Sample Multiple Choice Questions (MCQs)

Instructions for Answering MCQs

You will be provided with an MCQ answer sheet for your MCQ answers. This sheet is called an **EDPAC Answer Sheet**. Please note the following instructions:

1. **You should bring a HB pencil to the examination**.

2. Do **NOT** fold or crease the EDPAC Answer Sheet.

3. **IGNORE option E** when answering questions.

4. Mark **only one** answer with your HB pencil with a **clear Horizontal stroke**.

5. You may alter you answer by erasing **fully** the pencilled mark and then marking your new choice.

(It may be helpful to mark the answers on your exam paper first and then to transfer them to the EDPAC sheet.)

6. Do **NOT mark** the EDPAC sheet in **any way** other than described above. Do **not write** or **doodle** on the EDPAC sheet. Be especially carefully **not to mark** or damage the **right hand edge** of the EDPAC sheet.

If you have any problems with the EDPAC sheet ask an invigilator for assistance.

Sample Questions:

1. Numbers are stored and transmitted inside a computer in
(a) binary form (b) ASCII code form (c) decimal form (d) alphanumeric form

2. The **original** ASCII codes (a) were 7 bits (b) 8 bits (c) represented 256 characters (d) represented 127 characters

3. The ASCII code of 'A' is (a) 66D (b) 41H (c) 0100 0010 (d) 0110 0011

4. The ASCII code of '0' (zero) is (a) 48D, (b) 32H (c) 0011 1000 (d) 42H.

5. The 4-bit binary number 0111 represents (a) 15, (b) -7 (c) 7 (d) -1
- The decimal number 255 may be represented by (a) 1111 1111B, (b) 1000 0000B, (c) EEEEH, (d) 0111 1111
- The 8-bit binary number 1111 1111 represents (a) 255, (b) -255 (c) -127 (d) -1

6. The decimal number 127 may be represented by (a) 1111 1111B, (b) 1000 0000B, (c) EEH, (d) 0111 1111

7. A byte corresponds to (a) 4 bits (b) 8 bits (c) 16 bits (d) 32 bits

8. The storage required for an image such as an X-ray is approximately (a) a few bytes (b) a few hundred bytes (c) a few gigabytes (d) in the megabyte range.

9. A gigabyte represents (a) 1 billion bytes (b) 1000 kilobytes (c) 2^{30} bytes (d) 1024 bytes

10. A megabyte represents (a) 1 million bytes (b) 1000 kilobytes (c) 2^{20} bytes (d) 1024 bytes

11. A Kb corresponds to (a) 1024 bits (b) 1000 bytes (c) 2^{10} bytes (d) 2^{10} bits

12. A superscalar processor has (a) multiple functional units (b) a high clock speed (c) a large amount of RAM (d) many I/O ports

13. A 32-bit processor has (a) 32 registers (b) 32 I/O devices (c) 32 Mb of RAM (d) a 32-bit bus or 32-bit registers

14. Information is stored and transmitted inside a computer in (a) binary form (b) ASCII code form (c) decimal form (d) alphanumeric form

15. The minimum number of bits required to store the hexadecimal number FF is (a) 2, (b) 4, (c) 8, (d) 16

16. A parity bit is (a) used to indicate uppercase letters (b) used to detect errors (c) is the first bit in a byte (d) is the last bit in a byte

17. A 20-bit **address bus** allows access to a memory of capacity (a) 1 Mb (b) 2 Mb (c) 32Mb (d) 64 Mb

18. A 32-bit **address bus** allows access to a memory of capacity (a) 64 Mb (b) 16 Mb (c) 1 Gb (d) 4 Gb

19. Clock speed is measured in (a) bits per second (b) baud (c) bytes (d) Hertz

20. On-chip cache has (a) lower access time than RAM (b) larger capacity than off chip cache (c) its own data bus (d) become obsolete

21. An FPU (a) makes integer arithmetic faster (b) makes pipelining more efficient (c) increases RAM capacity (d) makes some arithmetic calculations faster

22. Pipelining improves CPU performance due to
(a) reduced memory access time (b) increased clock speed (c) the introduction of parallellism (d) additional functional units

