

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRICAL AND ELECTRONICS ENGINEERING
Sixth Semester
EMBEDDED SYSTEMS

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What are the disadvantages of embedded system?
- 2 Define embedded microcontroller.
- 3 Expand a) SPI b) SCI
- 4 Explain briefly about PCI and PCI/X buses.
- 5 List out some 'Include' header files used in 'C' language in embedded system?
- 6 What are the advantages of building ISR queues?
- 7 What is a Semaphore?
- 8 What is Router?
- 9 Define process.
- 10 What is Priority inversion?

PART-B (5 x 16 = 80)

- 11 a. Explain the software tools in designing of embedded system.
OR
b. What are the Challenges in Embedded systems?
- 12 a. Explain Master output slave input (MOSI) and Master input slave output (MISO).
OR
b. Explain Asynchronous Serial Output.
- 13 a. Explain in detail object oriented language and c++?
OR
b. Explain concept and embedded system programming in c, c++.
- 14 a. Write the program for code for simple bridge?
OR
b. Write the program for round robin method, code for digital multi meter?
- 15 a. Explain threads and tasks.
OR
b. Explain RTOS System level functions, Task Service functions, Time Delay functions, and Memory related functions.

VINAYAKA MISSIONS RESEARCH FOUNDATION
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B.E. (PART TIME) DEGREE EXAMINATIONS -FEB - 2021
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
MEDICAL ELECTRONICS
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is electrode potential?
- 2 What is electroencephalography?
- 3 What is pH of blood?
- 4 Give the difference between RBC and WBC.
- 5 What is counter shock?
- 6 What are dialyzer and its types?
- 7 What are the types of biotelemetry?
- 8 What are the components of diagnostic x-ray machine?
- 9 What is mean by Cardiotocograph?
- 10 Differentiate micro shock and macro shock.

PART-B (5 x 16 = 80)

- 11 a. With a neat block diagram explain the working of an ECG recorder.
OR
b. Short notes on
 - (i) Electrooculograph
 - (ii) Phonocardiograph
- 12 a. Explain about ultrasonic Doppler blood flow meter.
OR
b. Explain about coulter counters method of blood cell counting
- 13 a. Discuss about Artificial Valves and its types.
OR
b. Elaborate the Classification of Ventilators
- 14 a. Explain about Single channel biotelemetry system.
OR
b. Discuss about the Radio-Isotopes in medical diagnosis.
- 15 a. Elucidate the principle of surgical diathermy.
OR
b. Discuss about the system concepts of Patient Monitoring systems.

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRICAL AND ELECTRONICS ENGINEERING
Sixth Semester
MICROCONTROLLER & APPLICATIONS
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is the position of the Stack Pointer after the PUSH instruction?
- 2 Define instruction pipelining.
- 3 What are the features used in mode 2 in 8255?
- 4 What are the modes used in display modes?
- 5 Define DPTR of 8051.
- 6 If a 12 Mhz crystal is connected with 8051, how much is the time taken for the count in timer 0 to get incremented by one?
- 7 Write a program to subtract the contents of R1 of Bank0 from the contents of R0 of Bank2.
- 8 What are the data transfer instructions present in 8051 microcontroller?
- 9 Mention some few points of interfacing microcomputer ports to high-power devices.
- 10 List any applications of microcontroller.

PART-B (5 x 16 = 80)

- 11 a. Describe the logical and branching instruction set of 8086 with examples.

OR

b. Explain in detail about Assembler Directives in 8086.
- 12 a. With a neat diagram explain the function of 8253.

OR

b. With neat diagram explain the D/A Convertor using 8086.
- 13 a. Explain in detail about the special function registers available in 8051

OR

b. With a neat sketch, explain in detail about SCON
- 14 a. Describe the various addressing modes in 8051.

OR

b. Discuss about Logical & control transfer instruction set of 8051 with examples.
- 15 a. Discuss on ADC interfacing with a neat diagram.

