161  
Which pin configuration is used to connect a 7-segment display to 8051?  
Option\_a: GPIO pins  
Option\_b: ADC pins  
Option\_c: PWM pins  
Option\_d: UART pins  
correct\_option: GPIO pins

162  
How many segments does a 7-segment display consist of?  
Option\_a: 5  
Option\_b: 6  
Option\_c: 7  
Option\_d: 8  
correct\_option: 7

163  
What additional segment is present in an 8-segment display?  
Option\_a: Decimal Point  
Option\_b: Colon  
Option\_c: Comma  
Option\_d: Extra Digit  
correct\_option: Decimal Point

164  
Which data type is generally used to send values to a 7-segment display?  
Option\_a: Integer  
Option\_b: Character  
Option\_c: Binary  
Option\_d: Float  
correct\_option: Binary

165  
In 7-segment displays, which configuration turns on all segments?  
Option\_a: 0xFF  
Option\_b: 0x00  
Option\_c: 0x7F  
Option\_d: 0xFE  
correct\_option: 0xFF

166  
Which sensor is commonly used in digital thermometer projects?  
Option\_a: LM35  
Option\_b: DHT11  
Option\_c: MQ3  
Option\_d: LDR  
correct\_option: LM35

167  
What is the typical range of the LM35 temperature sensor?  
Option\_a: 0°C to 50°C  
Option\_b: -55°C to 150°C  
Option\_c: -20°C to 100°C  
Option\_d: 0°C to 100°C  
correct\_option: -55°C to 150°C

168  
What is the voltage output of the LM35 sensor for 25°C?  
Option\_a: 25 mV  
Option\_b: 250 mV  
Option\_c: 2.5 V  
Option\_d: 2500 mV  
correct\_option: 250 mV

169  
Which component is essential for analog-to-digital conversion in a digital thermometer?  
Option\_a: ADC  
Option\_b: DAC  
Option\_c: GPIO  
Option\_d: PWM  
correct\_option: ADC

170  
Which of the following microcontrollers supports ADC?  
Option\_a: 8051  
Option\_b: PIC  
Option\_c: LPC2148  
Option\_d: All of the above  
correct\_option: All of the above

171  
Which peripheral is used to control LED flashing in LPC2148?  
Option\_a: GPIO  
Option\_b: ADC  
Option\_c: UART  
Option\_d: Timer  
correct\_option: GPIO

172  
How many General Purpose Input/Output (GPIO) ports does LPC2148 have?  
Option\_a: 1  
Option\_b: 2  
Option\_c: 3  
Option\_d: 4  
correct\_option: 2

173  
Which register is used to set the direction of GPIO pins in LPC2148?  
Option\_a: PINSEL  
Option\_b: IOSET  
Option\_c: IODIR  
Option\_d: IOCLR  
correct\_option: IODIR

174  
Which of the following instructions turns an LED on in LPC2148?  
Option\_a: IOSET |= 0x01;  
Option\_b: IOCLR |= 0x01;  
Option\_c: IODIR |= 0x00;  
Option\_d: IOCLR &= ~0x01;  
correct\_option: IOSET |= 0x01;

175  
What is the operating voltage of LEDs in the LPC2148 kit?  
Option\_a: 3.3 V  
Option\_b: 5 V  
Option\_c: 1.8 V  
Option\_d: 9 V  
correct\_option: 3.3 V

176  
How many ADC channels are available in LPC2148?  
Option\_a: 4  
Option\_b: 6  
Option\_c: 8  
Option\_d: 12  
correct\_option: 6

177  
Which ADC resolution is supported by LPC2148?  
Option\_a: 8-bit  
Option\_b: 10-bit  
Option\_c: 12-bit  
Option\_d: 16-bit  
correct\_option: 10-bit

178  
Which peripheral in LPC2148 allows converting analog signals to digital?  
Option\_a: DAC  
Option\_b: ADC  
Option\_c: PWM  
Option\_d: Timer  
correct\_option: ADC

179  
Which register in LPC2148 stores the converted ADC value?  
Option\_a: ADCR  
Option\_b: ADSTAT  
Option\_c: ADDR  
Option\_d: ADGDR  
correct\_option: ADGDR

180  
How is the ADC clock frequency configured in LPC2148?  
Option\_a: By setting ADC registers  
Option\_b: Using I2C peripheral  
Option\_c: Using a GPIO pin  
Option\_d: By configuring UART  
correct\_option: By setting ADC registers

181  
How many control pins are required to connect a single 7-segment display?  
Option\_a: 7  
Option\_b: 8  
Option\_c: 10  
Option\_d: 11  
correct\_option: 8

