

MIDTERM EXAM IN SCIENCE, TECHNOLOGY AND SOCIETY

GENERAL INSTRUCTIONS:

1. Read the instructions carefully before answering.
2. **ENCIRCLE** your best choice of answer in the given **CHOICES**.
3. **CHEATING** is **STRICTLY PROHIBITED!**
4. If you have clarification and confusions, **ASK** your proctor, not your classmates.

TEST I – MULTIPLE CHOICE

INSTRUCTION: **ENCIRCLE** the correct letter of your answer.

1. Technology can be best understood as?
 - A. The use of imagination to build tools
 - B. The use of scientific knowledge for practical purposes
 - C. The study of nature without application
 - D. The art of creating machines only
2. Which statement shows a balanced understanding of science and technology?
 - A. They are always beneficial to society.
 - B. They are neutral and depend on how humans use them.
 - C. They are completely dangerous and should be avoided.
 - D. They exist without affecting society at all.
3. The Latin word *scientia* means?
 - A. Wisdom
 - B. Knowledge
 - C. Skill
 - D. Art
4. According to John Heilbron, science is both a discovery and an invention. What does this imply?
 - A. Science is fixed and unchanging.
 - B. Science is only about observing nature.
 - C. Science involves finding natural regularities and creating methods to explain them.
 - D. Science is limited to laboratory experiments.
5. The Greek root word *techne* refers to:
 - A. Knowledge
 - B. Discovery
 - C. Art or skill
 - D. Invention
6. Mark Zuckerberg's description of technology highlights its ability to:
 - A. Replace human senses
 - B. Augment human abilities
 - C. Remove the need for tools
 - D. Function only in digital spaces
7. Wolpert (2005) emphasized that reliable scientific knowledge
 - A. Always carries ethical value
 - B. Has no moral or ethical value in itself
 - C. Can only be used for good purposes
 - D. Should be applied by scientists alone
8. Which of the following best distinguishes science from technology, according to Wolpert?
 - A. Science predicts the future uses of discoveries.
 - B. Scientists are responsible for technological applications.
 - C. Science explains natural phenomena, while technology applies knowledge.
 - D. Technology exists independently of society.
9. Why is it difficult to predict the impact of scientific discoveries?
 - A. Discoveries always follow a fixed pattern.
 - B. Applications are influenced by politics, business, and religion.
 - C. Scientists are not trained to study society.
 - D. Technology always evolves without challenges.
10. Which of the following situations illustrates Carl Sagan's warning that society depends on but does not understand science and

technology?

- A. A community installing solar panels after thorough research
- B. Students learning both coding and ethics in school
- C. Citizens relying on smartphones daily without knowing how they work
- D. Scientists publishing open-access journals

11. What is the double-edged nature of science and technology?

- A. It is always beneficial in the long run.
- B. It brings progress but also creates new challenges.
- C. It eliminates jobs without producing new ones.
- D. It replaces science with technology.

12. Which ethical issue best reflects the risk of **privacy invasion** in technology?

- A. Google Clips capturing moments automatically
- B. Ransomware holding files for ransom
- C. Textalyzer analyzing driver phone use
- D. Friendbot storing a deceased person's footprint

13. Which STS discipline is MOST useful in critiquing the *moral implications* of new technologies?

- A. History
- B. Philosophy
- C. Sociology
- D. Economics

14. Why did STS emerge as an academic field after World War II and the Cold War?

- A. Because students preferred to study science instead of humanities
- B. Because historians and scientists recognized the deep social impacts of science and technology
- C. Because governments forced schools to teach technology
- D. Because universities wanted to separate science from society

15. STS bridges two traditionally exclusive cultures:

- A. Economics and politics
- B. Humanities and natural sciences

- C. Sociology and philosophy
- D. Engineering and medicine

16. Which item from Notre Dame's 2018 list highlights the ethical risk of **constant surveillance**?

- A. Social Credit System
- B. Helix genome reader
- C. Sentencing Software
- D. Citizen App

17. Which example shows how science and technology can unintentionally create new problems?

- A. Development of antibiotics leading to resistant bacteria
- B. Development of wind turbines to generate renewable energy
- C. Launching satellites to improve communication
- D. Inventing smartphones for global connectivity

18. What is the primary goal of STS as an academic discipline?

- A. To train scientists in laboratory work
- B. To study science and technology apart from society
- C. To help people critically and ethically evaluate science and technology's role in society
- D. To promote technological inventions only

19. The invention of the potter's wheel eventually led to the development of the ancient wheel for transport. What does this suggest about technological innovation?

