

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2022  
(Third Semester)

Branch – APPLIED ELECTRONICS

**32 - BIT MICROCONTROLLER**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Compared to an 8-bit, the 32-bit microcontroller take \_\_\_\_\_ instruction cycles to execute a function.  
(i) few (ii) less  
(iii) medium (iv) high
- 2 The GPIOs are grouped as 4 instance GPIO modules, each have \_\_\_\_\_ bits.  
(i) 4 (ii) 8  
(iii) 16 (iv) 32
- 3 \_\_\_\_\_ is an integrated circuit used for RS-232 serial communications.  
(i) UART (ii) 12C  
(iii) SPI (iv) All of the above
- 4 \_\_\_\_\_ Hz is the clock frequency of a timer.  
(i) 40 (ii) 80  
(iii) 120 (iv) 320
- 5 The on-chip PMU includes a set of high-efficiency \_\_\_\_\_.  
(i) DC-DC converters (ii) LDOs  
(iii) reference voltage generators (iv) All of the above

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a State the functional overview of CC32xx.  
OR  
b Illustrate the fault handling of CC32xx.
- 7 a State an overview of DMA controller.  
OR  
b Explain the process of data control.
- 8 a Show the register description of UART.  
OR  
b Discuss about the module initialization of SPI.
- 9 a Analyze the working of ADC module register.  
OR  
b Sketch the timer register and explain its process.
- 10 a Classify the application processor power modes.  
OR  
b State the important features of PRCM.

Cont...

**SECTION -C (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks

(5 x 6 = 30)

- 11 a Elucidate the block diagram of CC32xx with a neat sketch.  
OR  
b Compare the memory model and exception model and list out the findings.
- 12 a Construct the register map of DMA and explain its process.  
OR  
b Analyze the easy steps of initialization and configuration of GPIO.
- 13 a Formulate the steps for register description of UART.  
OR  
b Design the command sequence flowcharts of I2C and assess its importance.
- 14 a Explain why the initialization of timer is very much needed?  
OR  
b Justify the use of peripheral library APIs for ADC.
- 15 a Develop a power management control architecture and explain it in detail.  
OR  
b Classify the PRCM registers and define them.

Z-Z-Z

END