inductive argument.
- E. There is no inductive argument in the above list.

31. Please focus on the following sentences:

- I. I love everyone who does not love himself.
- II. I have discovered an infinite number that ends with a billion digits.
- III. My car is made entirely of antimatter.

- IV. Anyone who does not love himself is insane.
- V. My car is longer and also shorter than yours.

Question: Everything being equal, which of the above statements are INCONSISTENT (or contain self-contradictions)?

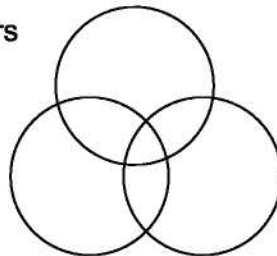
- A. I and V.
 - B. I.
 - C. V.
 - D. II, III and IV.
 - E. There is no inconsistent statement in the above list.
32. Which of the following statement is contrary to “Only fools believe in ghosts”?
- A. Anyone who believes in ghosts is not a fool.
 - B. Anyone who believes in ghosts is a fool.
 - C. Some fools believe in ghosts.
 - D. Some fools do not believe in ghosts.
 - E. Only those who believe in ghosts are foolish.
33. Which statement has the same meaning as “All moral principles are universal”?
- A. Only universal principles are moral principles.
 - B. There is no moral principle that is universal.
 - C. Some moral principles are universal.
 - D. Some moral principles are not universal.
 - E. Only moral principles are universal.

The Venn diagram above represents the following argument:

- A. All boxers are not residents of Jerejak Island because only non-intelligent persons are residents of Jerejak Island.
- B. No residents of Jerejak Island are intelligent; and no boxers are residents of Jerejak Island.
- C. All intelligent persons are boxers; and no residents of Jerejak Island are intelligent.
- D. If a person is a resident of Jerejak Island then, for sure, he is a boxer because no intelligent persons are residents of Jerejak Island.
- E. Only boxers are intelligent because all boxers are not residents of Jerejak Island.

36.

Steroid abusers

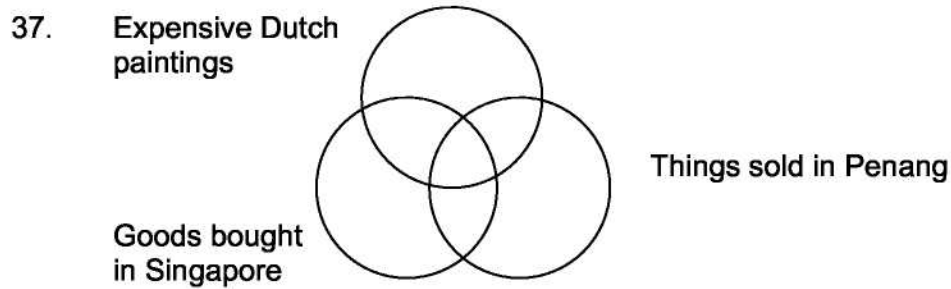


Olympic athletes

Kim Hock

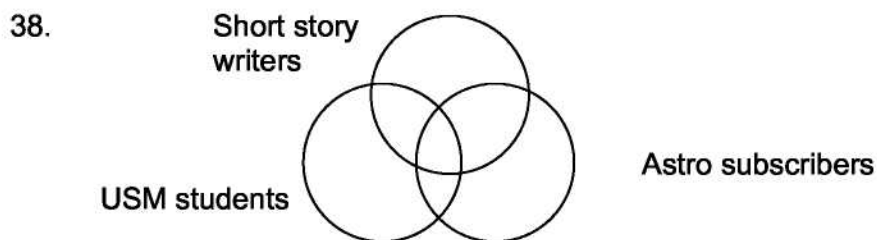
The Venn diagram above represents the following argument:

- A. Kim Hock is not a steroid abuser because he is not an Olympic athlete.
- B. Only Olympic athletes are steroid abusers and therefore, Kim Hock is not an Olympic athlete.
- C. Kim Hock is a steroid abuser and an Olympic athlete.
- D. Only Kim Hock is not a steroid abuser because only Olympic athletes are steroid abusers.
- E. Only steroid abusers are Olympic athletes and therefore, Kim Hock is not an Olympic athlete.