23. The system bus is made up of (a) data bus (b) data bus and address bus (c) data bus and control bus (d) data bus, control bus and address bus

24. The von Neumann bottleneck is due to (a) mismatch in speed between secondary and primary storage (b) mismatch in speed between the CPU and primary storage (c) slow speed of I/O devices (d) low clock speeds

25. Cache memory enhances (a) memory capacity (b) memory access time (c) secondary storage capacity (d) secondary storage access time

26. Cache memory (a) has greater capacity than RAM (b) is faster to access than CPU registers (c) is permanent storage (d) faster to access than DRAM

27. A machine cycle refers to (a) fetching an instruction (b) clock speed (c) fetching, decoding and executing an instruction (d)executing an instruction

28. CISC machines (a) have fewer instructions than RISC machines (b) use more RAM than RISC machines (c) have medium clock speeds (d) use variable size instructions

29. RISC machines typically (a) have high capacity on-chip cache memories (b) have fewer registers than CISC machines (c) are less reliable than CISC machines (d) typically execute 1 instruction per clock cycle.

30. CPU performance may be measured in (a) BPS (b) MIPS (c) MHz (d) VLSI

31. Modern processor chips may be classified as (a) LSI (b) ULSI (c) MIPS (d) SSI

32. Silicon chips are becoming more complex because (a) die size is decreasing (b) feature size is decreasing (c) yield is increasing (d) the scale of integration is decreasing

33. Accessing disk storage is slower than accessing RAM by an order of (a) 10 (b) 100 (c) 1000 (d) 100,000

34. The typical disk storage capacity of a PC is of the order of (a) 32 MB (b) 2 Gb (c) 2 Tb (d) 5120 Kb

35. Disk access takes of the order of (a) x millisecs (b) x microsecs (c) x/100 secs (d) x nanosecs

36. RAM access takes of the order of (a) x millisecs (b) x microsecs (c) x/100 secs (d) x nanosecs

37. Cache memory access takes of the order of (a) x millisecs (b) x microsecs (c) x secs (d) x nanosecs

38. Accessing RAM is slower than accessing cache memory by an order of (a) 10 (b) 100 (c) 200 (d) 50

39. Optical tape storage (a) has faster access time than disk storage (b) smaller capacity than CD-ROM (c) greater capacity than DAT storage (d) smaller capacity than DAT storage

40. DIP involves the use of a (a) scanner (b) plotter (c) microphone (d) CD-ROM

41. The typical RAM capacity of a PC is of the order of (a) 32 MB (b) 16 Gb (c) 16 Tb (d) 512 Kb

42. Modem speeds are measured in (a) bps (b) kbps (c) mbps (d) mips

43. LAN speeds are measured in (a) bps (b) Kbps (c) Mbps (d) Mips

44. WAN speeds are (a) usually higher than LAN speeds (b) measured in bytes per second (c) depend on the transmission medium (d) limited by modem speeds

45. Accessing the Internet from a typical home PC requires the use of (a) CD-ROM drive (b) a modem (c) Windows 95 (d) Netscape

46. To use the Internet you (a) must use the World Wide Web (b) must use electronic mail (c) use appropriate communications software (d) must have a LAN account

47. A Pentium processor comprises (a) more than 1 million transistors (b) more than 3 million transistors (c) 500,000 transistors (d) 900,000 transistors

48. Which of the following is **NOT** a type of processor (a) PowerPC 601 (b) Motorola 8086 (c) Motorola 68000 (d) Intel Pentium

49. Apple Macintoshs were originally based on the (a) Intel 80x86 processor family (b) Motorola 68000 family (c) Motorola 6800 family (d) PowerPc family

50. IBM PC's were originally based on the (a) Intel 80x86 processor family (b) Motorola 68000 family (c) Motorola 6800 family (d) PowerPc family

51. IBM used as the operating system for their original PC (a) MS-DOS (b)Windows 3.1 (c) PC-DOS (d) DOS

52. Windows (GUI) software originated on (a) IBM computers (b) Apple Macintosh computers (c) Rank Xerox computers (d) Digital (DEC) computers

