

Code No. : 20163 E Sub. Code : SMEL 52/  
AMEL 52

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics — Core

MEDICAL ELECTRONICS

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The active transducer used for the measurement of pressure is \_\_\_\_\_  
 (a) Piezo electric transducer  
 (b) Seeback effect  
 (c) Capacitive effect  
 (d) Inductive effect

2. When the force is applied on a crystal the potential charges? This is called \_\_\_\_\_  
 (a) Piezo electric effect  
 (b) Seeback effect  
 (c) Capacitive effect  
 (d) inductive effect
3. The blood contains \_\_\_\_\_  
 (a) RBC  (b) WBC  
 (c) Platelets  (d) All the above
4. The red blood cells used to provide \_\_\_\_\_  
 (a) fuel supply  (b) immune power  
 (c) pressure  (d) none
5. The brain wave with frequencies between 8 and 13 Hz and amplitude of 50  $\mu$  V are called  
 (a) spike  (b) alpha waves  
 (c) beta waves  (d) theta waves
6. In ECG the calibration signal amplitude is \_\_\_\_\_  
 (a) 1 mv  (b) 1 v  
 (c) 1.5 mv  (d) 0.5 mv

7. The level of consciousness can be followed by means of the \_\_\_\_\_  
 (a) ECG  (b) EEG  
 (c) EMG  (d) ERG
8. Internal defibrillator voltage range is \_\_\_\_\_  
 (a) 60 V – 250 V  (b) above 250  
 (c) below 250 V  (d) 250 V
9. The wavelength used in short wave diathermy \_\_\_\_\_  
 (a) 11 meters  (b) 12 meters  
 (c) 10 meters  (d) 5 meters
10. The more powerful chamber of the heart  
 (a) Left ventricle  (b) Right ventricle  
 (c) Right atrium  (d) Left atrium

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is a bio electric potentials? Explain it.  
 Or  
 (b) Compare the resting potential and action potential of a living cell.

12. (a) Explain the method of blood pressure measurement.  
 Or  
 (b) Write short notes on plethysmography with diagram.
13. (a) How the heart sound is measured? Explain it.  
 Or  
 (b) Write note on cardio vascular system.
14. (a) What are the diagnosis calibration of monitoring system?  
 Or  
 (b) What are the applications of telemetry?
15. (a) Write a note on bio telemetry components.  
 Or  
 (b) What is an imaging system? Explain it.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) What are the bio medical applications of transducers?

Or

- (b) Explain the measurement of bio-potentials with two electrodes.

17. (a) What are all the characteristics of blood flow measurement?

Or

- (b) Explain the problems encountered in ECG recorder.

18. (a) Explain the reparability of patient monitoring equipment.

Or

- (b) Mention the block diagram of intensive care mentoring system.

19. (a) What are the bio feedback instrumentation? Explain it in detail.

Or

- (b) Explain the physiological parameters of measurements.

20. (a) Explain the functions of magnetic resonance imaging system with diagram.

Or

- (b) Write the functions of CT scanner with block diagram.
-

Code No. : 20347 E Sub. Code : AMEL 51/ AMELS 51

B.Sc.(CBCS) DEGREE EXAMINATION, NOVEMBER 2022

Fifth Semester

Electronics/Electronics and Communication - Core

ADVANCED MICROPROCESSORS

(For those who joined in July 2020 onwards)

Time : Three hours Maximum : 75 marks

PART A - (10 x 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. Division can be implemented using instructions. (a) Subtract (b) Rotate left (c) Rotate right (d) Jump
2. Which of the following instruction will alter the contents of flag register alone? (a) CMP (b) ORA,B (c) ADD B (d) SUB B

- 3. How many modes are available in 8255 when it is in I/O mode? (a) 3 (b) 2 (c) only one (d) 4
4. Number of interrupts available in IC 8259A is (a) 8 (b) 4 (c) 9 (d) only one
5. The internal ROM capacity of 8051 microcontroller is (a) 4KB (b) 8KB (c) 12Kb (d) 16Kb
6. Which port of 8051 microcontroller is dedicated I/O port? (a) P3 (b) P2 (c) P0 (d) P1
7. The maximum external memory that can be accessed by the 8051 microcontroller is (a) 4K (b) 8K (c) 16K (d) 64K

