ICS 101 Final Exam Review

Fall 2016
Final Exam information

• In lab: check final exam schedule
• 85 Questions
• Multiple choice and True/False
• Weeks 8-15
  • Week 08: Machine Learning
  • Week 09: Excel logic, compound logic, and truth tables
  • Week 10: Video games and fun
  • Week 11: Computer graphics
  • Week 12: Social computing
  • Week 13: Networking
  • Week 14: Human computer interaction
  • Week 15: Semantic Web and Web design
Week 08: Machine Learning
Which of the following occurred thousands (millennia) of years ago?

A. Use of devices to help with simple calculations
B. The invention of general purpose computers
C. Invention of machines to perform simple calculations
D. All of the above
E. None of the above
Which of the following occurred thousands (millennia) of years ago?

A. *Use of devices to help with simple calculations*

B. The invention of general purpose computers

C. Invention of machines to perform simple calculations

D. All of the above

E. None of the above
Which of the following “system(s)” do \textit{NOT} exhibit the ability to learn?

A. Living systems
B. Waves
C. Biological entities
D. Frogs
E. All of the above exhibit the ability to learn
Which of the following “system(s)” do **NOT** exhibit the ability to learn?

A. Living systems  
**B. Waves**  
C. Biological entities  
D. Frogs  
E. All of the above exhibit the ability to learn
Why is quantitative reasoning important?

A. Makes you sound smart
B. Allows you to make fact-based decisions
C. Provides you with more data
D. Gives others a greater appreciation for your insights
Why is quantitative reasoning important?

A. Makes you sound smart

B. *Allows you to make fact-based decisions*

C. Provides you with more data

D. Gives others a greater appreciation for your insights
Additional areas to study

- Artificial intelligence
- Computing machines
- Alan Turing
- John von Neumann
- Norbert Wiener
- Data analysis
- Transistors
- Vacuum tube
- Artificial neural networks
- XOR problem

- Perceptron
- Quantum computers
- Renewable energy and their efficiency
- Non-renewable energy
- Fossil fuels
- Industrial revolution
- Watts
- Energy consumption
Week 09: Excel logic, compound logic, and truth tables
Which of the following identifies a single condition as being true?

A. IF
B. AND
C. OR
D. NOT
E. All of the above
Which of the following identifies a single condition as being true?

A. IF
B. AND
C. OR
D. NOT
E. All of the above
Which of the following is a valid IF function that outputs \texttt{ICS\_101, ICS101} or \texttt{101}?

A. \( =\text{IF}(A1>=B26,\text{ICS\_101},\text{IF}(A8>=B27,\text{ICS101},101)) \)
B. \( =\text{IF}(A1>=B26.\text{"ICS\_101"}.\text{IF}(A8>=B27.\text{"ICS101"}.101)) \)
C. \( =\text{IF}(A1>=B26;\text{"ICS\_101"};\text{IF}(A8>=B27;\text{"ICS101"};101)) \)
D. \( =\text{IF}(A1>=B26;\text{"ICS\_101"};\text{IF}(A8>=B27;\text{"ICS101"};101)) \)
E. \( =\text{IF}(A1>=B26;\text{"ICS\_101"};\text{IF}(A8>\sim B27;\text{"ICS101"};101)) \)
Which of the following is a valid IF function that outputs `ICS_101`, `ICS101` or `101`?

A.  `=IF(A1>=B26,ICS_101,IF(A8>=B27,ICS101,101))`
B.  `=IF(A1>=B26."ICS_101".IF(A8>=B27."ICS101".101))`
C.  `=IF(A1>=B26;"ICS_101";IF(A8>=B27;"ICS101";101))`
If I burn more calories than I eat, I can relax. If not, I will work out more.

What formula should you enter into B4?
A.  =IF(B2>=B3, “I will work out more”, “I can relax”)
B.  =IF(B2>B3, “I will work out more”, “I can relax”)
C.  =IF(B3>B2, “I can relax”, “I will work out more”)
D.  A and B
E.  A and C
If I burn more calories than I eat, I can relax. If not, I will work out more.

What formula should you enter into B4?
A. =IF(B2>=B3, “I will work out more”, “I can relax”)
B. =IF(B2>B3, “I will work out more”, “I can relax”)
C. =IF(B3>B2, “I can relax”, “I will work out more”)
D. A and B
E. A and C
Are the following expressions equivalent? Hint: Use a truth table to determine its equivalency.

\[(x \lor y) \land \neg (x \land y)\]

\[(x \lor y) \land (\neg x \lor \neg y)\]

A. True
B. False
C. Unable to determine
Are the following expressions equivalent? 

Hint: Use a truth table to determine its equivalency.

\[(x \lor y) \land \neg (x \land y)\]
\[(x \lor y) \land (\neg x \lor \neg y)\]

A. True

B. False

C. Unable to determine
\[(x \lor y) \land \neg (x \land y)\]

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\[(x \lor y) \land (\neg x \lor \neg y)\]

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Additional areas to study

• How do logic functions work?
  • IF, COUNTIF, SUMIF, AVERAGEIF, AND, NOT, OR
• Embedded IF
• Excel syntax
• Logic symbols: ¬, ∧, ∨
• Compound logic
• XOR (e.g. (Cats OR Dogs) AND (NOT Cats OR NOT Dogs))
• Truth tables
Week 10: Video games and fun
Which of the following is/are game element(s)?