53. A RAID system is useful because (a) it increases processor speed (b) increases disk storage capacity (c) increases disk storage capacity and availability (d) increases OS efficiency

54. In processing cheques which of the following I/O techniques have banks traditionally used (a) OCR (b) MICR (c) barcode scanning (d) voice recognition

55 An RS-232 interface is (a) a parallel interface (b) a serial interface (c) printer interface (d) a modem interface

56. Which of the following is NOT a computer performance metric: (a) MIPS, (b) FLOPS, (c) SPECmark, (d) RISC

57. For print quality you would expect best results from (a) line printer (b) dot matrix printer (c) ink-jet printer (d) laser printer.

58. Handling dates in the next century is a serious problem for the computing industry. Which of the following does **NOT** refer to this problem: (a) Y2K problem (b) Year 2000 problem (c) Millennium bug (d) Next century problem.

59. ROM (a) is faster to access than RAM (b) is non-volatile (c) stores more information than RAM (d) is used for cache memory

60. DRAM (a) is used for cache memory (b) is more expensive than SRAM (c) is cheaper than SRAM (d) is only used at boot up time

61. SRAM (a) is cheaper than DRAM (b) is used at boot up time only (c) is used for cache memory (d) is slower to access than DRAM

62. 10-Base-T refers to (a) Ethernet using thin coaxial cable (b) Ethernet using thick coaxial cable (c) Ethernet using unshielded twisted pair (utp) cabling (d) none of the previous

63. 10-Base-2 refers to (a) Ethernet using thin coaxial cable (b) Ethernet using thick coaxial cable (c) Ethernet using unshielded twisted pair (utp) cabling (d) none of the previous

64. 10-Base-5 refers to (a) Ethernet using thin coaxial cable (b) Ethernet using thick coaxial cable (c) Ethernet using unshielded twisted pair (utp) cabling (d) none of the previous

65. The maximum recommended segment length for utp is (a) 200 metres (b) 100 metres (c) 500 metres (d) 1000 metres

66. A UPS (a) increased the storage capacity of a computer system (b) increases the process speed (c) provides backup power in the event of a power cut (d) none of the previous

67. An NOS is (a) a proprietary operating system (b) a network operating system (c) Novell Operating System (d) Unix-like operating system

68. An NIC (a) a Novell Interface Controller (b) used to control a printer (c) interfaces a modem to a computer (d) connects a computer to a network

69. The capacity of a 3.5" floppy is around (a) 100K (b) 1.4 Mb (c) 5 Mb (d) 1 Gb

70. The capacity of a 3.5" Zip disk is around (a) 5 Mb (b) 10 Mb (c) 40 Mb (d) 100 Mb

71. When accessing a disk the amount of data transferred is (a) one track (b) one sector (block) (c) one cylinder (d) 1 byte

72. A hard disk spins at x revolutions per minute where x is (a) 300 - 900 (b) 30 - 90 (c) 3000 - 9000 (d) 100,000

73. The largest delay in accessing data on disk is due to (a) seek time (b) rotation time (c) data transfer time (d) none of the previous

74. CD-ROM capacity is around (a) 100 Mb (b) 650 Mb (c) 1 Gb (d) 4 Gb

75. The capacity of a DVD is around (a) 100 Mb (b) 650 Mb (c) 1.4 Gb (d) 4.7 Gb

76. The capacity of DAT is (a) 100 Mb (b) 650 Mb (c) 1 Gb (d) several gigabytes

77. A smart card (a) is a form of ATM card (b) has more storage capacity than an ATM card (c) is an access card for a security system (d) contains a microprocessor

78. The resolution of a VGA screen is (a) 1024 x 768 (b) 512 x 512 (c) 640 x 480 (d) 800 x 600

79. Laser printers usually print at (a) 200 dpi (b) 360 dpi (c) 600 dpi (d) 10,000 dpi

80. High print quality requires from (a) 600 dpi (b) 300 dpi (c) 1000 dpi (d)100,000 dpi

81. Laptop computers use (a) CRT displays (b) LCD displays (c) SSGA displays (d) none of the previous

82. QWERTY is used with reference to (a) screen layout (b) mouse button layout (c) keyboard layout (d) word processing software

