**MECS JOINT EVALUATION TEST – FORM 4 TERM 2 2021**

**451/1 COMPUTER STUDIES**

**MARKING SCHEME**

|  |  |  |
| --- | --- | --- |
|  | **SECTION A (40 marks)** |  |
| **QN** | **RESPONSES** | **MARKS** |
| 1. | a) Magnetic tapes/magnetic core  b) Magnetic disks/floppy disks  c) Optical disks/hard disks  d) Solid state devices/hard disks/ cloud storage | 1  1  1  1 |
| 2. | * It a fast method of creating the letters without copying and pasting/saves time * The recipient list can be re used * Ensures consistency/uniformity of letters generated (First 2 × 1) | 2 |
| 3. | * System software * Application software * Application software * System software | ½  ½  ½  ½ |
| 4. | i) Speakers/earphone/headphones  ii) Microphone | 1  1 |
| 5. | Main memory stores data temporarily while secondary memory stores data permanently (for back up)  Data in main memory is directly accessible by the CPU while data in secondary memory must go through main memory in order to be accessed by the CPU  Main memory usually has lower storage capacities while secondary memory has higher storage capacities  (*Any correct difference, Award 2 or 0*) | 2 |
| 6. | * Minimizes security risks associated with handling cash money * Transactions can be done conveniently at any time of the day or night * Faster in making payment * Saves processing costs e.g. travelling, labour etc. (First 2 × 1) | 2 |
| 7. | * How to load and exit the system * How to perform tasks in the system * Error handling procedures * How to install the system * Minimum software and hardware requirements (First 4 × 1) | 4 |
| 8. | a) When you want to determine how text will behave around a graphic  b) When you want to put several objects as one block | 1  1 |
| 9. | * Arrow keys * Page up * Page down * Home key * End key * Insert key * Delete key * Backspace (First 4 × ½ )   *Accept correct symbol* | 2 |
| 10 a) | * By copying and pasting * Use of the auto fill command (First 2 × 1) | 2 |
| b) | * Use of wrist rest pad * Taking frequent breaks * Use of ergonomic keyboard (First 2 × 1) | 2 |
| 11. a) | * Worm virus attack/virus attack | 1 |
| b) | * Avoid using flash disks on infected computers * Scan storage devices for viruses using updated antivirus software * Scan any file for viruses before downloading or copying them to the storage device (First 2 × 1) | 2 |
| 12. | * Spread of viruses * Recruitment/exposure to terrorist gangs/drug trafficking * Cyber bullying * Fraud * Hacking (First 3 × 1) | 2 |
| 13.a) | * It is unique/does not allow duplicates * Cannot be empty/null (First 2 × 1) | 2 |
| b) | Prevents data loss in case of abrupt power loss or disruption | 1 |
| 14. | * Data access is fast * Faster to update data since no need of sorting * Records can be of different sizes (First 2 × 1) | 2 |
| 15. a) | * Covers a wide geographical area * Allows users to roam without losing access to the network * It is easy to remove or add nodes * Enables communication where laying of cables is not feasible (First 2 × 1) | 2 |
| b) | When the sender does not want the recipients of an email to know other persons who received the similar mail. | 2 |
|  | **SECTION B (60 MARKS)** |  |
| 16. a) | * The availability of the relevant translator * Whether the programmer is familiar with the language/ level of skill of the programmer * Ease of learning and use * Purpose of the program, i.e., application areas such as education, business, scientific, etc. * Execution time/speed * Development time (First 3 × 1) | 3 |
| b) | i) Interpreter is a language translator that converts each line of a high level programming code to machine code | 1 |
|  | ii) Editor window is an interface in a language translator where a programmer enters the source code. | 1 |
| c) i) | * The range starts from 0 to 100 instead of 50 to 100 * Increment is num = num + 1 instead of num = num + 2 * The variable count is not assigned to the total count of numbers entered i.e. count =num * The computation of average should be outside the loop   **NB: omission of ENDFOR is a syntax error!** | 3 |
| ii) | ½    Correct content ½  Correct symbol ½  sum = 0  num = 50  Correct content ½  Correct symbol ½  sum = sum + num  num = num + 2  Is num <= 100?  Correct content ½  Correct symbol ½  Yes  No  Correct content ½  Correct symbol ½  Average = sum/num  Correct content ½  Correct symbol ½  sum, Average  **Logic = 1**  **Total mks = 7**    ½ |  |
| 17. a) | i) =PRODUCT(B3,C3) | 2 |
|  | ii) = SUM(D2:D5) or  =D2+D3+D4+D5 | 2 |
| b) | Hacking refers to gaining unauthorized access to a computer system by breaking codes or passwords while cracking is the gaining unauthorized access to a computer system by trying out to identify weak access points in the system  *(award 2 or 0)* | 2 |
| c) | i) Formula bar displays whatever is entered in the active cell | 1 |
|  | ii) Name box shows the cell address of the active cell or range | 1 |
| d) | It is used when the type of data in the field is an image or graphic | 1 |