- 8. When the PSEN pin of 8051 is low then it means that it access (a) Internal data memory (b) External program memory (c) Internal program memory (d) External data memory
9. The SWAP instruction is applicable for only register (a) C (b) B (c) A (d) D
10. The no. of lines for display purpose is 2x16 LCD display is (a) 2 (b) 16 (c) 1 (d) 4

PART B - (5 x 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- 11. (a) What are the Data transfer instructions in 8085 microprocessor? Or (b) Explain the I/O and Machine control instruction.

- 12. (a) Describe the role of HOLD and HLDA signals in working of DMA controller. Or (b) Explain the priority modes implementation in 8259 A.
13. (a) Write a note on 8051 microcontroller oscillator and clock. Or (b) Explain the various special function register associated with timer/counter.
14. (a) Write a note on CALL and RET instruction with example. Or (b) Write a note on subroutine programs in 8051 microcontroller.
15. (a) How LCD interfaced with 8051 microcontroller? Explain. Or (b) Write a 8051 microcontroller program for smallest number in an array.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the branching instructions with example in 8085 Microprocessor. *5-5*

Or *8-3*

(b) Draw the pin diagram of 8085 Microprocessor and explain its various pin functions.

17. (a) How a stepper motor can be interfaced with the 8085 microprocessor?

Or

(b) With necessary diagrams explain the microprocessor based traffic controller?

18. (a) What is meant by interrupt and how it is organized in 8051 microcontroller?

Or

(b) Draw the External Memory connection circuit with 8051 and explain it in detail.

19. (a) How the ports can be expanded using memory mapped i/o in 8051?

Or

(b) Explain the range of branch instruction to jump in various addressing techniques.

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20. (a) Write a program for 8 bit addition in 8051 microcontroller.

Or

(b) Write a program for 8 bit division in 8051 microcontroller.

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*2*  
*2*

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*Part - 3*

*Expt - 3*

*End - 2*

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Reg. No. : 20203151509241

Code No.: 20349 E

Sub. Code: AMEL 54

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics – Core

COMMUNICATION SKILLS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is used in the optical fiber for total internal reflection?
- (a) Core (b) Cladding  
(c) Both (a) and (b) (d) Only light is enough

2. In which of the following are the optical fibers commonly used?
- (a) Communication  
(b) Electrical transformers  
(c) Musical Instruments  
(d) Nuclear Reactors
3. Mobile communication is built with
- (a) Protocols (b) Speed  
(c) Services (d) All the above
4. Which of the following are the examples of mobile communication systems?
- (a) Cellular phones (b) Cordless phones  
(c) Both (a) and (b) (d) None of the above
5. Subscriber telephone in the PSTN are connected through \_\_\_\_\_ to end offices.
- (a) Regional offices (b) Local loops  
(c) Repeaters (d) Toll

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6. Which of the following are the features of mobile communication?
- (a) High load balancing capacity  
(b) Highly scalable  
(c) Good network management system  
(d) All of the above mentioned
7. What is frequency reuse?
- (a) Process of selecting and allocating channels  
(b) Process of selection of mobile users  
(c) Process of selecting frequency of mobile  
(d) Process of selection of number of cells
8. What is a 'cell' in cellular system?
- (a) A group of cells  
(b) A group of subscribers  
(c) A small geographical area  
(d) A large group of mobile systems
9. A typical satellite link involves in \_\_\_\_\_ of a signal from an earth station to a satellite.
- (a) Uplinks (b) Downlinks  
(c) Both (a) and (b) (d) None of the above

10. Which of the following are the disadvantages of satellite communication?
- (a) Is a cost effective procedure  
(b) It may block frequencies  
(c) There is a chance for signal interference  
(d) All the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Mention the advantages of fiber optic cables.
- Or
- (b) Discuss briefly about the operations of light emitting diode.
12. (a) Write about the basic call procedures of telephone.
- Or
- (b) Explain electronic telephone system with necessary diagram.
13. (a) Describe the step-by step switching.
- Or
- (b) Give the concept of electronics private automated exchange system.