83. A “killer application” is (a) software that is hard to debug ! (b) a form of computer virus (c) a really popular application program (d) none of the previous

84. WYSIWYG is used with reference to (a) screen layout (b) mouse button layout (c) keyboard layout (d) screen images that resemble printed documents

85. A GUI is (a) hardware (b) language interpreter (c) software interface (d) an operating system

86. Multiprogramming refers to (a) having several programs in RAM at the same time (b) multitasking (c) writing programs in multiple languages (d) none of the previous

87. Multitasking refers to (a) having several programs in RAM at the same time (b) the ability to run 2 or more programs concurrently (c) writing programs in multiple languages (d) none of the previous

88. Multiprogramming is a prerequisite for (a) multitasking (b) an operating system (c) to run more than one program at the same time (d) none of the above

89. Timesharing is the same as (a) multitasking (b) multiprogramming (c) multiuser (d) none of the previous

90. Virtual memory is (a) related to virtual reality (b) a form of ROM (c) a form of RAM (d) none of the previous

91. Multiprocessing is (a) same as multitasking (b) same as multiprogramming (c) multiuser (d) involves using more than one processor at the same time

92. The most widely used network operating system on PC LANs is (a) Linux (b) Novell Netware (c) Unix (d) Windows NT

93. Disk fragmentation (a) is caused by wear (b) caused by overuse (c) is due to bad disk blocks (d) none of the previous

94. A compiler is (a) a fast interpreter (b) slower than an interpreter (c) converts a program to machine code (d) none of the previous

95. An interpreter is (a) faster than a compiler (b) translates and executes programs statement by statement (c) converts a program to machine code (d) none of the previous

96. JPEG and MPEG (a) have to do with compression of graphics and video (b) have to do with Web pages (c) the Internet (d) none of the previous

97. “Zipping” a file means (a) encrypting it (b) decrypting it (c) compressing it (d) transmitting it

98. The speed of transferring data with your modem is governed by (a) the speed of the your modem (b) the speed of the receiving modem (c) the speed of transmitting/receiving modems (d) the distance between the modems

99. ISDN speeds are (a) faster than ATM speeds (b) slower than ATM speeds (c) same as modem speeds (d) same as ADSL speeds

100. A cable modem uses (a) LAN cable (b) cable-TV cable (c) is same speed as conventional modem (d) optic fibre cables

101. A client-server system is based on (a) mainframe technology (b) WAN technology (c) LAN technology (d) Unix operating system

102. A multiplexor is a form of (a) hub (b) modem (c) bridge (d) none of the previous

103. A hub is a (a) router (b) a bridge (c) repeater (d) all of the previous

104. A search engine is (a) hardware (b) IR system for the Internet (c) browser (d) none of the previous

105. An ISP (a) provides access to the Internet (b) is a CPU register (c) is a CPU functional unit (d) make of processor

106. FTP is (a) used to send email (b) used to browse the Web (c) is part of Netscape (d) is a protocol for the transfer of files between computers

107. Telnet (a) used to send email (b) uses telephone lines (c) is part of Netscape (d) is a protocol that allows for remote login

108. A firewall is (a) used to protect a computer room from fires and floods (b) a form of virus (c) a screen saver program (d) none of the previous

109. A proxy server is (a) a backup server (b) an email server (c) a poor file server (d) none of the above

110. An RDBMS is a (a) remote DBMS (b) relative DBMS (c) Relational DBMS (d) Reliable DBMS

111 Data Warehousing refers to (a) storing data offline at a separate site (b) backing up data regularly (c) is related to data mining (d) uses tape as opposed to disk

