

KATHMANDU UNIVERSITY  
End Semester Examination  
September 2024

Marks Scored:

Level : B.Sc.  
Year : I

Course : BINF 102  
Semester : II

Exam Roll No:

Time : 30 mins

F.M. : 10

Registration No:

Date : 20 SEP 2024

SECTION "A"

[20 Q. X 0.5 = 10 Marks]

**Choose and mark [X] the most appropriate answer. Symbols have their usual meanings.**

1. Hedonism is a school of thought that argues that \_\_\_\_\_ is the only intrinsic good.  
 Pleasure  Justice  
 Virtue  Freedom
2. Utilitarian school having the slogan:  
 The greatest happiness of the individual  
 The greatest happiness of the greatest number  
 The happiness of all  
 The happiness of the greatest number
3. Which of the following is the best example of inherited disease?  
 A daughter getting ovarian cancer because her mother had BRCA1 mutation  
 Two brothers suffering from diabetes  
 A father and a son from rural Africa suffering from ringworm disease  
 A mother and a daughter both suffering from blood pressure
4. Which of the following are the attributes of a profession?
  - I. The work requires sophisticated skills, the use of judgment, and the exercise of discretion.
  - II. Membership in the profession does not require extensive formal education as well as practical training.
  - III. There are set standards for admission to the profession and conduct for members.
  - IV. Significant public good results from the practice of the profession.Select the correct answer using the codes given below  
 I, II, and III only  
 I, II, and IV only  
 I, III, and IV only  
 II, III, and IV only
5. Which of the following is an example of induced pluripotent stem cell?

- Formation of undifferentiated cells from blastocyst
  - Formation of undifferentiated cells from trophoblast
  - Differentiation of red blood cells from haematopoietic stem cells
  - Formation of hematopoietic cells from white blood cells
6. What is Draize test used for?
- To test whether cosmetics cause irritancy of eye
  - To test whether cosmetics cause reduction in pimples
  - To test for the efficacy of drugs to prevent pimple formation
  - To test efficacy of drugs in eye cosmetics
7. Which of the following animals will most likely be brought back by deextinction?
- T-rex
  - Dodo the bird
  - Woolly mammoth
  - Pinta the giant tortoise
8. The \_\_\_\_\_ says that you may use copyrighted material in certain situations — for example, in the creation of new work or, within certain limits, for teaching purposes.
- Fair use doctrine
  - Pirated software
  - Keylogger
  - Screen capture
9. In professional ethics, what does “conflict of interest” refer to?
- A situation where two professionals disagree
  - situation where personal interests conflict with professional duties
  - A conflict between ethics and laws
  - A situation involving legal disputes
10. What is one of the issues of biopolitics of GMOs?
- GMO leads to gene pollution
  - GMO fits the terrain of US better than Europe
  - GMO may be hazardous to human health
  - GMOs were too easily approved by US companies due to influence
11. Whistleblowing is an example of:
- Professional misconduct
  - Violating confidentiality
  - Reporting unethical behavior
  - Profit maximization
12. Which of the following are desirable characteristics of a “green computer”?
- It runs on less electricity than the typical computer.
  - It contains a high percentage of reusable or recyclable materials.
  - Its manufacturer has a program to help consumers dispose of it at the end of its life.
  - All of the above

13. The two primary objectives of social media advertisers should be driving traffic to a Web site to increase product sales and \_\_\_\_\_.
- Networking
  - Collecting users' data
  - Raising Brand Awareness
  - All of the above

**Choose and marks [X] True or False options for the questions below.**

14. A change in technology often induces social, political, and economic system changes long before a critical mass of users is reached. True or False?  
 True  False
15. All anonymous emails and blog postings are either illegal or unethical. True or False?  
 True  False
16. AI systems can only perform tasks that they were specifically programmed for, without the ability to adapt to new situations. True or False?  
 True  False
17. Using pirated software is an ethical practice as long as it's for personal use. True or False?  
 True  False
18. Software developers have a responsibility to ensure that their code is secure and protects user data. True or False?  
 True  False
19. Professionals in the computing field should prioritize user privacy when designing systems, even if it conflicts with business goals. True or False?  
 True  False
20. It is ethical for a professional to expose vulnerabilities in software publicly before notifying the company responsible for the software. True or False?  
 True  False