OR

b. Write an assembly language program ADC interfacing using 8051 microcontroller.

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB - 2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
ELECTIVE – SATELLITE COMMUNICATION & BROADCASTING
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Brief about Newton's third law.
- 2 Define true anomaly.
- 3 State Transponder.
- 4 Define Feeder Losses.
- 5 Define Yaw.
- 6 What is an zero 'g'?
- 7 Mention the types of CDMA.
- 8 Define FDMA.
- 9 Write the types of satellite services.
- 10 What is DBS?

PART-B (5 x 16 = 80)

- 11 a. Explicate about Geo-stationary orbit.

OR

- b. Elaborate about inclined orbits.

- 12 a. Describe briefly the combined uplink and downlink C/N ratio

OR

- b. Illustrate the effect of rain with uplink & downlink rain-fade margin

- 13 a. Enumerate the function of CATV with neat diagram.

OR

- b. Elucidate and draw the block diagram of MATV system.

- 14 a. Elaborate on Spectrum spreading and despreading and how this is used to minimize interference in a CDMA system. Determine the throughput efficiency of the system.

OR

- b. Explain downlink analysis for digital transmission system. Compare uplink power requirements for FDMA and TDMA.

- 15 a. Write detail notes on VSAT.

OR

p.t.o

- b. Write short notes on:
 - a) Satellite Internet access.
 - b) Satellite E-mail service

Sl.No. 4058 D

VINAYAKA MISSIONS RESEARCH FOUNDATION
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B.E. (PART TIME) DEGREE EXAMINATIONS -FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
ELECTIVE - TOTAL QUALITY MANAGEMENT
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Mention the Major objectives of quality planning.
- 2 Mention any four duties and responsibilities of the quality council.
- 3 Service quality – Explain its importance.
- 4 List the four characteristics of a successful team.
- 5 Give the merits of Pareto diagram.
- 6 Mention the importance of six sigma.
- 7 Performance efficiency - Explain.
- 8 List the main objectives of FMEA.
- 9 Define the term quality audit.
- 10 Mention ISO 9000: 2000 quality management principles.

PART-B (5 x 16 = 80)

- 11 a. Enlighten the habits of successful people according to Stephen Covey.
OR
b. Describe the process of strategic planning and state its importance.
- 12 a. Describe the Juran Trilogy in detail with diagram.
OR
b. Discuss the various steps in the development of performance appraisal system.
- 13 a. Describe 7 new tools of quality management with diagram.
OR
b. Write a detailed note on measures of central tendency and dispersion.
- 14 a. Discuss in detail the quality function development with suitable diagram.
OR
b. a) List out the benefits of the FMEA.
b) Discuss the different types of FMEA.
- 15 a. Explain the various stages of quality auditing.
OR
b. Discuss the various elements of ISO-14000 standards with diagram.

Sl.No.

SUBJECT CODE: 334717602

VINAYAKA MISSIONS RESEARCH FOUNDATION
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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Sixth Semester
WIRELESS COMMUNICATION
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Define Frequency Reuse.
- 2 Define Multipath Propagation.
- 3 Mention the applications of Channel models.
- 4 Define Coherence Time.
- 5 Mention the significance of Signal Space diagram.
- 6 Draw the diagram of Spectrum of a Raised Cosine Pulse.
- 7 Define Simulcast.
- 8 List the Stochastic models of Speech
- 9 Mention the essential properties to determine the Quality of Spreading codes.
- 10 Mention the Modulation format & Carrier distance in GSM.

PART-B (5 x 16 = 80)

- 11 a. Explain how a Cellular telephone call is initiated by Landline customer with suitable Timing diagrams.

OR

- b. Discuss Link Budget for a Mobile Radio system with a suitable example & diagram.

- 12 a. Elaborate on Time-Variant Two-Path Model.

OR

- b. Discuss about Parameters of Mobile Multipath Channel

- 13 a. Discuss on transmission & reception of MSK technique with neat diagram.