112. A 4GL is (a) DBMS system (b) uses Java (c) uses C++ (d) none of the previous.

113. The Pentium processor is (a) 16-bit (b) 32-bit (c) 64 bit (d) 8-bit

114. The IBM/Motorola PowerPC 601 processor is (a) 16-bit (b) 32-bit (c) 64 bit (d) 8-bit

115. The Motorola 68000 processor is (a) 16-bit (b) 32-bit (c) 64 bit (d) 8-bit

116. The Digital Alpha processor is (a) 16-bit (b) 32-bit (c) 64 bit (d) 8-bit

117. Apple's iMac uses a (a) ISA bus (b) NuBus (c) PCI bus (d) USB bus

118 Which of the following is NOT a bus standard (a) EISA (b) VME (c) MCA (d) RS-232

119. A nanosecond is (a) 10^{-6} sec (b) 10^{-3} sec (c) 10^{-12} sec (d) 10^{-9} sec

120. The feature size of a Pentium is approx. (a) 1 micron (b) 0.1 microns (c) 4 microns (d) .4 microns

121. The resolution of an SVGA screen is (a) 1024 x 768 (b) 512 x 512 (c) 640 x 480 (d) 800 x 800

122. A 5 stage pipeline with the stages taking 1, 1, 3, 1, 1, units of time has a throughput of (a) 1/3 (b) 1/7 (c) 7 (d) 3

123. Given a 5 stage pipeline with stages taking 1, 2, 3, 2, 1 units of time, the throughput of the pipeline is:

(a) 9 (b) 1/9 (c) 1/3 (d) 2

124. Given a 5 stage pipeline with stages taking 1, 2, 3, 1, 1 units of time, the clock period of the pipeline is:

(a) 8 (b) 1/8 (c) 1/3 (d) 3

125. Given a 5 stage pipeline with stages taking 1, 2, 3, 1, 1 units of time, the flowthrough time of the pipeline is:

(a) 8 (b) 1/8 (c) 1/3 (d) 3

126. The average memory access time for a machine with a cache hit rate of 90% where the cache access time is 10ns and the memory access time is 100ns is (a) 55ns, (b) 45ns, (c) 90ns, (d) 19ns

127. The clock speed of a modern PC is of the order of (a) 400 Khz (b) 400 Hz (c) 400 Mhz (c) 400 Ghz

128. Given that the subprogram putc displays the character in `al`, the effect of the following instructions:

```
mov al, 'c'
sub al, 2
call putc
```

is to (a) display 2 (b) display 'c' (c) display 'a' (d) display a blank

129. Given that the `bl` register contains 'b', the effect of the following instruction

```
and bl, 1101 1111
```

is to (a) clear `bl` (b) store 'B' in `bl` (c) store 0010 0000 in `bl` (d) leave `bl` unchanged

130. Which of the following is an illegal instruction

(a) `MoV Ax, 30000` (b) `iNc Al, 1` (c) `aNd bx, bx` (d) `add ax, 30`

131 An OR gate generates a low output when (a) any one of its inputs is low (b) all of its inputs are high (c) when all of its inputs are low (d) power fails

132. Given that the subprogram putc displays the character in `al`, the effect of the following instructions:

```
mov al, 'a'
add al, 2
call putc
```

is to (a) display 2 (b) display c (c) display a (d) display a blank

133. Given that the `bl` register contains 'B', the effect of the following instruction

```
or bl, 0010 0000
```

is to (a) clear `bl` (b) store 'b' in `bl` (c) store 0010 0000 in `bl` (d) leave `bl` unchanged

133b. Given that the `bl` register contains 'B', which of the following instructions will change bl so that it contains 'b' (a) `or bl, 0010 0000` (b) `and bl, 0010 0000` (c) `or bl, 1101 1111` in `bl` (d) `and bl, 1101 1111`

133c. Given that the `bl` register contains 'b', which of the following instructions will change bl so that it contains 'B' (a) `or bl, 0010 0000` (b) `and bl, 0010 0000` (c) `or bl, 1101 1111` in `bl` (d) `and bl, 1101 1111`

134. Which of the following is an illegal instruction

(a) `MoV Ax, 30000` (b) `iNc Al` (c) `aNd bx, bx` (d) `add ax 30`

135. An AND gate generates a high output when (a) any one of its inputs is high (b) all of its inputs are high (c) when all of its inputs are low (d) power fails

136. Given that the subprogram putc displays the character in `al`, the effect of the following instructions:

```
mov al, '0'
add al, 2
call putc
```

is to (a) display '2' (b) display '3' (c) display '0' (d) display a blank

137. Given that the `bl` register contains 1111 0000, the effect of the following instruction

```
or bl, 0000 1111
```

is to (a) clear `bl` (b) store 1111 1111 in `bl` (c) store 0000 1111 in `bl` (d) leave `bl` unchanged