- A. Inventions always come from accidents
- B. Tools often evolve from existing devices adapted for new uses
- C. New inventions appear only after centuries of waiting
- D. Technology always comes from outside influence

20. Which feature of papyrus made it revolutionary compared to stone writing?

- A. It was expensive and rare
- B. It was durable and portable, allowing wider record-keeping
- C. It required no skill to use
- D. It replaced oral tradition completely

21. The shadoof is an example of early engineering using counterweights. What principle?

- A. Elevators
B. Refrigerators
C. Smartphones
D. Automobiles
22. The Antikythera mechanism was significant because it:
A. Introduced religious rituals
B. Showed early mechanical computation for astronomy
C. Was used for warfare exclusively
D. Functioned only as a decoration
23. Why is the aeolipile (Hero's engine) considered an antecedent of the steam engine?
A. It had practical industrial uses immediately
B. It demonstrated the power of heated steam to generate motion
C. It was designed for transport across seas
D. It replaced windmills for farming
24. The heavy plough transformed European agriculture because it:
A. Encouraged farmers to abandon fertile clay soil
B. Allowed cultivation of difficult but fertile soils, boosting yields
C. Reduced the need for community cooperation
D. Removed the need for trade and commerce
25. Gunpowder was first created by Chinese alchemists while searching for the "elixir of life." What does this reveal about invention?
A. All inventions are intentional
B. Serendipity plays a major role in scientific progress
C. Accidents delay progress
D. Inventions spread only in Europe
26. The introduction of paper money illustrates how societies:
A. Always reject new forms of currency
B. Assign symbolic value to objects for economic exchange
C. Stopped using precious metals altogether
D. Only trusted coin-based trade
27. The mechanical clock in the Middle Ages was revolutionary because it:
A. Ended the use of calendars
B. Structured human activities by accurate time measurement
C. Worked only for astronomical predictions
D. Was used only in monasteries
28. The spinning wheel increased textile production by up to 100 times. Which modern innovation shows a similar impact on efficiency?
A. Hand sewing
B. Industrial sewing machines
C. Hand weaving
D. Basket weaving
29. The compound microscope by Zacharias Janssen marked progress in science because:
A. It allowed viewing of microscopic worlds, advancing medicine and biology
B. It replaced telescopes in astronomy
C. It became the first camera
D. It was used mainly for art
30. Galileo's use of the telescope demonstrated how technology can:
A. Confirm old myths without question
B. Expand human understanding of the universe
C. Prove that the Earth was the center of the universe
D. Replace all forms of navigation
31. The Jacquard loom is an antecedent of computers because it:
A. Used electricity to weave faster
B. Employed punched cards to automate tasks
C. Replaced all manual weaving immediately
D. Required two people to operate
32. The Wright brothers' airplane showed the value of:
A. Applying scientific principles like aerodynamics to real inventions
B. Abandoning experimentation in favor of instinct
C. Copying birds without modification
D. Using ancient wing designs
33. Dr. Fe del Mundo's medical incubator is a good example of Filipino ingenuity because it:
A. Required advanced Western technology