KATHMANDU UNIVERSITY  
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१० र्को मर्क

Course : BINF 102  
Semester : II  
F.M. : 40

SECTION "B"

[8Q. x 2 = 16 Marks]

Indicate by checking (√) of each question you have answered in the cover page of the main answer book.

**Attempt ANY EIGHT questions.**

1. What ethical concerns arise with the development of artificial intelligence in decision-making systems? [2]
2. What are the ethical issues concerned with somatic cell nuclear transplant? [2]
3. Differentiate between in vivo and ex vivo gene therapy. [2]
4. What are synthetic organisms? [2]
5. Outline a multistep approach that a university might take to successfully combat plagiarism among its students. [2]
6. What is your opinion on digital divide and how can it be addressed? [2]
7. Briefly discuss the ethical and legal issues surrounding software ownership. [2]
8. What ethical responsibility do software developers have when it comes to user privacy? [2]
9. What is the ethical implication of distributing pirated software? [2]
10. What responsibility do professionals have when they witness cyberbullying on an online platform they manage or develop? [2]

SECTION "C"

[3Q. x 4 = 12 Marks]

Attempt *ANY THREE* questions.

11. What can you do to prevent ransomware attacks on your own computer? And, how do you think a victim should respond to a ransomware attack? [2+2]
12. What are the strengths and limitations of using copyrights, patents, and trade secret laws in Nepal to protect your intellectual property associated with Information Technology? [2+2]
13. What is the argument of doomed embryos? What is the difference between animal right activist and animal welfare activist? [2+2]
14. Describe a hypothetical situation in which the action you would take is not legal, but it is ethical. Describe a hypothetical situation where the action you would take is legal, but not ethical. [2+2]

SECTION "D"

[2Q. x 6 = 12 Marks]

Attempt *ANY TWO* questions.

15. Can role-playing illegal and violent fantasies in a online virtual world affect individuals and society in the real world? What are the social and ethical implications of such role-playing? Should limits be placed on what players can do in virtual worlds?
16. Define professionalism and list three elements of professionalism. Why are the following concepts important for professionalism? Justify your answers.
  - a Commitment
  - b Integrity
  - c Responsibility
  - d Accountability
17. Case study: Consumer genetic tests for athletic ability

In December 2008, Atlas Sports Genetics began selling a genetic test for ACTN3, the  $\alpha$ -actinin-3 gene. One of the variants in this gene is a nonsense mutation (R577X) that prevents production of the protein. It has been found that individuals with reduced amounts of  $\alpha$ -actinin-3 tend to have a higher proportion of slow twitch muscle fibers than fast twitch muscle fibers. Conversely, because  $\alpha$ -actinin-3 is expressed only in fast twitch muscle fibers, the presence of 1 or 2 copies of the wild type allele of the gene can tilt the physiological balance in favor of fast twitch fibers. This physiological association has been extended to elite athletes to show a modest

enrichment of XX genotypes among endurance athletes and RR genotypes among sprint and power athletes. The company advocated testing children, even before their first birthday, as a performance indicator for their future athletic ability. Moreover, they contended that this genetic test is a more accurate prognostic indicator than physical tests before age 9 because these young children have not developed mature motor skills yet. The test results were reported to the families as the client's "genetic advantage."

Questions:

- a Are parents acting in the best interest of their child when performing non-essential genetic tests on them at these young ages?
- b Is it appropriate to base lifestyle decisions about childhood enrichment activities on genetics alone?
- c To what extent can a single gene influence athletic ability?
- d Who are the stakeholders, and what are the morally binding obligations to them based on the principles of autonomy, beneficence, non-maleficence, and justice?