138. Which of the following is an illegal 8086 instruction

(a) `mov 20, bx` (b) `iNc Al` (c) `aNd bx, bx` (d) `add ax, 30`

139. Which of the following is an illegal l8086 instruction

(a) `mov ax, [bx]` (b) `iNc [bx]` (c) `aDd bx, [bx]` (d) `add ax, [cx]`

140. Which of the following is an illegal 8086 instruction
(a) `mov ax, [bx]` (b) `iNc [bx]` (c) `aDd bx, [dx]` (d) `add [bx], 1`

141. Which of the following is an illegal 8086 instruction
(a) `ret 2` (b) `push al` (c) `aDd bx, 25000` (d) `and ax, dx`

142. The net effect of calling the following subprogram in terms of program behaviour:

```
Subprog:  push ax
          add ax, 10
          ret
```

is to (a) leave ax unchanged (b) add 10 to ax (c) cause the program to behave in an unpredictable manner (d) do nothing

143. Branch prediction is used in the context of (a) pipelining (b) program loops (c) cache memory (d) ALU operation

144. Delayed branching is used (a) to introduce delays in program execution (b) in pipelining (c) in cache memory (d) decoding instructions

145. A Harvard architecture means that a machine has (a) separate memories for data and instructions (b) unified cache memory (c) multiple functional units (d) an on-chip cache

146. Which is the most complex component of the following (a) transistor (b) flip flop (c) AND gate (d) decoder

147. An assembly language instruction (a) always has a label (b) always takes at least 1 operand (c) always has an operation field (c) always modifies the status register

148. An arithmetic instruction always modifies the (a) stack pointer (b) status register (c) program counter (d) an index register

149. A conditional jump instruction (a) always cause a transfer of control (b) always involves the use of the status register (c) always modifies the program counter (d) always involves testing the Zero flag

150. An interrupt instruction (a) causes an unconditional transfer of control (b) causes a conditional transfer of control (c) modifies the status register (d) is an I/O instruction

151. A data movement instruction will (a) modify the status register (b) modify the stack pointer (c) modify the program counter (d) transfer data from one location to another

152. The memory address register is used to store (a) data to be transferred to memory (b) data that has been transferred from memory (c) the address of a memory location (d) an instruction that has been transferred from memory.

153. The memory data register is used to store (a) data to be transferred to or from memory (b) data to be transferred to the stack (c) the address of a memory location (d) an instruction that has been transferred from memory

154. The instruction register stores (a) an instruction that has been decoded (b) an instruction that has been fetched from memory (c) an instruction that has been executed (d) the address of the next instruction to be executed

155. The program counter (a) stores the address of the instruction that is currently being executed (b) stores the next instruction to be executed (c) stores the address of the next instruction to be executed (d) stores the instruction that is being currently executed.

156. The stack pointer stores (a) the address of the stack in memory (b) address of the last item pushed on the stack (c) the address of the next free stack location (d) the address of the last item popped from the stack

157. The read/write line is (a) belongs to the data bus (b) belongs to the control bus (c) belongs to the address bus (d) CPU bus

158. The instruction `inc I` where `I` is a memory variable involves (a) a memory read operation (b) a memory write operation (c) a memory read and a memory write operation (c) only an arithmetic operation

159. Memory mapped I/O involves (a) transferring information between memory locations (b) transferring information between registers and memory (c) transferring information between the CPU and I/O devices in the same way as between the CPU and memory (d) transferring information between I/O devices and memory

160. Busy waiting is a technique (a) to allow the CPU wait for a busy device (b) to allow a busy device wait for the CPU (c) to keep an idle device busy (d) improve CPU performance

161. A hardware interrupt is (a) also called an internal interrupt (b) also called an external interrupt (c) an I/O interrupt (d) a clock interrupt

162. An assembly language program is typically
(a) non-portable (b) shorter than an equivalent HLL program (c) harder to read than a machine code program (d) slower to execute than a compiled HLL program

