

1.	<p>In a pulse width modulated system avg. voltage is changed by</p> <ol style="list-style-type: none">Changing the analog signal into digital signal.Changing the duty cycleChanging the sampling rate of the signal.Changing the clock rate of the signal <p>Ans. b (Changing the duty cycle)</p> <p>Justification: In pulse width modulated system the analog signals are represented into digital signal by varying the time duration of high and low (0, 1) voltage. Changing the duty cycle the avg. voltage of the system is changed.</p>
2.	<p>The receiver gets informed about the serial incoming message from the transmitter by:</p> <ol style="list-style-type: none">A start bit denoted by 1 bit of 0 and end bit is denoted by 2 bits of 0.A start bit is denoted by 1 bit of 1 and end bit is denoted by 2 bits of 1.A start bit is denoted by 1 bit of 0 and end bit is denoted by 1 bit of 1.A start bit is denoted by 1 bit of 1 and end bit is denoted by 2 bits of 0. <p>Ans. a (A start bit denoted by 1 bit of 0 and end bit is denoted by 2 bits of 0.)</p> <p>Justification: Data is transmitted from sender to receiver through a TTL line which is in high level in default state. The start bit is denoted by 1 bit of 0 and stop bit is 2 bit of 0.</p>
3.	<p>The value of the key pressed is parsed in Arduino by which command</p> <ol style="list-style-type: none">Serial.readSerial.parseSerial.scanSerial.parseInt <p>Ans. d (Serial.parseInt)</p> <p>Justification: Serial.parseInt command is used to parse the value when a key press event occurs.</p>
4.	<p>The components of interrupt function (attachInterrupt) in Arduino are</p> <ol style="list-style-type: none">Interrupt mode and function of interruptInterrupt mode, Interrupt return and Function of interruptInterrupt pin, interrupt function and interrupt modeInterrupt function, reason of interrupt and interrupt mode <p>Ans. C (Interrupt pin, interrupt function and interrupt mode)</p> <p>Justification: The interrupt function contains three components which are Interrupt pin, interrupt function and interrupt mode. Example: attachInterrupt (0, deEncode, FALLING). Here 0 is the pin number, deEncode is the function and FALLING is the mode of interrupt that means interrupt will work on falling edge.</p>
5.	<p>The keyword used in Arduino to execute a periodic function is:</p> <ol style="list-style-type: none">PeriodEventperiodOnperiodEvery

<p>Ans. d (every) Justification: The keyword used to execute a periodic function in Arduino is every Example: int every (long period, p)</p>
<p>6. In oscillating pulse function (int oscillate ()) the advantage of using 'repeatCount' parameter is:</p> <ol style="list-style-type: none"> It will determine how many times the oscillation will repeat else the oscillation will continue forever It will help to repeat the oscillation else the oscillation will stop It changes the duty cycle accordingly It helps to clear the noise in the pulse <p>Ans. a (It will determine how many times the oscillation will repeat else the oscillation will continue forever) Justification: The 'repeatCount' parameter gives the count of oscillation as input so it does not continue oscillating forever.</p>
<p>7. The function that is used to get the analog signal in Arduino is:</p> <ol style="list-style-type: none"> scanAnalog readAnalog analogRead analogCheck <p>Ans. c (analogRead) Justification: The function 'analogRead' reads the value from the specified analog pin. Arduino boards contain a multichannel, 10-bit analog to digital converter. This means that it will map input voltages between 0 and the operating voltage (5V or 3.3V) into integer values between 0 and 1023.</p>
<p>8. In proportional control, the target value can never be achieved due to an error called:</p> <ol style="list-style-type: none"> Proportional error Projection error Rogue error Steady-state error <p>Ans. d (steady-state error) Justification: In proportional control, the error is known as steady-state error. The magnitude of the error depends on the system gain and will be never zero.</p>
<p>9. Arduino ATmega328 uses the following hardware architecture:</p> <ol style="list-style-type: none"> RISC architecture CISC architecture MISC architecture HISC architecture <p>Ans. a (RISC architecture) Justification: Arduino ATmega328 uses 8-bit RISC architecture</p>
<p>10.</p>

An Arduino ATmega328 has:

- a. 14 digital I/O pins of which 8 provide PWM output
- b. 14 digital I/O pins of which 6 provide PWM output
- c. 16 digital I/O pins of which 8 provide PWM output
- d. 12 digital I/O pins of which 6 provide PWM output

Ans. b (14 digital I/O pins of which 6 provide PWM output)

Justification: An Arduino ATmega328 has 14 digital I/O pins of which 6 provide PWM output.