OR

- b. Elaborate on generation & receiver of GMSK technique with necessary diagrams.

- 14 a. Discuss on Combining Diversity with available methods.

OR

- b. Discuss about principles of Convolutional Codes.

- 15 a. Discuss the principle of Cyclic prefix. Explain its implication in OFDM Transceiver.

OR

- b. Discuss the various services offered by GSM

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
ELECTIVE - ADVANCED MICROCONTROLLER
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is segment register?
- 2 What is load effective address
- 3 Define File Pointer.
- 4 Difference between Assembly language with C/C++ for 16 bit & 32 bit applications.
- 5 Define BRDY Pentium.
- 6 Draw the structure Pentium II Cartridges.
- 7 List the Interrupt sources available in 8096.
- 8 Define HSI FIFO
- 9 Mention the possibilities to predict the behavior of a system.
- 10 What are the two compare instructions in ARM..

PART-B (5 x 16 = 80)

- 11 a. With neat diagram, explain the Data Addressing modes and their types

OR

- b. Explain the Stack memory addressing modes.

- 12 a. Write the short notes

- i) Conversion from Binary to ASCII
- ii) Conversion from ASCII to Binary
- iii) Displaying and Reading Hexadecimal

OR

- b. Explain separate assembly objects.

- 13 a. Explain internal structure of the Pentium pro.

OR

- b. Write the short notes

- i) CPUID instruction
- ii) SYSENTER and SYSEXIT instructions.
- iii) FXSAVE and FXRSTOR instructions.

- 14 a. Explain Interrupt priority programming.

OR

- b. Explain High speed inputs

- 15 a. Explain Pipeline hazards.

OR

b. Elaborate ARM registers.

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Fifth Semester
RF AND MICROWAVE ENGINEERING
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 State any two properties of S-matrix.
- 2 Why S- matrix is used in microwave analysis?
- 3 List out the performance parameters of a directional coupler.
- 4 What are the types of waveguide tees?
- 5 What is transit time?
- 6 What is π -mode of operation?
- 7 Compare Tunnel diode with Avalanche Devices.
- 8 Name the two types of hybrid ICs
- 9 Name any two techniques used to measure the dielectric constant of a solid.
- 10 Write the formula to convert power in watts to power in dBs.

PART-B (5 x 16 = 80)

- 11 a. With suitable diagrams discuss the working of a satellite transponder and a ground station.

OR

b. Discuss about Radio Frequency bands and explain its uses.
- 12 a. Explain the working principle of Magic Tee with suitable diagram

OR

b. Obtain the S-matrix of a Magic Tee.
- 13 a. Derive the expression for the optimum distance, power output and efficiency of a two cavity klystron amplifier.

OR

b. A two cavity klystron amplifier has the following parameters:
 $V_0=1000$ V; $R_0=35K\Omega$; $I_0=20$ mA; $f=3$ GHz
Gap spacing in either cavity, $d=1$ mm; spacing between the two cavities, $L = 4$ cm;
Effective shunt impedance, excluding beam loading, $R_{sh}=30K\Omega$.
i).Find the input gap voltage to give maximum voltage V_2 .
ii).Find the voltage gain, neglecting the beam loading in the output cavity.
iii). Find the efficiency of the amplifier, neglecting beam loading
- 14 a. Elucidate the equivalent circuit of a parametric amplifier.

OR

- b. Explain any four techniques used in fabrication of MMICs.
- 15 a. Discuss the method of measuring high microwave power.

OR

- b. Discuss with relevant expressions, measurement of antenna gain using (i) two antenna method (ii) Three antenna method.