182  
Which hexadecimal value represents the number "5" on a common cathode 7-segment display?  
Option\_a: 0x6D  
Option\_b: 0x5B  
Option\_c: 0x4F  
Option\_d: 0x3E  
correct\_option: 0x6D

183  
How do you represent the alphabet "A" on a 7-segment display?  
Option\_a: 0x77  
Option\_b: 0x7C  
Option\_c: 0x39  
Option\_d: 0x5E  
correct\_option: 0x77

184  
Which mode must be configured to display a decimal number on 7-segment LED using LPC2148?  
Option\_a: Input Mode  
Option\_b: Output Mode  
Option\_c: Interrupt Mode  
Option\_d: ADC Mode  
correct\_option: Output Mode

185  
What is the key difference between a common anode and common cathode 7-segment display?  
Option\_a: Common cathode connects all anodes to ground  
Option\_b: Common anode connects all cathodes to ground  
Option\_c: Common cathode connects all cathodes to ground  
Option\_d: Both configurations connect to Vcc  
correct\_option: Common cathode connects all cathodes to ground

186  
What is the hexadecimal code to display the number "1" on a common cathode 7-segment display?  
Option\_a: 0x06  
Option\_b: 0x3F  
Option\_c: 0x5B  
Option\_d: 0x4F  
correct\_option: 0x06

187  
What kind of circuit is necessary for driving a 7-segment display with an 8051 microcontroller?  
Option\_a: Pull-down resistor circuit  
Option\_b: Multiplexing circuit  
Option\_c: PWM driver circuit  
Option\_d: Timer circuit  
correct\_option: Multiplexing circuit

188  
Which Proteus component is used to simulate the 8051 microcontroller?  
Option\_a: AT89C51  
Option\_b: PIC16F877A  
Option\_c: STM32F103  
Option\_d: ARM Cortex M3  
correct\_option: AT89C51

189  
What is the purpose of a current-limiting resistor in a 7-segment display circuit?  
Option\_a: Protect the microcontroller  
Option\_b: Control brightness  
Option\_c: Prevent overheating  
Option\_d: All of the above  
correct\_option: All of the above

190  
In Proteus simulation, which tool is used to observe real-time values of signals?  
Option\_a: Logic Analyzer  
Option\_b: Oscilloscope  
Option\_c: Virtual Terminal  
Option\_d: Digital Display  
correct\_option: Oscilloscope

191  
Which unit is used to display the temperature reading in a digital thermometer?  
Option\_a: Fahrenheit  
Option\_b: Kelvin  
Option\_c: Celsius  
Option\_d: Rankine  
correct\_option: Celsius

192  
What is the typical operating voltage range of LM35?  
Option\_a: 1.5V - 5V  
Option\_b: 4V - 30V  
Option\_c: 2.7V - 3.3V  
Option\_d: 0V - 10V  
correct\_option: 4V - 30V

193  
What is the output voltage of LM35 for a temperature of 100°C?  
Option\_a: 100 mV  
Option\_b: 500 mV  
Option\_c: 1 V  
Option\_d: 10 V  
correct\_option: 1 V

194  
What component can be used to display temperature readings in real-time?  
Option\_a: LCD display  
Option\_b: Seven-segment display  
Option\_c: LED array  
Option\_d: Both Option\_a and Option\_b  
correct\_option: Both Option\_a and Option\_b

195  
What is the accuracy of the LM35 temperature sensor?  
Option\_a: ±1°C  
Option\_b: ±0.5°C  
Option\_c: ±2°C  
Option\_d: ±5°C  
correct\_option: ±0.5°C

196  
Which programming language is most commonly used to program the LPC2148?  
Option\_a: Python  
Option\_b: C  
Option\_c: Java  
Option\_d: Assembly  
correct\_option: C

197  
Which timer mode is often used for generating delays for LED flashing?  
Option\_a: PWM Mode  
Option\_b: Interrupt Mode  
Option\_c: Capture Mode  
Option\_d: Timer Mode  
correct\_option: Timer Mode

198  
Which register is used to start a timer in LPC2148?  
Option\_a: T0TCR  
Option\_b: T1PR  
Option\_c: T0IR  
Option\_d: T0PC  
correct\_option: T0TCR

199  
What happens if the delay in the LED flashing code is set too short?  
Option\_a: LED will not light up  
Option\_b: LED will flicker too fast to observe  
Option\_c: LED will burn out  
Option\_d: LED will remain constantly on  
correct\_option: Option\_b

200  
What is the clock frequency of LPC2148 by default?  
Option\_a: 16 MHz  
Option\_b: 60 MHz  
Option\_c: 12 MHz  
Option\_d: 48 MHz  
correct\_option: 12 MHz

201  
Which analog input pin is typically used first in ADC configuration?  
Option\_a: AD0.0  
Option\_b: AD0.1  
Option\_c: AD1.1  
Option\_d: AD1.2  
correct\_option: AD0.0