34. Banana Ketchup by Maria Rosa is an innovation that illustrates:
- A. Necessity drives invention, especially in times of scarcity
 - B. Condiments are always imported
 - C. Filipinos prefer foreign tastes
 - D. Food technology has little social impact
35. Copernicus' heliocentric model challenged the long-accepted Ptolemaic system. If you were a scientist in the 16th century, what would be the biggest challenge in supporting Copernicus' heliocentric model? (Note: Ptolemy's geocentric model was still dominant)
- A. They only affect scientists, not society
 - B. They often create debates between science and belief systems
 - C. They are always accepted immediately
 - D. They eliminate all controversies?
36. The Copernican Revolution is called a "paradigm shift." Which of the following best shows why it was revolutionary?
- A. It changed the way people saw the universe
 - B. Earth's place in the universe
 - C. It confirmed that the Earth was flat
 - D. It replaced religion with philosophy
37. Galileo defended the heliocentric model despite Church opposition. What does his action reveal about the relationship between science and society?
- A. Science always avoids conflict with religion
 - B. Scientific truth can face resistance from established beliefs
 - C. Society quickly accepts scientific evidence
 - D. Science and religion never overlap
38. Imagine Darwin never published On the Origin of Species. Which area of modern science would have developed most differently?
- A. Astronomy
 - B. Evolutionary biology
 - C. Chemistry
 - D. Physics
39. The finches in the Galapagos Islands developed different beak shapes based on food sources. What key scientific principle does this demonstrate?
- A. The Earth's rotation on its axis
 - B. Inheritance and adaptation through natural selection
 - C. The geocentric model of survival
 - D. The unconscious mind guiding evolution
40. Critics argued that Darwin's theory dismisses God's role in creation. What does this reaction tell us about the impact of religious beliefs?
- A. Freud emphasized the unconscious mind's role in behavior. Which of the following situations best applies this idea?
 - B. A student studies hard for an exam after planning
 - C. A child suddenly fears dogs after a forgotten traumatic event
 - D. A farmer improves crops using selective breeding
41. If Freud's psychoanalysis had been proven fully unscientific and abandoned, which modern field would have been most affected?
- A. Psychotherapy and counseling
 - B. Psychology
 - C. Engineering
 - D. Evolutionary biology
42. Freud emphasized the unconscious mind's role in behavior. Which of the following statements best applies this idea?
- A. A student studies hard for an exam after planning
 - B. A child suddenly fears dogs after a forgotten traumatic event
 - C. An engineer designs a new telescope using formulas
 - D. A farmer improves crops using selective breeding
43. Why are the Copernican, Darwinian, and Freudian revolutions considered intellectual revolutions?
- A. They were accepted peacefully without debate
 - B. They each challenged traditional ways of thinking and introduced new worldviews
 - C. They had no effect on modern science
 - D. They only applied to philosophy, not science
44. If Copernicus, Darwin, and Freud were alive today, what common trait would they most likely share as scientists?
- A. Strong resistance to questioning
 - B. Evolutionary biology
 - C. Chemistry
 - D. Physics

- A. traditional knowledge
- B. Willingness to challenge accepted ideas with new evidence
- C. Dependence only on religious approval
- D. Refusal to publish controversial works

45. Which of the following best shows the continuing influence of the Darwinian Revolution today?
- A. Use of natural selection in developing disease-resistant crops
 - B. Belief that the Earth is the center of the universe
 - C. Acceptance of Freud's Oedipus complex as universal
 - D. Complete rejection of religious thought
46. Intellectual revolutions are described as a "two-stage process" (Bailley). Which situation illustrates this process?
- A. Keeping both the geocentric and heliocentric models equal
 - B. Sweeping away old explanations and replacing them with new scientific models
 - C. Completely rejecting all previous knowledge
 - D. Ignoring controversies in favor of tradition
47. The Banaue Rice Terraces were created using early Filipino agricultural techniques. Which HOT interpretation best describes their significance?
- A. They were simple farmlands with no cultural impact
 - B. They reflect advanced engineering adapted to natural landscapes
 - C. They were built solely for decorative purposes
 - D. They replaced all other farming systems in Asia
48. In pre-colonial Philippines, herbal medicine was used to treat illnesses. Which modern-day development can be considered its extension?
- A. Artificial intelligence in hospitals
 - B. Pharmaceutical research on plant-based medicine
 - C. Satellite communication
 - D. Internet-based learning systems
49. During the Spanish period, science and technology emphasized agriculture and

engineering. What might have been the long-term consequence if trade had not been prioritized over scientific development?

- A. The Philippines could have advanced earlier in industrialization
- B. Filipinos would have abandoned farming
- C. Religion would have disappeared completely
- D. Filipinos would not have engaged in any trading

50. The Americans replaced the Laboratorio Municipal with the Bureau of Science. Which HOT lesson about colonial governance does this reflect?

- A. Colonizers always suppress scientific progress
- B. Colonizers sometimes reorganize institutions to serve practical needs
- C. Filipinos rejected all American contributions
- D. Science developed without external influence

51. President Marcos emphasized science and technology by allocating war damage funds to universities. Which of the following best demonstrates the impact of this policy today?