163. Programs are written in assembly language because they (a) run faster than HLL programs (b) are portable (c) easier to write than machine code programs (d) they allow the programmer access to registers or instructions that are not usually provided by a HLL

164. An assembly language program is translated to machine code by (a) an assembler (b) a compiler (c) an interpreter (d) a linker

165. An assembly language directive is (a) the same as an instruction (b) used to define space for variables (c) used to start a program (d) to give commands to an assembler

166. Which of the following is not an MASM directive (a) .stack (b) db (c) .model (d) call

167. When a program is translated by the MASM assembler, the machine code is stored in a file with the extension (a) .lis (b) .obj (c) .exe (d) .out

167a. The output of the linker (LINK command) is stored in a file with the extension (a) .lis (b) .obj (c) .exe (d) .lnk

168. Which of the following is **not** part of the processor
(a) the ALU (b) the CU (c) the registers (d) the system bus

169. Which of the following variables uses the most amount of RAM:
(a) x db 255 (b) y db 80 dup('Z') (c) z dw 50 dup(0) (d) small dd 40 dup(0)

170. Which of the following defines a constant Max
(a) Max db 80 (b) Max equ 80 (c) Max dw 80 (d) mov Max, 80

171. The result of `mov al, 65` is to store
(a) 0100 0010 in al, (b) ASCII code of 'A' in al, (c) store 42H in al (d) store 1000 0001 in al

172. The `call` instruction is used to (a) access subprograms (b) access memory (c) perform I/O (d) access the stack

173. The effect of the following instructions

```
push ax
add ax, 4
pop bx
mov cx, ax
push bx
pop ax
```

on the ax register is (a) leave it with its original value (b) add 4 to it (c) clear it (d) double it

174. To copy the hexadecimal number A to the bh register you write
(a) mov 0bh, ah (b) mov bh, 0ah (c) mov bh, ah (d) mov bh, [ah]

175. The effect of the following instructions

```
mov ah, 2h
int 21h
```

is to (a) read a character into al (b) read a character into dl (c) display the character in al (d) display the character in dl

176. The effect of the following instructions

```
mov ah, 1h
int 21h
```

is to (a) read a character into al (b) read a character into dl (c) display the character in al (d) display the character in dl

177. Given that al contains the ASCII code of an uppercase letter, it can be converted to lowercase by (a) add al, 32 (b) sub al, 32 (c) or al, 1101 1111 (d) and al, 0010 0000

178. Given that al contains the ASCII code of a lowercase letter, it can be converted to uppercase by (a) add al, 32 (b) sub al, 32 (c) or al, 1101 1111 (d) and al, 0010 0000

179. Given that al contains the ASCII code of an uppercase letter, it can be converted to lowercase by (a) add al, 30 (b) sub al, 30 (c) or al, 0010 0000 (d) and al, 0010 0000

180. Given that al contains the ASCII code of a lowercase letter, it can be converted to uppercase by (a) add al, 32 (b) sub al, 30 (c) or al, 1101 1111 (d) and al, 1101 1111

181 The instruction `jg` operates with (a) unsigned numbers (b) 2's complement numbers (c) floating point numbers (d) ASCII codes

182 The instruction `ja` operates with (a) unsigned numbers (b) signed numbers (c) floating point numbers (d) ASCII codes

183 The instruction `mov str[si], 'a'` is an example of (a) indirect addressing (b) indexed addressing (c) direct addressing (d) register addressing

184 The instruction `mov ax, [bx]` is an example of (a) indirect addressing (b) indexed addressing (c) direct addressing (d) based addressing

185 The instruction `je label` is an example of (a) indirect addressing (b) indexed addressing (c) relative addressing (d) immediate addressing

186. The word size of an 8086 processor is
(a) 8 bits (b) 16 bits (c) 32 bits (d) 64 bits

187. The code used to boot up a computer is stored in (a) RAM (b) ROM (c) PROM and (d) EPROM

188. In accessing a disk block the longest delay is due to (a) rotation time (b) seek time (c) transfer time (d) clock speed

