

Roll No.

3724

B. Tech. 8th Sem. (Electronics & Tele
Communication Engg.)

Examination – May, 2023

EMBEDDED SYSTEM

Paper : PEC-ECE-415-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) What is the difference between microcontroller and microprocessor ? 3
- (b) What do you understand by an interrupt ? Explain briefly. 3

- (c) Explain watch dog timer in PIC microcontroller. 3
- (d) Explain the Program status word register of 8051 microcontroller. 3
- (e) What are the key features of an embedded system? 3

UNIT - I

- 2. Explain in detail the Harvard and Princeton architecture with suitable diagrams. Also give the advantages and disadvantages of both. 15
- 3. (a) What do you mean by the term embedded controllers and external memory controllers? Explain in detail. 8
- (b) Discuss the criteria for selecting a microcontroller device. Also explain the Microcontroller necessary features. 7

UNIT - II

- 4. (a) Explain the concept of pipelining in the PIC microcontroller. 5
- (b) Explain the following instructions of PIC microcontroller : 10
bccf, b incff, F(W) subwff, F(W) retfie movl w, k

5. Draw the block diagram of PIC microcontroller and explain the functioning of each block in detail. 15

UNIT – III

6. (a) Explain the memory organization of 8051 in details and also give brief summary of RAM in that. 5
(b) Write four instructions for each; data transfer group, arithmetic group, logical group and branch group. 10
7. (a) Explain the block diagram of 8051 in detail. 8
(b) Draw a schematic diagram to interface the A/D converter with 8051 microcontroller. 7

UNIT – IV

8. (a) Discuss Embedded System Architecture. 8
(b) How are embedded systems classified? Explain. 7
9. Write a short note on : 15
(a) Interfacing of processor with memory
(b) Structural units in processor

Roll No.

3722

**B. Tech. 8th Sem. (Electronics & Tele
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Examination – May, 2023**

SATELLITE COMMUNICATION

Paper : PCC-ECE-403-G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt any *one* question from each Section. All questions carry equal marks.

1. (a) Give advantages of Satellite Communication. 4
- (b) What are elements of digital Satellite Communication System? 4
- (c) What is Look's angle? 3
- (d) Compare Satellite Communication with Optical Communication. 4

SECTION – A

2. Discuss block diagram of Earth Station. 15

3. Discuss general link design equation and atmospheric and ionospheric effects on link design. 15

SECTION – B

4. Discuss S/N & C/N ratio in frequency modulation in Satellite link. 15
5. Explain modulator and demodulator ckt for MSK. 15

SECTION – C

6. Explain SPADE system. 15
7. Discuss mechanism of launching a satellite. 15

SECTION – D

8. Discuss the following : 15
- (a) INMARSAT
 - (b) VSAT
9. (a) Explain optical satellite link receiver. 8
- (b) Discuss satellite tracking & positioning. 7

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3723

B. Tech. 8th Semester (Electronics & Communication Engineering)
Examination - May, 2023

MICROWAVE THEORY AND TECHNIQUE

Paper : PCC-ECE-404-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 will be *compulsory*. Students have to attempt *five* questions in total, first being *compulsory* and selecting *one* question from each Unit. All questions carry equal marks.

1. (a) What are the various applications of Microwaves ?
2.5
- (b) Explain in detail properties of S Matrix. 2.5
- (c) What is magnetron ? Explain in detail. 2.5

- (d) Explain parametric amplifiers. 2.5
- (e) Explain in detail measurement of SWR. 2.5
- (f) Write a short note on RFID. 2.5

UNIT – I

2. (a) Explain in detail the history of electromagnetic waves. What are the advantages of microwaves? 7.5
- (b) Explain in detail the propagation of TM waves in Rectangular waveguide. 7.5
3. (a) Explain in detail the characteristic impedance of rectangular waveguide. 7.5
- (b) What are planer transmission lines? Also discuss the cutoff frequency of a waveguide 7.5

UNIT – II

4. (a) Explain in detail hybrid or magic Tee. Find out the measurement of impedance using magic Tee. 7.5
- (b) What are Directional Couplers ? Explain the coupling factor and Directivity of it. 7.5
5. (a) Explain in detail crossed field amplifiers. 7.5
- (b) Explain the Construction, Operation and properties of Klystron amplifier. 7.5

UNIT – III

6. (a) Explain the V-I Characteristics and Doping profiles of Varactor Diode. 7.5
- (b) Explain in detail IMPATT and TRAPATT. 7.5
7. (a) Explain in detail frequency wavelength and impedance. 7.5
- (b) Explain the working and construction of Microwave bridges. 7.5

UNIT – IV

8. (a) Explain in detail free space radar range equation. What is Maximum radar range ? Derive the expression for it. 7.5
- (b) What are Modern Trends in Microwaves Engineering ? Also explain the Effect of Microwaves on human body. 7.5
9. (a) Differentiate between Electromagnetic interference and Electromagnetic Compatibility. 7.5
- (b) Explain in detail Monolithic Microwave ICs. 7.5

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3727

B. Tech. 8th Semester (Electronics &
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Examination – May, 2023

RENEWABLE ENERGY RESOURCES

Paper : OEC-ECE-417-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

1. (i) Name the renewable energy sources explain them in brief. $3.75 \times 4 = 15$
- (ii) What are the major function of solar thermal application and explain the solar pond ?
- (iii) Discuss the disadvantages of Geothermal Plant.
- (iv) Distinguish Wind Turbine and Wind Generator.

UNIT - I

2. Explain the working principle of flat plate collector with neat diagram. 15

3. Write short notes on :

(i) Magneto-hydrodynamics $7\frac{1}{2}$

(ii) Thermal energy storage for solar heating and cooling. $7\frac{1}{2}$

UNIT - II

4. Explain the working principle of MHD power plant. Discuss its performance and limitation. 15

5. Explain the working principle of various fuel cell. 15

UNIT - III

6. What is the basic principle of ocean thermal energy conversion ? What are the main types of OTEC Power Plants ? Describe their working. 15

7. Write short notes on :

(i) Thermodynamics of Geothermal Energy. $7\frac{1}{2}$

(ii) Environmental Consideration of Geothermal Energy. $7\frac{1}{2}$

UNIT - IV

8. Explain in detail the wave energy conversion by floats. 15
9. Write short notes on :
- (i) OETC 5
 - (ii) Differentiate b/w wave and tidal energy. 5
 - (iii) Application of Hydrogen. 5
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