Sl.No. 4019 D

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
ELECTIVE - WIRELESS SENSOR NETWORKS
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Brief on the application of WSN in disaster relief operations.
- 2 Brief on the programmability of a WSN.
- 3 State the function of RF front end in a transceiver
- 4 Brief on energy scavenging through vibrations in WSNs
- 5 What are the factors that influence the design of physical layer?
- 6 Define data centric network.
- 7 What are the roles of cluster heads?
- 8 What is Time difference of Arrival?
- 9 Define dedicated embedded sensor nodes.
- 10 Define design methodologies.

PART-B (5 x 16 = 80)

- 11 a. Describe the application examples of WSNs
OR
b. Describe in details about vision of ambient Intelligence.
- 12 a. Elaborate on the power supply of sensor nodes
OR
b. Elaborate on the service interfaces of WSNs
- 13 a. Explain contention based protocols & schedule based protocols
OR
b. Elaborate on IEEE 802.15.4 MAC protocol.
- 14 a. Explain range based localization algorithms
OR
b. Elaborate on the possible approaches to localization and positioning
- 15 a. Explain node level simulators
OR
b. Elaborate on the advanced in-network processing

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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Seventh Semester
RFID

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 Write the Advantage of RFID technology.
- 2 Define Coupling.
- 3 Define EPC codes.
- 4 Define Safeguards.
- 5 Define EPC.
- 6 What is mean by Current limitation of WID systems?
- 7 Define AIT.
- 8 What are the best practices guidelines used for the RFID library?
- 9 Write the use of proximity card.
- 10 Write the some problems in RFID security.

PART-B (5 x 16 = 80)

- 11 a. Describe briefly about the elements of RFID system.
OR
b. Explain about the antenna and ratio & network technology in RFID system.
- 12 a. Describe the current state of RFID Policy.
OR
b. Explain about the history of FIPS.
- 13 a. Discuss in detail about the authentication of users across the supply chain (Federation).
OR
b. Elaborate identifiable reader in designing and modifying WID systems with neat diagram.
- 14 a. Explain in detail about RFID in health care with real time examples.
OR
b. Explain in details about the RFID in US Libraries.
- 15 a. Give a detail about the Bluetooth's background.
OR
b. Write short notes on:
a) Locational surveillance b) Bluesnarfing

VINAYAKA MISSIONS RESEARCH FOUNDATION
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B.E. (PART TIME) DEGREE EXAMINATIONS - FEB-2022
ELECTRONICS AND COMMUNICATION ENGINEERING
Second Semester
ELECTRO MAGNETIC THEORY
(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 List the sources of electric field and magnetic field
- 2 Write expression for differential length in cylindrical and spherical co-ordinates.
- 3 State Gauss's law
- 4 Define 'Dielectric Polarization'.
- 5 Define magnetic susceptibility.
- 6 Describe Magnetic vector potential.
- 7 Write short notes on mutual inductance.
- 8 What is permeance?
- 9 Describe intrinsic impedance
- 10 Describe circular polarization

PART-B (5 x 16 = 80)

- 11 a. Show that $A.(B*C)=B.(C*A)=C.(A*B)$

OR

- b. State and prove stokes theorem

- 12 a. Derive and obtain the Poisson's and Laplace's equation

OR

- b. The capacitance of a condenser formed by two parallel metal sheets, each 100cm² in area separated by a dielectric 2mm thick is 2×10^{-4} F. A potential of 20 KV is applied.

Find

- a) the electric flux
- b) potential gradient in KV/cm
- c) the relative permittivity of the material and
- d) the electric flux density

- 13 a. Obtain the expression for magnetic field intensity at any points due to infinitely straight conductor.

OR

- b. Derive the expression for
- a) Inductance of Toroid.
 - b) Inductance of co-axial cable.

- 14 a. State Maxwell's equation and obtain them in differential form.

(P.T.O)

OR

- b. Drive the Maxwell's equation from faraday's law and explain
- 15 a. Show that the intrinsic impedance for free space is 120. derive the necessary equation

OR

- b. Write short notes on
 - i) Uniform plane wave
 - ii) Write the derivative equation for uniform plane wave

Sl.No. 4004 D