A. Rendering engine
B. Physics engine
C. Sound
D. All of the above
E. None of the above
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A. Rendering engine
B. Physics engine
C. Sound

**D. All of the above**

E. None of the above
Which of the following means triumph over adversity in game design?
A. Victory
B. Jubilation
C. Elation
D. Fiero
E. Conquest
Which of the following means triumph over adversity in game design?

A. Victory
B. Jubilation
C. Elation

D. *Fiero*

E. Conquest
Exploring new lands is an example of ______ fun.

A. Easy
B. Hard
C. People
D. Serious
Exploring new lands is an example of _____ fun.

A. *Easy*
B. Hard
C. People
D. Serious
Additional areas to study

- Genres and sub genres: Action, adventure, etc.
- Who develops games? How are they developed?
- Early video games
- Graphics (e.g. sprites)
- Types of fun
- BrainHex classes
- What makes games engaging?
- WTF [for games]
- Fiero
Week 11: Computer graphics
Computer monitors use a ______ color space with ______ as colors.

A. subtractive, cyan/magenta/yellow
B. subtractive, red/green/blue
C. additive, cyan/magenta/yellow
D. additive, red/green/blue
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B. subtractive, red/green/blue
C. additive, cyan/magenta/yellow
D. additive, red/green/blue

Quick question: What color is created when adding red, green, and blue lights?
Having a higher resolution for an image will _____.

A. improve its detail
B. create sharper lines
C. increase storage space
D. All of the above
Having a higher resolution for an image will _____.

A. improve its detail
B. create sharper lines
C. increase storage space
D. All of the above
When considering true color [24 bit], how many possible colors exist?

A. ~4 million
B. ~8 million
C. ~16 million
D. ~24 million
E. ~48 million
When considering true color [24 bit], how many possible colors exist?

A. ~4 million
B. ~8 million
C. ~16 million
D. ~24 million
E. ~48 million
Additional areas to study

- Basis for computer graphics
- Resolution and pixel density
- Relationship between computer graphics and vision
- Source image variability
- Trichromatic theory
- Digitizing color
- Calculating RGB from CMY
- Compressing images
- Digitizing colors
- How does manipulating bitmap graphics work?
- Bitmap formats
- Indexed colors
- Run-length encoding
- How vector graphics work
- Storage implications for vector graphics
- Vector scalability
- Vector encoding
- Typical vector graphics shapes
- Bezier curve
- Vector tools and alignment
- Vector file formats
- SVG: acronym and details about the format
Week 12 (on-line lecture): Social Computing
Which of the following helps to resolve trolling by allowing the community to impact social capital?

A. Moderators
B. Information transfer
C. Reputation
D. eWOM
E. Comment voting
Which of the following helps to resolve trolling by allowing the community to impact social capital?

A. Moderators
B. Information transfer
C. Reputation
D. eWOM
E. Comment voting
Which of the following best describes the value of a person’s word on-line?

A. Social capital
B. Trolling
C. On-line value
D. Social norms
E. Reputation
Which of the following best describes the value of a person’s word on-line?

A. Social capital
B. Trolling
C. On-line value
D. Social norms
E. Reputation
Moderators checking comments before they appear on a Web site allows a community to form and grow naturally.

A. True

B. False
Additional areas to study

- Social capital and its impact
- Aspects of social capital
- Consumers vs creators of information
- Moderators
- CMC
- Trolling/griefing and reasons behind it
- Interactions between users on-line
- eWOM
- Reputation
- Information transfer
- Methods of preventing conflict on social sites
- Growing communities
- Gabrielle Giffords story
Week 13: Networking
Which of the following takes care of packet sequence?

A. TCP
B. IP
C. DNS
D. SMB
E. SMTP
Which of the following takes care of packet sequence?

A. *TCP*

B. IP

C. DNS

D. SMB

E. SMTP
The IPv4 specification supports approximately _____ addresses.

A. 1 million
B. 4 million
C. 1 billion
D. 4 billion
E. 256 trillion
The IPv4 specification supports approximately ______ addresses.

A. 1 million
B. 4 million
C. 1 billion
D. 4 billion
E. 256 trillion
Which of the following includes the sender's address, receiver's address, and packet type?

A. Switch
B. Router
C. TCP header
D. DNS
E. IP header
Which of the following includes the sender's address, receiver's address, and packet type?