189. Given that putc displays a character, the following code

```
mov al, 'a'
add al, 2
and al, 1101 1111
call putc
```

is to (a) display 2 (b) display 'c' (c) display 'C' (d) display 'A'

190. Given that bl contains 'B' the effect of the following code

```
or bl, 0010 0000
add bl, 2
```

is to (a) clear bl, (b) store 'b' in bl (c) store 0110 0001 in bl (d) store 'd' in bl

191. The average memory access time for a machine with a cache hit rate of 90% where the cache access time is 10ns and the memory access time is 100ns is (a) 55ns, (b) 45ns, (c) 90ns, (d) 19ns

192. Which of the following is NOT involved in a memory write operation: (a) MAR, (b) PC, (c) MDR, (d) Data Bus

193. Pipelining improves CPU performance due to (a) reduced memory access time (b) increased clock speed (c) the introduction of parallellism (d) additional functional units

194. DRAM (a) is used for cache memory (b) is more expensive than SRAM (c) is cheaper than SRAM (d) is only used at boot up time

195. SRAM (a) is cheaper than DRAM (b) is used at boot up time only (c) is used for cache memory (d) is slower to access than DRAM

196. WYSIWYG is used with reference to (a) screen layout (b) mouse button layout (c) keyboard layout (d) screen images that resemble printed documents

197. A GUI is (a) hardware (b) language interpreter (c) software interface (d) an operating system

199. FTP is (a) used to send email (b) used to browse the Web (c) is part of Netscape (d) is a protocol for the transfer of files between computers

200. Telnet (a) used to send email (b) uses telephone lines (c) is part of Netscape (d) is a protocol that allows for remote login

201. Which of the following is an illegal 8086 instruction
(a) `ret 2` (b) `push ax` (c) `aDd bx, 25000` (d) `mov x, ay`

202. The read/write line is (a) belongs to the data bus (b) belongs to the control bus (c) belongs to the address bus (d) CPU bus

203. The `call` instruction stores the return address for a subprogram (a) on the stack (b) in the memory address register (c) in the program counter (d) does not involve using the return address

204 The instruction `je label` is an example of (a) indirect addressing (b) indexed addressing (c) relative addressing (d) immediate addressing

205. Given that dl contains 'x' which of the following will cause 'x' to be displayed:

```
(a)   mov ah, 1h      (b) mov ah, 2h  (c) mov ah, 2h       (d) mov ah, 0h
      int 21h             int 20h         int 21h              int 21h
```

206. Which of the following will read a character into al:

```
(a)   mov ah, 9h      (b) mov ah, 2h  (c) mov ah, 2h       (d) mov ah, 1h
      int 21h             int 20h         int 21h              int 21h
```

207. Which of the following will display a string whose address is in the dx register:

```
(a)   mov ah, 0h      (b) mov ah, 2h  (c) mov ah, 9h       (d) mov ah, 9h
      int 21h             int 20h         int 21h              int 22h
```

208. Which of the following will terminate a program and return to MS-DOS:

```
(a) mov ax, 4c00h(b)  mov ax, 4c00h   (c)  mov dx, 4c00h   (d)  mov ax, 9h
  int 20h             int 21h             int 21h              int 22h
```

209. The cmp instruction modifies the (a) program counter (b) instruction register (c) flags register (d) segment register

210. Conditional instructions typically inspect the (a) program counter (b) instruction register (c) flags register (d) accumulator

211.The bp register is typically used for accessing (a) strings (b) memory (c) stack (d) data segment

212. The ret instruction modifies the (a) instruction register (b) program counter (c) address register (d) flags register

213. The sp register is typically used for accessing (a) strings (b) memory (c) stack (d) data segment

214. The call instruction modifies (a) the flags register (b) program counter (c) bp register (d) none of the previous

215. The call instruction modifies (a) the flags register (b) stack pointer (c) bp register (d) none of the previous

216 The call instruction modifies (a) the program counter and SP register (b) flags register (c) bp register (d) none of the previous

217. The ret instruction modifies the (a) stack pointer (b) bp register (c) instruction register (d) flags register

218. One type of main memory in a PC is called (a) SRAM (b) SDRAM (c) ROM (d) DROM