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[P.T.O.]

14. (a) Write short note on cellular telephone.

Or

(b) Write briefly about 'Roaming' and 'Hand off' in cellular telephone system.

5. (a) Briefly explain the Kepler Laws.

Or

(b) Give an account on the classifications of satellite in communication.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain in detail the Snell's law for refraction of light.

Or

(b) Elaborately discuss about the light detectors.

17. (a) With suitable diagram explain the cordless telephone.

Or

(b) Discuss in detail about the functions of a telephone set.

18. (a) Explain in detail about Co-Channel and Adjacent channel interferences.

Or

(b) Write in detail about communication protocol.

19. (a) Discuss in detail about telephone switching system.

Or

(b) Explain Trunk circuits and Exchanges.

20. (a) Explain in detail about Geosynchronous satellites.

Or

(b) Discuss in detail about satellite system link models.

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AMES 53

B.Sc.(CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics/Electronics and Communication – Core

INTERNET OF THINGS (IOT) BASED  
APPLICATIONS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which of the following is used to reprogram a Bootloader in IoT devices?  
(a) VHDL programming  
(b) IDE  
(c) ICSP  
(d) MANET

2. How many numbers of elements in the Open IoT Architecture?

- (a) 3 elements (b) 7 elements  
(c) 8 elements (d) 6 elements

3. IoT-A stands for \_\_\_\_\_

- (a) Internet of Things Area  
(b) Industrial of things Architecture  
(c) Internet of Things Address  
(d) Internet of Things Architecture

4. Which of the following protocol is used to link all the devices in the IoT?

- (a) HTTP (b) UDP  
(c) Network (d) TCP/IP

5. What is the component of an IoT system that executes a program?

- (a) A sensor  
(b) A microcontroller  
(c) An actuator  
(d) A digital to analog converter

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6. What IoT collects?

- (a) Device data  
(b) Machine generated data  
(c) Sensor data  
(d) Human generated data

7. Which of the following is false about IoT devices?

- (a) IoT devices use the internet for collecting data  
(b) IoT devices need microcontrollers  
(c) IoT devices use wireless technology  
(d) IoT devices are completely safe

8. What is the full form of IIOT?

- (a) Index Internet of Things  
(b) Incorporate Internet of Things  
(c) Industrial Internet of Things  
(d) Intense Internet of Things

9. Which of the following is false about the IoT components?

- (a) A light sensor is an analog sensor  
(b) A microphone is a digital sensor  
(c) A push button is a digital sensor  
(d) A keyboard is a digital sensor

10. Which library is used to access I2C in Arduino IoT devices?

- (a) EEPROM (b) Wire  
(c) DHT11 (d) ArduinoJson

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What are the components of IoT eco systems?

Or

(b) What are the 4 elements of IoT?

12. (a) Differentiate between data and information in IoT.

Or

(b) List out the I/O interfaces used in IoT.

13. (a) What is a sensor in an IoT device?

Or

(b) What is a thermocouple sensor?

14. (a) Give short notes on role of microcontroller in IoT.

Or

(b) Explain about the operation of microcontrollers in IoT.

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15. (a) Write short notes on the Arduino IDE.

Or

(b) Explain the display the data on LCD with its block diagram in Arduino.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Define IoT. Identify and explain in detail about IoT.

Or

(b) Explain the physical and logical design of IoT in detail.

17. (a) Briefly explain about the process flow of an IoT application.

Or

(b) Explain the important feature of thermostat in refrigerator.

18. (a) What are different types of actuators?

Or

(b) What are different types of sensors in IoT explain?

19. (a) Compare the difference between microprocessor and microcontroller.

Or

(b) Give the different types of microcontrollers in embedded ecosystem.

20. (a) What are steps in writing, compiling, debugging and uploading the file Arduino.

Or

(b) List out the role of serial monitor in Arduino Programming.



