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கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீடசை, 2027
General Certificate of Education (Adv. Level) Examination, 2027

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தகவல், தொடர்பாடல் தொழினுட்பவியல்	I
Information & Communication Technology	I

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இரண்டு மணித்தியாலம்
Two hours

Instructions:

- *Answer **all** the questions.*
- *Write your* Full Name *in the space provided in the answer sheet.*
- *Instructions are also given on the back of the answer sheet. Follow those carefully.*
- *In each of the questions* 1 to 30, *pick one of the alternatives from* (1), (2), (3), (4), (5) *which is **correct or most appropriate** and **mark your response on the answer sheet with a cross** (x) **in accordance with the instructions given on the back of the answer sheet.***
- *Use of calculators is **not allowed.***

1. Which of the following best distinguishes data from information?
   1) Data is always numerical; information is always textual
   2) Data is subjective; information is objective
   3) Data lacks context; information is processed and meaningful
   4) Information is input; data is output
   5) Data is the result of information

2. What characteristic of information is compromised when outdated data is used for decision-making?
   1) Accuracy
   2) Relevance
   3) Completeness
   4) Timeliness
   5) Understandability

3. A sensor network collecting environmental data every 30 seconds and transferring it over Wi-Fi is an example of:
   1) Manual data gathering
   2) Remote batch processing
   3) Automated real-time processing
   4) Offline input and processing
   5) Direct user-driven computation

4. Which one of the following best represents the abstract model of information?
   1) Program → Compiler → Execution
   2) Input → Algorithm → Output
   3) Data → Processing → Information
   4) Output → Storage → Retrieval
   5) System → Software → Output

5. A student's exam result shown instantly on a school website is an example of:
    1) Real-time processing
    2) Batch processing
    3) Manual processing
    4) Parallel processing
    5) Offline validation

6. Which one of the following is NOT a valid type of data validation?
    1) Format check
    2) Range check
    3) Field lock
    4) Length check
    5) Presence check

7. What type of software is Microsoft Office 365 categorized under?
    1) System Software
    2) Open-Source Software
    3) Platform as a Service
    4) Software as a Service
    5) Infrastructure Software

8. Which statement about cloud computing is INCORRECT?
    1) SaaS allows users to run applications via the Internet
    2) IaaS provides ready-to-use applications
    3) PaaS helps developers deploy applications
    4) Cloud reduces dependency on local hardware
    5) Cloud services are accessible on-demand

9. Which communication protocol allows file transfers between two computers?
    1) HTTP
    2) FTP
    3) IP
    4) SMTP
    5) IRC

10. Which of the following is not a function of a digital computer that makes it a system?
    1) Takes input
    2) Randomly generates output
    3) Controls internal operations
    4) Stores data
    5) Processes information

11. IP Telephony is also known as:
    1) VoIP
    2) FTP
    3) IPTV
    4) IRC
    5) SMTP

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12. Which of the following does not match its correct communication technology?
    1) Telnet – Remote command-line access
    2) IRC – Real-time text communication
    3) VoIP – Voice over Internet
    4) FTP – Encrypted video sharing
    5) HTTPS – Secure hypertext transmission

13. Which software type would best describe an operating system?
    1) Firmware
    2) Application software
    3) Utility software
    4) System software
    5) Proprietary software

14. What is the main drawback of manual data processing?
    1) High algorithmic complexity
    2) More time and human errors
    3) Use of out-of-date data
    4) Real-time data issues
    5) Storage limitations

15. A student logs into an e-learning portal. Which cloud model supports this experience?
    1) IaaS
    2) DaaS
    3) PaaS
    4) SaaS
    5) VMaaS

16. What type of data input method is used when a barcode scanner automatically adds product details into a billing system?
    1) Manual
    2) Offline
    3) Online
    4) Direct
    5) Remote

17. Which of the following is NOT a service provided by the Internet?
    1) WWW
    2) FTP
    3) BIOS
    4) IP Telephony
    5) Email

18. Time Division Multiple Access (TDMA) supports multiple users by:
    1) Using different frequencies for users
    2) Assigning different codes to each user
    3) Giving users access at different times
    4) Using parallel processors
    5) Randomizing channel access

