

**PSG COLLEGE OF ARTS & SCIENCE**  
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2026**  
(Sixth Semester)

Branch - **ELECTRONICS**

**PIC MICROCONTROLLER**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks

(10 × 1 = 10)

| Module No. | Question No. | Question                                                                                                                                                     | K Level | CO  |
|------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|
| 1          | 1            | PIC microcontroller can have 8K words x ____ bits of Flash memory<br>(i) 14 (ii) 16<br>(iii) 8 (iv) 32                                                       | K1      | CO1 |
|            | 2            | RISC instructions usually take ____ cycle<br>(i) three<br>(ii) one<br>(iii) four<br>(iv) two                                                                 | K2      | CO1 |
| 2          | 3            | The ____ register is read/write memory used by the CPU for data storage<br>(i) stack<br>(ii) status<br>(iii) file<br>(iv) option                             | K1      | CO2 |
|            | 4            | The stack can only store ____<br>(i) program (ii) data<br>(iii) op.code (iv) addresses                                                                       | K2      | CO2 |
| 3          | 5            | Which command enables the PIC to enter into the power down mode during the operation of watchdog timer?<br>(i) RESET (ii) SLEEP<br>(iii) STATUS (iv) CLR     | K1      | CO3 |
|            | 6            | A Power-on Reset pulse is generated on-chip when VDD ____ is detected<br>(i) rise<br>(ii) falls<br>(iii) stable<br>(iv) float                                | K2      | CO3 |
| 4          | 7            | The MPASM translates the source program in the ____ into machine language<br>(i) file.hex (ii) file.asm<br>(iii) file.doc (iv) file.c                        | K1      | CO4 |
|            | 8            | ____ is a series of words that a programmer writes to make the program more clear and legible<br>(i) Opcode<br>(ii) Mnemonics<br>(iii) Comment<br>(iv) label | K2      | CO4 |
| 5          | 9            | A ____ motor is a brushless synchronous DC motor<br>(i) servo (ii) stepper<br>(iii) AC (iv) DC                                                               | K1      | CO5 |
|            | 10           | An ____ consists of a layer of liquid crystals sandwiched between two transparent electrodes.<br>(i) AMOLED (ii) LCD<br>(iii) OLED (iv) LED                  | K2      | CO5 |

Cont...

**SECTION - B (35 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

| Module No. | Question No. | Question                                                         | K Level | CO  |
|------------|--------------|------------------------------------------------------------------|---------|-----|
| 1          | 11.a.        | Explain the key feature of RISC concepts.                        | K2      | CO1 |
|            | (OR)         |                                                                  |         |     |
|            | 11.b.        | Interpret the Advantages of PIC microcontroller over the others. |         |     |
| 2          | 12.a.        | Illustrate working register of PIC microcontroller.              | K3      | CO2 |
|            | (OR)         |                                                                  |         |     |
|            | 12.b.        | Analyze the Option register in PIC microcontroller.              |         |     |
| 3          | 13.a.        | Discuss the operation of clock oscillators in PIC.               | K4      | CO3 |
|            | (OR)         |                                                                  |         |     |
|            | 13.b.        | Illustrate power down mode / sleep in PIC.                       |         |     |
| 4          | 14.a.        | Brief note on mnemonics, operands, and Comments.                 | K4      | CO4 |
|            | (OR)         |                                                                  |         |     |
|            | 14.b.        | Tell about text strings and numeric constants.                   |         |     |
| 5          | 15.a.        | How to design I2C communication? Discuss it.                     | K2      | CO5 |
|            | (OR)         |                                                                  |         |     |
|            | 15.b.        | Draw and explain DC motor driving via H Bridge.                  |         |     |

**SECTION -C (30 Marks)**

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

| Module No. | Question No. | Question                                                         | K Level | CO  |
|------------|--------------|------------------------------------------------------------------|---------|-----|
| 1          | 16           | Discuss in detail about PIC microcontroller Hardware.            | K4      | CO1 |
| 2          | 17           | Briefly explain the Architecture of 16F877 with a Block Diagram. | K5      | CO2 |
| 3          | 18           | What is the Reset Circuitry in 16F877? Explain it.               | K2      | CO3 |
| 4          | 19           | Criticize the List file format and Error file format.            | K3      | CO4 |
| 5          | 20           | How to interface multichannel ADC with PIC?                      | K3      | CO5 |

Z-Z-Z

END