202  
What is the maximum input voltage for ADC in LPC2148?  
Option\_a: 2.5V  
Option\_b: 3.3V  
Option\_c: 5V  
Option\_d: 1.8V  
correct\_option: 3.3V

203  
Which register in LPC2148 indicates the status of ADC conversion?  
Option\_a: ADSTAT  
Option\_b: ADDR  
Option\_c: ADGSR  
Option\_d: ADGDR  
correct\_option: ADGDR

204  
What value is returned by ADC in LPC2148 if the input voltage is 1.65V, assuming a 10-bit resolution?  
Option\_a: 256  
Option\_b: 512  
Option\_c: 768  
Option\_d: 1023  
correct\_option: 512

205  
Which peripheral helps to convert physical quantities such as temperature into ADC input?  
Option\_a: Sensors  
Option\_b: GPIO  
Option\_c: UART  
Option\_d: I2C  
correct\_option: Sensors

206  
Which control technique can be used to drive multiple 7-segment displays with fewer pins?  
Option\_a: Multiplexing  
Option\_b: Direct control  
Option\_c: PWM  
Option\_d: UART communication  
correct\_option: Multiplexing

207  
Which 7-segment display pattern corresponds to the number "0"?  
Option\_a: 0x3F  
Option\_b: 0x06  
Option\_c: 0x5B  
Option\_d: 0x7F  
correct\_option: 0x3F

208  
How is the brightness of a 7-segment display controlled?  
Option\_a: By controlling supply voltage  
Option\_b: Using PWM  
Option\_c: Using GPIO speed  
Option\_d: Adjusting current flow  
correct\_option: Using PWM

209  
In LPC2148, which interface is commonly used for interfacing 7-segment displays?  
Option\_a: UART  
Option\_b: I2C  
Option\_c: GPIO  
Option\_d: SPI  
correct\_option: GPIO

210  
Which number format requires the least segment activation on a 7-segment display?  
Option\_a: Decimal 8  
Option\_b: Decimal 0  
Option\_c: Decimal 1  
Option\_d: Decimal 9  
correct\_option: Decimal 1

211  
What is the purpose of using a common anode or common cathode configuration in a 7-segment display?  
Option\_a: To control individual LED segments  
Option\_b: To simplify circuit design  
Option\_c: To enable serial communication  
Option\_d: To reduce power consumption  
correct\_option: To simplify circuit design

212  
Which register in LPC2148 is typically used to set pins as output for driving a 7-segment display?  
Option\_a: PINSEL  
Option\_b: IOSET  
Option\_c: IODIR  
Option\_d: IOCLR  
correct\_option: IODIR

213  
Which hex code corresponds to displaying the number "7" on a 7-segment display?  
Option\_a: 0x07  
Option\_b: 0x79  
Option\_c: 0x77  
Option\_d: 0x3F  
correct\_option: 0x07

214  
In LPC2148, what is the clock source for running the 7-segment display?  
Option\_a: On-chip oscillator  
Option\_b: PLL  
Option\_c: GPIO clock  
Option\_d: ADC clock  
correct\_option: On-chip oscillator

215  
Which component in Proteus can be used to simulate the 7-segment display output?  
Option\_a: Virtual Terminal  
Option\_b: Digital Display  
Option\_c: LED Array  
Option\_d: 7-SEG-COM-CATH  
correct\_option: 7-SEG-COM-CATH

216  
What happens when the timer in LPC2148 reaches its match value?  
Option\_a: Timer resets  
Option\_b: Timer stops  
Option\_c: Interrupt is generated  
Option\_d: LED turns off  
correct\_option: Interrupt is generated

217  
Which register in LPC2148 is used to load the match value for the timer?  
Option\_a: T0MR0  
Option\_b: T0TCR  
Option\_c: T0IR  
Option\_d: T0PR  
correct\_option: TOMRO

218  
What frequency is generated if the timer runs at 12 MHz and the match value is set to 12000?  
Option\_a: 10 Hz  
Option\_b: 1 kHz  
Option\_c: 1 Hz  
Option\_d: 100 Hz  
correct\_option: 1 Hz

219  
Which of the following is an alternative method for flashing LEDs on LPC2148?  
Option\_a: Using PWM  
Option\_b: Using GPIO polling  
Option\_c: Using UART  
Option\_d: Using SPI  
correct\_option: Uisng GPIO polling

220  
What happens when the match interrupt is not cleared in LPC2148?  
Option\_a: Timer continues normally  
Option\_b: Timer halts  
Option\_c: Interrupt keeps triggering  
Option\_d: Timer resets  
correct\_option: Inerrupts keep triggering