The Venn diagram above represents the following argument:

- A. Only things sold in Penang are goods bought in Singapore because no things sold in Penang are expensive Dutch paintings.
- B. All things sold in Penang are not expensive Dutch paintings because only things sold in Penang are goods bought in Singapore.
- C. No expensive Dutch paintings are goods bought in Singapore; and all goods bought in Singapore are things sold in Penang.
- D. Only things sold in Penang are goods bought in Singapore; and all expensive Dutch paintings are not sold in Penang.
- E. No goods bought in Singapore are expensive Dutch paintings because if something is sold in Penang then that thing is an expensive Dutch painting.

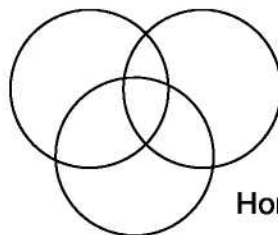


The Venn diagram above represents the following argument:

- A. Some USM students are not Astro subscribers and therefore, no short story writers are Astro subscribers.

- B. Only non-short story writers are Astro subscribers; and some USM students are not short story writers.
- C. All Astro subscribers are not short story writers because some Astro subscribers are USM students.
- D. Some USM students are not short story writers; and no short story writers are Astro subscribers.
- E. Some USM students are not short story writers because some USM students are Astro subscribers.

39. Kingswood drivers

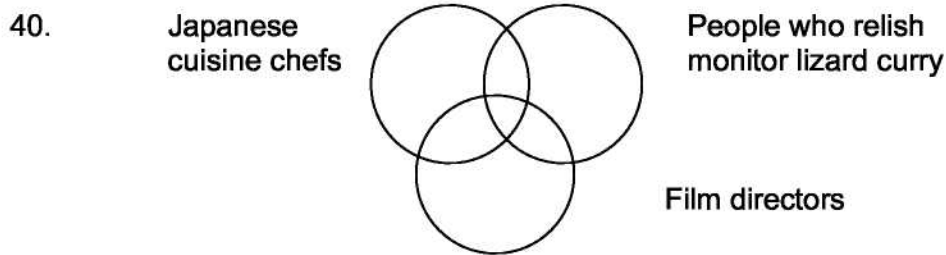


National wrestlers

Horse riders

The Venn diagram above represents the following argument:

- A. Only national wrestlers are horse riders and therefore, all national wrestlers are Kingswood drivers.
- B. Only Kingswood drivers are horse riders because only national wrestlers are horse riders.
- C. If someone is a horse rider, then he is a national wrestler and therefore, all national wrestlers are Kingswood drivers.
- D. No Kingswood drivers are national wrestlers because no Kingswood drivers are horse riders.
- E. If someone is a national wrestler, then he is a Kingswood driver and therefore, only national wrestlers are horse riders.



The Venn diagram above represents the following argument:

- A. If someone relishes monitor lizard curry, then he is a Japanese cuisine chef; and all film directors do not relish monitor lizard curry.
- B. No film directors are Japanese cuisine chefs; and only people who relish monitor lizard curry are Japanese cuisine chefs.
- C. Some film directors are not Japanese cuisine chefs because all Japanese cuisine chefs relish monitor lizard curry.
- D. No Japanese cuisine chefs are film directors because only people who relish monitor lizard curry are film directors.
- E. If someone is a film director, then he is not a Japanese cuisine chef because no film directors relish monitor lizard curry.

SECTION B [50%]

- (*) Discuss critically the following arguments.
- 41. Monica loves anchovies. She also loves ice cream. Monica would definitely love ice cream mixed with anchovies.
- 42. We must reject President Fidel Castro's assertion that The United States is a very aggressive superpower. After all, Castro is a Communist, and Communists can neither think well nor coherently.

43. Diseases like Ebola are not caused by viruses, bacteria or microbes. We know that the majority of victims of this disease (Ebola) live in Sub-Saharan Africa, where communities are dirt poor and live in misery. Ebola must therefore be the result of poverty, lack of proper food and absence of hygiene, conditions that severely weaken a person's immune system.
44. A world-famous paleontologist, Stephen Jay Gould, has asserted that dinosaurs were killed by the collision of a large asteroid with Earth. We ought to accept his claim.
45. Only those hailing from Negeri Sembilan are Siti Nurhaliza fans. Several old men I met are not Siti Nurhaliza fans. Therefore, these old men are not from Negeri Sembilan.