B.Sc.(CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics/Electronics and Communication – Core

INTERNET OF THINGS (IOT) BASED  
APPLICATIONS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which of the following is used to reprogram a Bootloader in IoT devices?
  - (a) VHDL programming
  - (b) IDE
  - (c) ICSP
  - (d) MANET

- How many numbers of elements in the Open IoT Architecture?
  - (a) 3 elements
  - (b) 7 elements
  - (c) 8 elements
  - (d) 6 elements
- IoT-A stands for \_\_\_\_\_
  - (a) Internet of Things Area
  - (b) Industrial of things Architecture
  - (c) Internet of Things Address
  - (d) Internet of Things Architecture
- Which of the following protocol is used to link all the devices in the IoT?
  - (a) HTTP
  - (b) UDP
  - (c) Network
  - (d) TCP/IP
- What is the component of an IoT system that executes a program?
  - (a) A sensor
  - (b) A microcontroller
  - (c) An actuator
  - (d) A digital to analog converter

- What IoT collects?
  - (a) Device data
  - (b) Machine generated data
  - (c) Sensor data
  - (d) Human generated data
- Which of the following is false about IoT devices?
  - (a) IoT devices use the internet for collecting data
  - (b) IoT devices need microcontrollers
  - (c) IoT devices use wireless technology
  - (d) IoT devices are completely safe
- What is the full form of IIOT?
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- Which of the following is false about the IoT components?
  - (a) A light sensor is an analog sensor
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  - (d) A keyboard is a digital sensor

- Which library is used to access I2C in Arduino IoT devices?
  - (a) EEPROM
  - (b) Wire
  - (c) DHT11
  - (d) ArduinoJson

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

- What are the components of IoT eco systems?  
Or  
What are the 4 elements of IoT?
- Differentiate between data and information in IoT.  
Or  
List out the I/O interfaces used in IoT.
- What is a sensor in an IoT device?  
Or  
What is a thermocouple sensor?
- Give short notes on role of microcontroller in IoT.  
Or  
Explain about the operation of microcontrollers in IoT.

15. (a) Write short notes on the Arduino IDE.

Or

(b) Explain the display the data on LCD with its block diagram in Arduino.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Define IoT. Identify and explain in detail about IoT.

Or

(b) Explain the physical and logical design of IoT in detail.

17. (a) Briefly explain about the process flow of an IoT application.

Or

(b) Explain the important feature of thermostat in refrigerator.

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(b) List out the role of serial monitor in Arduino Programming.

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B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Electronics — Core

MEDICAL ELECTRONICS

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. The active transducer used for the measurement of pressure is \_\_\_\_\_
  - (a) Piezo electric transducer
  - (b) Seeback effect
  - (c) Capacitive effect
  - (d) Inductive effect

- 2. When the force is applied on a crystal the potential charges? This is called \_\_\_\_\_
  - (a) Piezo electric effect
  - (b) Seeback effect
  - (c) Capacitive effect
  - (d) inductive effect
- 3. The blood contains \_\_\_\_\_
  - (a) RBC
  - (b) WBC
  - (c) Platelets
  - (d) All the above
- 4. The red blood cells used to provide \_\_\_\_\_
  - (a) fuel supply
  - (b) immune power
  - (c) pressure
  - (d) none
- 5. The brain wave with frequencies between 8 and 13 Hz and amplitude of 50  $\mu$  V are called
  - (a) spike
  - (b) alpha waves
  - (c) beta waves
  - (d) theta waves
- 6. In ECG the calibration signal amplitude is \_\_\_\_\_
  - (a) 1 mv
  - (b) 1 v
  - (c) 1.5 mv
  - (d) 0.5 mv

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- 7. The level of consciousness can be followed by means of the \_\_\_\_\_
  - (a) ECG
  - (b) EEG
  - (c) EMG
  - (d) ERG
- 8. Internal defibrillator voltage range is \_\_\_\_\_
  - (a) 60 V – 250 V
  - (b) above 250
  - (c) below 250 V
  - (d) 250 V
- 9. The wavelength used in short wave diathermy \_\_\_\_\_
  - (a) 11 meters
  - (b) 12 meters
  - (c) 10 meters
  - (d) 5 meters
- 10. The more powerful chamber of the heart
  - (a) Left ventricular
  - (b) Right ventricular
  - (c) Right atrium
  - (d) Left atrium

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- 11. (a) What is a bio electric potentials? Explain it.
 