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19. A scanner used to mark attendance using ID cards with magnetic strips works on:
    1) OCR
    2) OMR
    3) Barcode Reading
    4) MICR
    5) Magnetic Strip Reading

20. In mobile computing, portability means:
    1) Devices don't require any software
    2) Devices are always wireless
    3) Devices can be used anywhere
    4) Devices have larger memory
    5) Devices do not require power

21. Which of the following best explains the difference between mobile communication and mobile computing?
    1) Communication uses smartphones; computing uses desktops
    2) Mobile computing is a process, mobile communication is a device
    3) Communication is wireless transmission; computing enables it via devices
    4) Mobile computing is limited to apps; communication is limited to calls
    5) Mobile communication and computing are identical terms

22. Which is the most accurate analogy for PaaS in the context of software development?
    1) Renting a truck and driving it yourself
    2) Hiring a developer to build your system
    3) Renting a fully equipped kitchen to cook your recipe
    4) Buying a pre-cooked meal from a store
    5) Downloading a software update from the Internet

23. Which combination correctly matches data validation types with examples?
    1) Range Check → Email format
    2) Format Check → Numbers only
    3) Presence Check → Required field left blank
    4) Type Check → Ensuring field is filled
    5) Length Check → Value lies between 0–100

24. An online retail store updates its stock every 2 hours using stored transaction logs. This is an example of:
    1) Real-time input and output
    2) Direct processing
    3) Offline batch input
    4) Online validation
    5) Remote real-time processing

25. Which of the following best describes the role of firmware in computers?
    1) It provides user applications like Microsoft Word
    2) It updates device drivers in real time
    3) It acts as a bridge between application software and hardware
    4) It initializes hardware and loads the OS from ROM
    5) It controls all Internet communications

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26. Which one of the following accurately compares software types?
    1) FOSS is licensed; proprietary software is not
    2) Proprietary software cannot be legally modified
    3) Utility software is used by end users directly
    4) System software is always open-source
    5) Application software cannot be installed without firmware

27. A system that predicts weather using live satellite data and produces forecast maps hourly is most likely using:
    1) Real-time input, offline output
    2) Batch processing with sensors
    3) Direct processing and delayed rendering
    4) Real-time processing with automatic input
    5) Manual validation followed by batch output

28. Which of the following technologies allows multiple mobile users to access the same frequency band simultaneously?
    1) TDMA
    2) FDMA
    3) CDMA
    4) VoIP
    5) GSM

29. When multiple hardware components inside a computer interact via the motherboard, what best defines this behavior?
    1) Distributed computing
    2) Centralized integration
    3) Abstract modeling
    4) System interoperability
    5) Component communication architecture

30. What does cloud computing fundamentally eliminate in traditional computing environments?
    1) Application software installation
    2) Web browser usage
    3) User authentication
    4) Local resource dependency
    5) User interfaces

31. Which one of the following is the most suitable service model for a company wanting full control over its computing resources?
    1) SaaS
    2) PaaS
    3) IaaS
    4) FaaS
    5) VMaaS

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32. In the context of Big Data, which of the following represents a correct flow?
    1) Creation → Output → Storage
    2) Input → Compression → Archiving
    3) Acquisition → Analysis → Delivery
    4) Removal → Backup → Processing
    5) Gathering → Validation → Formatting

33. Which Internet protocol is insecure by design, making it deprecated for secure communication?
    1) HTTPS
    2) FTP
    3) Telnet
    4) SMTP
    5) IMAP

34. A user scans handwritten letters and converts them into editable text. What is this process called?
    1) OCR
    2) OMR
    3) MICR
    4) Encoding
    5) PDF parsing

35. Which information characteristic becomes critical during emergency weather alerts?
    1) Completeness
    2) Accuracy
    3) Understandability
    4) Timeliness
    5) Relevance

36. What occurs when the same data exists in multiple files with inconsistent values?
    1) Data duplication
    2) Data validation
    3) Data ambiguity
    4) Data inconsistency
    5) Data normalization

37. A file stored on Google Drive and accessed via the Internet is an example of:
    1) Local memory
    2) Cloud-based remote storage
    3) Offline backup
    4) Temporary input
    5) Central processing

38. Which of the following is NOT a valid component of a computer system?
    1) Hardware
    2) Software
    3) Firmware
    4) Liveware
    5) Dataware