- A. Widespread use of imported educational systems
- B. Stronger scientific research culture in Philippine universities
- C. Decline in science education in public schools
- D. Dependence on foreign teachers for science subjects

52. The creation of agencies like PAGASA and PHILCORIN under Marcos addressed agriculture and environment. Which of these best reflects their importance today?

- A. They prevent all natural disasters
- B. They contribute to disaster preparedness and agricultural modernization
- C. They are now irrelevant due to globalization
- D. They only serve political functions

53. Why linewidth is important in AutoCAD?

- a) To add up design to drawing
- b) To make a difference
- c) To emphasize the object line or edges
- d) To make a simple drawing

54. The establishment of NAST (National Academy of Science and Technology) in 1976 illustrates what HOT concept about nation-building?

- A. That scientific expertise is essential in national development
- B. That science only belongs to foreign experts
- C. That only politics matters in progress
- D. That traditional beliefs replace research

55. Under Corazon Aquino, NSTA was renamed DOST to be represented in the cabinet. What does this imply about the role of science in governance?

- A. Science should be isolated from government
- B. Science is central to policy-making and national growth**
- C. Science must be removed from economic planning
- D. Science should only focus on religion

56. The "Doctors to the Barrio" program during Ramos' presidency addressed healthcare in remote areas. Which HOT evaluation best explains its significance?

- A. It showed science can be used for inclusive development**
- B. It prioritized city hospitals over rural clinics
- C. It discouraged doctors from serving communities
- D. It proved technology was unnecessary in health

57. The passage of RA 8439 (Magna Carta for Scientists) and RA 7687 (Science Scholarship Act) during Ramos' term reveals which critical idea?

- A. Incentives and support are vital in strengthening the science community**
- B. Laws have no impact on science and technology
- C. Science thrives without resources and manpower
- D. Scientists should not be supported by the state

58. Estrada's implementation of irrigation technologies shows what HOT application of science?

- A. Using technology to solve basic agricultural problems**
- B. Avoiding modern techniques in food production
- C. Making farming dependent only on rainfall
- D. Rejecting scientific input in agriculture

59. Arroyo's "Filipino innovation" campaign envisioned the Philippines as an innovation

hub. Which question does this raise for learners today?

- A. How can Filipinos apply innovation to address poverty and development?
- B. Should innovation be abandoned due to lack of funds?
- C. Is innovation only useful in foreign countries?
- D. Is innovation limited to elite universities?

60. RA 9367 (Biofuels Act) under Arroyo failed due to lack of technology. What critical lesson does this provide about policy-making?

- A. Laws must be backed by scientific and technological capacity**
- B. Any law can succeed without resources
- C. Science is irrelevant in energy production
- D. Farmers should never use modern fuel sources

61. Aquino III named new National Scientists in various fields. Which evaluation best shows why this recognition matters?

- A. It motivates and honors contributions to national scientific progress**
- B. It discourages younger scientists from researching
- C. It shows science is purely ceremonial
- D. It prevents research from being funded

62. Duterte's Diwata-1 and Diwata-2 satellites signaled the Philippines' entry into space research. What broader implication does this achievement have?

- A. The Philippines can compete in global space technology**
- B. Space technology has no benefits to society
- C. Satellites are irrelevant in modern development
- D. Filipino scientists cannot manage space research

63. Modern mechanized farming and GM crops increased production but also caused environmental harm. What analysis is necessary here?

- A. Weighing productivity benefits against ecological risks**
- B. Avoiding farming altogether
- C. Choosing tradition over technology at all times
- D. Rejecting all fertilizers without study

The rapid growth of social media and online learning illustrates which evaluation of technology?

- A. Technology transforms how people communicate and learn
- B. Technology prevents the spread of information
- C. Online learning has no impact on education
- D. Social media isolates science from society

65. Resource depletion and environmental damage are consequences of technological advancement. What action should Filipinos prioritize?

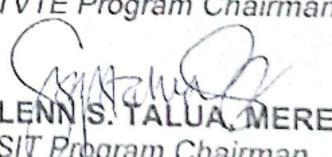
- A. Sustainable use of science and technology for development
- B. Unlimited exploitation of natural resources
- C. Ignoring environmental costs of progress
- D. Banning all forms of innovation

GOOD LUCK!!

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