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3 October 2016

QUIZ ONE: **SCIENTIFIC THOUGHT AND SOCIAL VALUES**

PHI2394 B

Part I - Circle the most appropriate answer (1 mark each).

1. Both the Greek Golden Age and the Renaissance were triggered by
 - a) increased economic activity.
 - ~~b) a change in climate patterns.~~
 - ~~c) the beginning of civil wars.~~
 - ~~d) dissolutions of the ruling monarchies.~~
 - ~~e) conversions to polytheism.~~

2. Plato tended to favour knowledge that was
 - ~~a) practical.~~
 - b) universal and necessary.
 - ~~c) relative to the culture.~~
 - ~~d) derived from our senses.~~
 - ~~e) based in emotions.~~

- 3) The Allegory of the Cave signifies
 - ~~a) the poverty of reason.~~
 - ~~b) how friendship overcomes ignorance.~~
 - c) the falsity of unexamined beliefs.
 - ~~d) the end of life.~~
 - ~~e) the immorality of science.~~

- 4) Both Plato and Aristotle understand *technē* (τέχνη) to be a kind of
 - ~~a) necessary knowledge.~~
 - ~~b) means of self-production.~~
 - ~~c) romantic love.~~
 - d) craft-knowledge.
 - ~~e) democratic principle.~~

- 5) What is empiricism?
 - ~~a) A term, which refers to gut instincts or intuitions.~~
 - ~~b) The theory that the cosmos does not end.~~
 - ~~c) The belief that true knowledge comes from reason.~~
 - ~~d) Martha Stewart's handy way of organizing recopies.~~
 - e) A theory of knowledge based in experience.

- 6) Aristotle conceives scientific knowledge (*epistēmē*) to be something that is
- a) of first principles.
 - ~~b) only empirical.~~
 - ~~c) exclusively rational.~~
 - ~~d) proper to conduct and behaviour.~~
 - ~~e) unknowable.~~
- 7) Intelligence (*Phronesis*) for Aristotle concerns
- a) first principles.
 - ~~b) music and arts.~~
 - c) practical wisdom or right conduct.
 - ~~d) Olympic strength and coordination.~~
 - ~~e) craft knowledge.~~
- 8) Aristotle defines *phýsis* or nature as
- a) “mother earth”
 - ~~b) lacking in value and use.~~
 - c) a coming-to-be of all things whose motion is internal.
 - ~~d) “alien” and “distinct” from the human being.~~
 - ~~e) “disordered substrate.”~~
- 9) A notable feature of *téchnē* is that it uses a design (*eidōs*)
- a) that is internal to the thing itself.
 - ~~b) made by God alone.~~
 - ~~c) or “idol” rejected by Francis Bacon.~~
 - d) that is external to the thing itself.
 - ~~e) and so makes natural objects immoral.~~
- 10) _____ is considered the ‘father’ of _____.
- a) Aristotle / rationalism
 - ~~b) Plato / empiricism~~
 - ~~c) Zeus / monotheism~~
 - ~~d) Francis Bacon / biology~~
 - e) Francis Bacon / empiricism
- 11) The argumentative method of both philosophy and science demands
- a) support for the claim being made.
 - ~~b) academic credentials for legitimacy.~~
 - ~~c) discourse conform to prevailing political norms.~~
 - ~~d) that knowledge (*epistēmē*) be unquestioned.~~
 - ~~e) style and aesthetic appeal in presentation.~~

- 12) Aristotle thought science should be both
- a) ~~perfect and imperfect.~~
 - b) deductive and inductive.
 - c) ~~deductive and culturally relative.~~
 - ~~d) culturally relative and inductive.~~
 - ~~e) in conformity with the gods and timeless.~~
13. Bacon calls “Idols of the Market” the “greatest nuisances” and they are derived from
- a) ~~common and false ideas we inherit.~~
 - ~~b) impractical philosophical ideas.~~
 - c) the misuse of language, which produces confusion.
 - d) ~~mistrust between buyers and sellers.~~
 - ~~e) emotions rather than facts.~~

Part II. - Short answer (3 marks each)

14. What is the difference between the craft-knowledge and scientific knowledge for the Greeks. Define, explain and give an example.

Technē or craft-knowledge is concerned with production and the making of objects. It is often translated as skill or art. In producing objects, craft-knowledge creates artificial things, wherein the artificial is distinguished from the natural as its design is imposed from without. The natural object has its design organic, or within. An example might be the construction worker installing suspension beams to make a bridge. This is a form of knowledge often considered deficient to scientific knowledge.

Scientific knowledge (*epistēmē*) is considered superior because it deals with first principles and is based on timeless and necessary knowledge. An example might be the knowledge of the civil engineer who knows the principles of weight-bearing physics and geometric strength behind bridge building.

15. What is deductive reasoning? What is inductive reasoning? Give examples in both cases. Of Plato, Aristotle, and Bacon, who favoured which?
Deductive reasoning is the process of reasoning from one or more statements (premisses) to reach a logically certain conclusion.

An example of a deductive argument:

All men are mortal.

Socrates is a man.

Therefore, Socrates is mortal.

Favoured by Plato

Inductive reasoning is reasoning in which the premises are viewed as supplying strong evidence for the truth of the conclusion.

Example:

All of the swans we have seen are white.

Therefore, all swans are white. (Or more precisely, "We expect that all swans are white")

Favoured by Bacon

Aristotle used (so favoured both or neither) deductive and inductive in his science.

16. Aristotle opens his *Metaphysics* with this statement - *ALL men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness they are loved for themselves.* What kind of knowledge is he introducing to us? Define, explain, and give an example of it.

Empiricism.

Empiricism is a theory that states that knowledge comes only or primarily from sensory experience. Empiricism in the philosophy of science emphasizes evidence, especially as discovered in experiments. It is a fundamental part of the scientific method that all hypotheses and theories must be tested against observations of the natural world rather than resting solely on a priori reasoning, intuition, or revelation.

Empiricism, often used by natural scientists, says that knowledge is based on experience. One of the epistemological tenets is that sensory experience creates knowledge. Empirical research would be an example of empiricism and would include experiments and validated measurement tools, which guide the scientific method.

17. How does the value of nature in science during Bacon's Renaissance science differ from that of Aristotelian science? What is the major source of this difference?

Christianity is considered the source of the difference.

Christianity professed a Great Chain of Being, which set man over against the natural world. With this religion, the object of science (knowledge) became Platonic in style and focussed on timeless and eternal concepts since these were closer to man given that man contained some of the divine within. The natural world under this narrative was important and interesting only insofar as it contributed to the advancement and agency of man.

In contrast, the polytheistic world did not separate man from nature. These prescientific times had respect for nature and its awesome power because man did not understand the forces of nature. Thus, there was a reverence for the natural world partly because it was unpredictable and dangerous, partly because it was part of who we are.