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39. What role does feedback play in the abstract model of a system?
    1) It modifies the input directly
    2) It recalculates the output from previous systems
    3) It allows system adjustment based on output results
    4) It deletes obsolete input
    5) It prevents data redundancy

40. A compact disc (CD) is categorized under:
    1) Temporary storage
    2) Cloud memory
    3) Remote database
    4) Local physical storage
    5) Processing memory

41. Which of the following is the main goal of using data validation in an input form?
    1) To encrypt sensitive input
    2) To minimize input bandwidth
    3) To ensure accurate and appropriate data entry
    4) To block input from unauthorized sources
    5) To back up entered data instantly

42. The golden rule of information states:
    1) Information must be stored permanently
    2) Data value increases with age
    3) Maximum value is at the point of creation
    4) Accuracy is more important than relevance
    5) Old data is always more useful than new data

43. Which data collection method is best suited for grading an exam with 1000 students quickly?
    1) Questionnaire
    2) OCR
    3) OMR
    4) Manual checking
    5) Observation

44. What makes HTML critical in the context of the WWW?
    1) It's a database language
    2) It encrypts HTTP packets
    3) It allows content formatting and hyperlinking
    4) It manages server requests
    5) It compiles dynamic Java programs

45. Which term best describes software that you can use, modify, and redistribute legally?
    1) Freeware
    2) Proprietary
    3) Licensed
    4) Open-source
    5) Trialware

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46. The earliest purpose of ARPANET was:
    1) Online shopping
    2) Remote banking
    3) Military communication resilience
    4) Social media development
    5) Global e-learning

47. The protocol used to send emails to the recipient's email server is:
    1) POP3
    2) IMAP
    3) SMTP
    4) HTTP
    5) TCP

48. Which ICT domain would most benefit from CAD and CASE tools?
    1) Law enforcement
    2) Engineering
    3) Agriculture
    4) Tourism
    5) Journalism

49. Intellectual property violation involving copying and distributing software without a license is known as:
    1) Plagiarism
    2) Piracy
    3) Cracking
    4) Spamming
    5) Cyberbullying

50. A student edits a downloaded article and submits it as original. This act is called:
    1) Copyright
    2) Piracy
    3) Ethical computing
    4) Plagiarism
    5) Netiquette

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Structured Essay Question

1.

i) Explain the Abstract Model of Information and describe how it applies to modern booking systems like airline or hotel websites.

ii) Compare and contrast Batch Processing and Real-Time Processing. Provide one real-life scenario where each would be preferable and explain why.

iii) Data validation is essential for maintaining data quality. Describe three different types of data validation with real-world examples where each is critical.

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iv) A company faces data inconsistency issues across departments. Define data inconsistency, then explain two causes and propose two solutions using ICT tools or principles.

2.

i) Explain the differences between FOSS (Free and Open Source Software) and Proprietary Software, and state one misconception students often have about open-source software.

ii) With the rise of mobile computing, multiple access technologies like TDMA, FDMA, and CDMA are used. Compare any two of these with clear technical differences and give one use case where one is superior to the other.

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iii) Define Piracy and Plagiarism clearly. Then explain why both are unethical in ICT usage, even when users are unaware of breaking rules.

iv) A student argues that “using unlicensed software saves money.” Critically evaluate this statement by discussing two long-term disadvantages of using unlicensed software for both individuals and institutions.

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Essay Question

The power of ICT lies not only in its technological capabilities but also in how it reshapes society, challenges ethics, and redefines how we handle information. As future leaders in ICT, students must critically examine this transformation.

a)
Explain how data validation methods protect systems from garbage-in-garbage-out (GIGO) issues. Include at least three types of validation with specific examples where each one is essential.

b)
Discuss how the Digital Divide can worsen existing social inequalities. Propose two strategic ICT-based solutions that a government could implement to reduce this divide in rural regions.

c)
Explain how a computer qualifies as a system using the abstract model of information. Contrast this with a non-digital system (e.g., post office) that handles similar inputs and outputs.

d)
Explain how a computer qualifies as a system using the abstract model of information. Contrast this with a non-digital system (e.g., post office) that handles similar inputs and outputs.

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Dead ?



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