221  
Which resolution is typically supported by the internal ADC in LPC2148?  
Option\_a: 8-bit  
Option\_b: 10-bit  
Option\_c: 12-bit  
Option\_d: 16-bit  
correct\_option: 10-bit

222  
Which peripheral bus controls the ADC module in LPC2148?  
Option\_a: AHB  
Option\_b: APB  
Option\_c: I2C  
Option\_d: SPI  
correct\_option: APB

223  
Which flag indicates that the ADC conversion is complete in LPC2148?  
Option\_a: DONE  
Option\_b: READY  
Option\_cADC  
Option\_d: COMPLETE  
correct\_option: DONE

224  
What value will the ADC return if the input voltage is 3.3V, assuming 10-bit resolution?  
Option\_a: 1023  
Option\_b: 512  
Option\_c: 2047  
Option\_d: 255  
correct\_option: 1023

225  
Which of the following can be connected to the ADC input to measure analog signals?  
Option\_a: Potentiometer  
Option\_b: Temperature Sensor  
Option\_c: Light Sensor  
Option\_d: All of the above  
correct\_option: Temperature Sensor

226  
What is the purpose of using a voltage divider circuit with LM35?  
Option\_a: To stabilize current  
Option\_b: To step down voltage  
Option\_c: To adjust output voltage range  
Option\_d: To regulate input voltage  
correct\_option: To adjust output voltage range

227  
Which type of ADC is typically used for reading LM35 output in a microcontroller?  
Option\_a: Flash ADC  
Option\_b: Successive Approximation ADC  
Option\_c: Delta-Sigma ADC  
Option\_d: Dual-Slope ADC  
correct\_option: Successive Approximation ADC

228  
Which part of the LM35 sensor indicates its operating temperature range?  
Option\_a: Datasheet  
Option\_b: Calibration curves  
Option\_c: Output specifications  
Option\_d: Pin configuration  
correct\_option: Datasheet

229  
How can temperature values be displayed on a Proteus LCD module?  
Option\_a: Direct binary values  
Option\_b: ASCII-converted values  
Option\_c: Binary-to-decimal converter  
Option\_d: Digital signal processor  
correct\_option: ASCII-converted values

230  
What happens to the LM35 output voltage as temperature decreases?  
Option\_a: Voltage increases  
Option\_b: Voltage decreases  
Option\_c: Voltage remains constant  
Option\_d: Voltage fluctuates  
correct\_option: Voltage decreases

231  
Which tool is primarily used to debug LPC2148 microcontroller programs?  
Option\_a: Keil uVision  
Option\_b: Arduino IDE  
Option\_c: MPLAB X  
Option\_d: Visual Studio Code  
correct\_option: Keil uVision

232  
What file format is required to upload programs to the LPC2148?

Option\_a: .bin  
Option\_b: .hex  
Option\_c: .elf  
Option\_d: .exe  
correct\_option: .hex

233  
Which communication protocol is often used for downloading firmware onto LPC2148?  
Option\_a: I2C  
Option\_b: UART  
Option\_c: SPI  
Option\_d: CAN  
correct\_option: UART

234  
Which of the following is a common compiler for ARM-based microcontrollers?  
Option\_a: GCC  
Option\_b: Clang  
Option\_c: IAR  
Option\_d: All of the above  
correct\_option: All of the above

235  
What is the main advantage of using the Proteus simulation software?  
Option\_a: Real-time debugging  
Option\_b: Hardware emulation  
Option\_c: Cost-effectiveness in testing  
Option\_d: All of the above  
correct\_option: All of the above

236  
What is the typical power supply voltage for the LPC2148 microcontroller?  
Option\_a: 3.3V  
Option\_b: 5V  
Option\_c: 12V  
Option\_d: 1.8V  
correct\_option: 3.3V

237  
Which debugging technique is most suitable for LPC2148 when using Keil uVision?  
Option\_a: Step-by-step execution  
Option\_b: Breakpoint analysis  
Option\_c: Register inspection  
Option\_d: All of the above  
correct\_option: All of the above

238  
What is the maximum resolution of the timer/counter peripheral in LPC2148?  
Option\_a: 8-bit  
Option\_b: 16-bit  
Option\_c: 32-bit  
Option\_d: 64-bit  
correct\_option: 32-bit

239  
Which of the following peripherals is commonly used to interface a 7-segment display with LPC2148?  
Option\_a: GPIO  
Option\_b: ADC  
Option\_c: PWM  
Option\_d: UART  
correct\_option: GPIO

240  
What is the primary purpose of configuring the PLL (Phase-Locked Loop) in LPC2148?  
Option\_a: To generate higher clock frequencies  
Option\_b: To manage power efficiency  
Option\_c: To control I/O operations  
Option\_d: To optimize GPIO speed  
correct\_option: To generate higher clock frequencies