A. Switch
B. Router
C. TCP header
D. DNS
E. IP header
Additional areas to study

- Protocol
- IP ranges
- Domain name system
- IPv4, IPv6
- Firewalls
- TCP/IP
- ARP
- HTTP/HTTPS
- Hawaii involvement
- IMAP, POP3, SMTP
- FTP, SFTP, SCP
- IPSec, SSL/TLS, SSH, Layer 2 tunneling
- VPN
- Routers
- Switches
- Proxy
- Ping of death
- Firewalls
- Packets
- Network paths
Week 14: Human Computer Interaction
According to Dr. Robertson, HCI interweaves which of the following in the development process?

A. Design
B. Evaluation
C. Systems
D. A & B
E. A & C
F. B & C
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A. Design
B. Evaluation
C. Systems
D. A & B
E. A & C
F. B & C
Which company was responsible for the first user interface?

A. Apple
B. Microsoft
C. Xerox
D. IBM
E. Gateway
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A. Apple
B. Microsoft
C. Xerox
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E. Gateway
A digital camera that is shaped in a way that makes it easy to grip and hold correctly in two hands is utilizing ______.

A. Affordances
B. Signifiers
C. Mapping
D. Feedback
A digital camera that is shaped in a way that makes it easy to grip and hold correctly in two hands is utilizing _______.

A. **Affordances**
B. Signifiers
C. Mapping
D. Feedback
Visceral processing refers to reactions that are ______ and ______.

A. reflective, conscious
B. reflective, unconscious
C. affective, conscious
D. affective, unconscious
E. None of the above
Visceral processing refers to reactions that are _____ and _____.

A. reflective, conscious
B. reflective, unconscious
C. affective, conscious
D. **affective, unconscious**
E. None of the above
Additional areas to study

- Terms for HCI
- Vannevar Bush
- Grace Hopper
- J.C.R. Licklider
- Ivan Sutherland
- Doug Englebart
- Alan Kay
- Importance of human factors (human errors)
- Butterfly ballot
- User-centered interaction design
- Types of reactions
- Usability studies
- Don Norman’s Stages of Action model
- Execution vs Evaluation
- Affordances, signifiers, mapping, feedback
- Constraints and standards
Week 15: Semantic Web and Web Design
Which of the following described the first iteration of the WWW?

A. Linked Web
B. Personalized Web
C. Semantic Web
D. Social Web
E. Semantic and personalized Web
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A. Linked Web
B. Personalized Web
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Recommendation technology is a paradigm, where ______.

A. Relevant items find users  
B. Users search for relevant items  
C. Search terms are highlighted in items  
D. New search terms are proposed
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A. Relevant items find users
B. Users search for relevant items
C. Search terms are highlighted in items
D. New search terms are proposed
Which type of style sheet is placed within the header of an HTML page?

A. Inline
B. Internal
C. External
D. All of the above
E. None of the above
Which type of style sheet is placed within the header of an HTML page?

A. Inline

B. **Internal**

C. External

D. All of the above

E. None of the above
Additional areas to study

- Different stages of the Web (1.0, 2.0, 3.0)
- Social Web
- Semantic and personalized Web
- Elements for consideration when designing information systems
- Elements and attributes
- Collective intelligence
- User modeling
- Ontological modeling (domain vs personal)
- Personalization
- Recommendation
- HTML history
- Types of style sheets and how they impact HTML pages
- Visual design for the Web (basic rules)
- Keeping a person’s attention online
- UH storage space
- User consideration (browser rendering)
- Image types
- Getting your site to appear higher in search results
Past
Present
Future
Past
Present
Future
Past EC opportunities

• Pech Kucha [10 pts]
• T-shirt Design contest [10 pts]
• Pilot study participation [30 pts]
Present EC opportunity

• Group PPT handout [5 pts]
• iClicker final exam review [10 or 20 pts]
Future EC opportunity

- eCAFE: 80% completion from class [10 pts]
- Final Exam:
  - 5 application questions from lab content
  - 5 questions from Boolean logic (searching) lecture
  - 5 questions from number systems (binary/decimal/hexadecimal)
  - Total of 15 pts
- Grant total of 100 pts
In ASCII, the hexadecimal number 41 is the code to represent the letter "A", the hexadecimal number 42 is the code to represent the letter "B"... etc.

What is the hexadecimal number that represents the letter "P"?

A. 23
B. 4E
C. 50
D. 56
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What is the hexadecimal number that represents the letter "P"?

A. 23
B. 4E
C. 50
D. 56
Which of the following searches best reflects the following search illustration?

A. (cute AND cats) NOT dogs
B. (cute OR cats) NOT dogs
C. (cute AND cats) AND dogs
D. (cute OR cats) AND dogs
E. cute NOT dogs
Which of the following searches best reflects the following search illustration?

A. (cute AND cats) NOT dogs
B. (cute OR cats) NOT dogs
C. (cute AND cats) AND dogs
D. (cute OR cats) AND dogs

E. cute NOT dogs
Wishing you all Happy Holidays from the ICS 101 Team

Good luck on the final exam!