| e) | Used to depict the overall functionality of a system in a diagrammatic form | 2 |
| f) | Multi user o/s allow more than one users to access system resources apparently at the same time while multi-tasking o/s allow a single CPU to process more than one tasks apparently at the same time  *(award 2 or 0)* | 2 |
| g)i) | Ability of the printer to fit and work harmoniously with existing hardware | 1 |
| ii) | Ability of the printer to be automatically detected, installed and be ready to use by the operating system. | 1 |
| 18. a) | They degrade fast and become obsolete since they do not redefine to match the changes in the environment | 1 |
| b) i) | An information system is the arrangement of people, data, processes and information that work together to support and improve the day-today operations of a business | 1 |
| ii) | 1. **New opportunities**: - a chance to improve the quality of internal processes and service delivery in the organization may arise. Invention of new systems which are more successful than the existing ones 2. **Problems**: - these are undesirable circumstances that prevent the organization from achieving its goals 3. **Directive:** - these are new requirements imposed by the management, government, or external influences. 4. **Change in technology** 5. **Change is user needs** (First 2 × 2) | 4 |
| c) | * Extreme data: this is data of the right data type but in the lower or upper boundary of the expected values * Normal data (valid data): this is data that the program should accept. It is data within the required range * Abnormal data (invalid data): this is data that is out of the range. it is data that the program should not accept |  |
| d) | Layout based DTP is DTP software that enables the user to design pages of a publication based on different layout designs e.g. Ms Publisher, pagemaker, Indesign while graphic based DTP enable one to edit and format objects such as pictures, images, etc. e.g. photoshop, CorelDraw  *2 marks or 0 for difference , ½ mark for each correct example* | 3 |
| e) | * Download videos on the internet which are used to guide exercises * Used to design automated computerized equipment used in exercising e.g. robots in gyms, simulation of running fields * Use of the internet to research on physical fitness strategies * Use of social media, blogs, videos etc. to create awareness/mobilization on the benefits of physical fitness (First 3 × 1) | 3 |
| 19.a) | Freeware refers to software that is made freely available to the user while open source is software whose source code is freely made available to users  *2 marks or 0 for difference* | 2 |
| b)i) | The o/s alerts the user of errors that may arise out of illegal operations, hardware or software failure. It may also make suggestions of possible solutions to the problem | 1 |
| ii) | A critical request causes the processor to stop executing the current process to attend to it, before returning to the process that had been interrupted | 1 |
| c)i) | Enhance performance of the microprocessor by providing fast speed retrieval of data | 1 |
| ii) | Regulates timing and speed of all computer functions | 1 |
| iii) | Enables communication between the computer’s internal components (components in the system unit)/where all internal components are mounted | 1 |
| d)i) | Fraud |  |
| ii) | * Motivate workers * Use of passwords/user access levels/user accounts * Use of log files * Physical restrictions (First 2 × 1) | 2 |
| e) | |  |  | | --- | --- | | 2 | 41 | | 2 | 20R1 | | 2 | 10R0 | | 2 | 5R0 | | 2 | 2R1 | | 2 | 1R0 | | 2 | 0R1 |      |  |  | | --- | --- | | 2 | 15 | | 2 | 7R1 | | 2 | 3R1 | | 2 | 1R1 | | 2 | 0R1 |       **½**  **½**  4110 = 1010012 1510 =11112  41 – 15 = 101001 – 1111  = 101001 - 001111  **½**  1C’s of 001111 is 110000  **½**  2C’s is 110001  **½**  **½**  101001 + 110001 = (1)011010 ; ignore the overflow bit 011010  Convert 011010 to decimal notation  **½**  (0 × 25) + (1 × 24) + (1 × 23) +(0 × 22) + (1 × 21) + (0 × 20)  0 + 16 + 8 + 0 + 2 + 0 = 26  **½** | 4 |
| 20. a) | * Observation * Questionnaires * Interviews * Document review/study of available documents * Direct data capture (First 4 × ½ ) | 2 |
| b) | * Users are able to interact through terminals * File update/trouble shooting is easy since it is done at the central computer * Easy control through the central computer * File enquiry is possible (First 3 × 1) | 3 |
| c) | A *webmaste*r oversees/supervises the daily activities/maintenance and operations of a website while *web designer* creatively designs and codes websites | 2 |
| d)i) | P - Bridge  Q – Switch/ hub | 1  1 |
| ii) | * Interconnects two segments of a network/divides a large network into segments * Reduces traffic congestion in the network | 1 |
| iii) | Hybrid topology/tree topology | 1 |
| iv) | A – Ring topology  B – Star topology | 1  1 |
| v) | * Lack of a focal point making troubleshooting difficult * Modification will be difficult since removing one node may affect the entire network (First 2 × 1) | 2 |