Grade 11 CAT syllabus for Term 4, aligned with the topics in your questions.

QUESTION 1 & 2: General Computing

General Computing Topics

- **Hardware and Software Basics**:
- **Hardware Components**:
- **CPU (Central Processing Unit)**: Known as the "brain" of the computer, it processes all instructions from software and hardware.
- **RAM (Random Access Memory)**: Temporarily stores data and instructions for quick access, affecting

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how fast the computer can access open files and running applications.

- **Storage Devices**: Includes Hard Disk Drives (HDD), Solid State Drives (SSD), and external storage like USBs and CDs.

- **Software Classifications**:

- **System Software**: Manages computer hardware and provides a platform for applications. Includes operating systems like Windows, macOS, and Linux.

- **Application Software**: Software for specific tasks like word processing (e.g., Microsoft Word), spreadsheet (e.g., Excel), and graphic design.

- **Binary System**:

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- **Binary Numbers**: Computers use binary (0s and 1s) to represent data, allowing for digital computation. Each "bit" represents a binary state, with 8 bits making up a byte.

- **Role of Binary**: Fundamental for computer logic operations and data storage, converting all input into machine-readable format.

- **Input/Output Devices**:

- **Input Devices**: Capture data from the user or environment, such as keyboards, mice, scanners, and microphones.

- **Output Devices**: Display or produce results from computer processes,

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including monitors, printers, and speakers.

- **Operating Systems**:

- **Functions**: Manage hardware resources, enable file management, oversee memory usage, control peripheral devices, and provide a user interface.

- **Examples**: Windows, macOS, and Linux, each offering different levels of customization and compatibility with software.

QUESTION 3: Computer Crime and Excel Functions

- **Computer Crime**:

- **Types of Crimes**:

- **Cyberbullying**: Harassment or bullying through digital platforms, often on social media.

- **Identity Theft**: Unauthorized use of personal information to impersonate someone, often to access financial information.

- **Hacking**: Unlawful access to computer systems, usually to steal data or install malware.

- **Phishing**: Fraudulent attempts to obtain sensitive information by pretending to be a trustworthy entity.

- **Legal Implications**:

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- South Africa's **Protection of Personal Information Act (POPIA)** regulates the processing of personal information, establishing rights for data privacy.

- **Prevention Tips**:

- Use strong, unique passwords.

- Be cautious of emails asking for sensitive information.

- Avoid untrusted websites and downloading suspicious files.

- **Excel Functions**:

- **Basic Functions**:

- **SUM**: Adds up a range of cells

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(=SUM(A1:A10)).

- **AVERAGE**: Finds the mean of selected cells (=AVERAGE(A1:A10)).
- **MIN/MAX**: Determines the smallest or largest value in a range.
- **Conditional Functions**:
- **IF**: Applies logic to return values based on conditions (=IF(A1>50, "Pass", "Fail")).
- **Data Analysis Tools**:
- **Sorting**: Organize data alphabetically, numerically, or by custom order.
- **Filtering**: Display only the data that meets specified criteria.

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- **Charts**: Create bar, line, or pie charts to visualize data.

QUESTION 4: System Technologies

- **Information Processing Cycle (IPC)**:

- **Input**: Data entry through devices like keyboards, mice, or scanners.

- **Processing**: The CPU manipulates and processes input data according to software instructions.

- **Output**: Results are produced for user interaction, often displayed on monitors or printed.

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- **Storage**: Data is saved to permanent storage, such as a hard drive, for future access.

- **Software**:

- **Types of Software**:

- **System Software**: Essential for managing computer resources, including OS like Windows.

- **Application Software**: Allows users to perform specific tasks like creating documents or editing photos.

- **Examples of Applications**: Microsoft Word, Excel, Access, and graphics software like Adobe Photoshop.

- **General Purpose vs. Dedicated Devices**:

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- **General Purpose Devices**: Can perform a range of tasks and run multiple applications (e.g., PCs, smartphones).

- **Dedicated Devices**: Built for a single function, like GPS devices or ATMs.

- **ICT (Information and Communication Technology)**:

- **Role of ICT**: Enhances communication, learning, and business productivity.

- **Benefits and Challenges**:

- **Benefits**: Facilitates global communication, improves access to information.

- **Challenges**: Privacy issues,

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cybersecurity risks, and digital divide between technology access levels.

QUESTION 5: Internet and Networks Technologies

- **Networking**:
- **Types of Networks**:
- **LAN (Local Area Network)**: Connects computers within a small area, like a school or office.
- **WAN (Wide Area Network)**: Spans large areas, connecting multiple LANs, like the internet.
- **Network Devices**:

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- **Routers**: Direct data across networks.
- **Switches**: Connect devices within a network, ensuring data reaches its correct destination.
- **Internet Basics**:
- **IP Addresses**: Unique identifiers for each device on a network.
- **Domain Names**: Web addresses that link to IP addresses (e.g., www.example.com).
- **Network Security**:
- **Firewalls**: Block unauthorized access to a network.
- **Encryption**: Protects data during

transmission.

QUESTION 6: Information Management

- **Sources and Data Compilation**:
- **Reliable Sources**: Assess primary and secondary sources for credibility and relevance.
- **Excel for Data Management**:
- Importing and organizing data, using tables to manage structured datasets.
- Formulas to summarize data, e.g., =SUM for totals.
- **Access for Databases**:

- Create and manage tables, set relationships, and query data for analysis.

QUESTION 7: Social Implications

- **Hardware for Physically Challenged**:

- **Adaptive Devices**: Specialized keyboards, speech-to-text software, screen readers for the visually impaired.

- **Ethical Use of Computers**:

- **Privacy**: Protecting personal information and respecting others' data.

- **Intellectual Property**: Honoring copyright and avoiding plagiarism.

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- **Impact on Health**:

- **Ergonomics**: Setting up workstations to prevent strain.

- **Health Risks**: Eye strain, repetitive strain injuries, and mental effects of prolonged screen time.

QUESTION 8: Solution Development

- **Word Processing - Alignment**:

- **Text Alignment Options**: Left, right, center, and justify for improved readability.

- **Advanced Excel Functions**:

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- **VLOOKUP/HLOOKUP**: Search for values within a specified range.

- **COUNTIF**: Count cells that meet specific criteria.

- **Database**:

- Create queries to retrieve specific data, use forms for data entry, and reports to summarize data.

QUESTION 9: Integrated Scenario

- **Hardware Specifications**:

- **Specifications**: Assess CPU speed (GHz), memory (RAM size), and storage type (HDD or SSD) to meet software requirements.

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- **Choosing Hardware**: Different tasks may need specific specs—design software needs more RAM and CPU than basic word processing.

- **Installing Software**:

- **Steps**: Download, install, follow setup instructions, and adjust settings for performance.

- **Updates**: Importance of keeping software current for security and functionality.

QUESTION 10: Integrated Scenario

- **Computer Memory**:

- **Types of Memory**:
- **RAM**: Volatile memory for active processes.
- **ROM**: Non-volatile, stores firmware and boot instructions.
- **Storage vs. Memory**: RAM for quick access, storage for long-term data retention.
- **E-Waste**:
- **Environmental Impact**: Hazardous materials in electronics pollute if not disposed of correctly.
- **Safe Disposal**: Recycling programs, donation, and refurbishment.

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