Or

- (b) Compare the resting potential and action potential of a living cell.

- 12. (a) Explain the method of blood pressure measurement.
 

Or

  - (b) Write short notes on plythysmography with diagram.
- 13. (a) How the heart sound is measured? Explain it.
 

Or

  - (b) Write note on cardio vascular system.
- 14. (a) What are the diagnosis calibration of monitoring system?
 

Or

  - (b) What are the applications of telemetry?
- 15. (a) Write a note on bio telemetry components.
 

Or

  - (b) What is an imaging system? Explain it.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) What are the bio medical applications of transducers?

Or

- (b) Explain the measurement of bio-potentials with two electrodes.

17. (a) What are all the characteristics of blood flow measurement?

Or

- (b) Explain the problems encountered in ECG recorder.

18. (a) Explain the reparability of patient monitoring equipment.

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- (b) Mention the block diagram of intensive care mentoring system.

19. (a) What are the bio feedback instrumentation? Explain it in detail.

Or

- (b) Explain the physiological parameters of measurements.

20. (a) Explain the functions of magnetic resonance imaging system with diagram.

Or

- (b) Write the functions of CT scanner with block diagram.
- \_\_\_\_\_

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Code No. : 20445 E Sub. Code : CSEL 31

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Electronics

Skill Based Subject — CONSUMER ELECTRONIC  
APPLIANCE

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. DES stands for \_\_\_\_\_
- (a) Dual Wave Energy System  
(b) Dual Wave Emission System  
(c) Double Wave Energy System  
(d) Double Wave Emission System

2. The combination of microwave and conventional ovens are called as \_\_\_\_\_ of cooking.
- (a) 3D mode (b) Reverse mode  
(c) multi grill mode (d) Como mode
3. To wash the clothes \_\_\_\_\_ rpm is required in the drum.
- (a) 90 rpm 0 (b) 60 rpm  
(c) 30 rpm (d) 70 rpm
4. The motor power is determined by timing of the \_\_\_\_\_ firing pulse.
- (a) SCR (b) Triac  
(c) UJT (d) None of these
5. A natural \_\_\_\_\_ is the atmospheric air.
- (a) Rain (b) Cloud  
(c) Heat sink (d) Pressure
6. The refrigerant losses \_\_\_\_\_ going through the flow control device.
- (a) pressure (b) cooling  
(c) heat (d) none of these

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7. The numbers are shifted in and out of the register \_\_\_\_\_ at a time.

- (a) one digit (b) two digit  
(c) three digit (d) four digit

8. The charged photoconductor must be kept in the \_\_\_\_\_ to prevent discharge.

- (a) Light  
(b) Neither in light or in dark  
(c) Dark  
(d) None of these

9. The time division is \_\_\_\_\_

- (a) Digital  
(b) Analog  
(c) Both analog and digital  
(d) TDM

10. The packet switches use this principle \_\_\_\_\_

- (a) Stop and wait (b) Store and forward  
(c) Store and wait (d) Stop and forward

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Describe the single chip controllers with neat diagram.

Or

- (b) Recall the given terms :  
(i) Microwave cooking  
(ii) Care and cleaning.

12. (a) Examine the important terms in washing machine hardware.

Or

- (b) Discuss about the features of washing machines.

13. (a) Assess the process of air condition and various elements to control.

Or

- (b) Criticize the refrigerants used in refrigerators.

14. (a) Review the basic operation performed by calculator.

Or

- (b) Assess the operations of group 3 fax machines.

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15. (a) Write short notes data services.

Or

(b) Generalize the term electronic fund transfer and ATMs.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain the working of LCD timer and alarm with necessary diagrams.

Or

(b) Sketch the anode cylinder block of multi cavity magnetron and explain its operation.

Sketch the block diagram for washing machine control and explain.

Or

(b) Illustrate the controls and features of semi-automatic washing machine.

18. (a) Evaluate the all air conditioning systems.

Or

(b) Illustrate the domestic refrigerators system with neat diagram.

19. (a) Sketch the block diagram of digital clock and explain its functions.

Or

(b) Explain the operation of extension to dynamic copies with neat diagram.

20. (a) Examine the packet switching with neat diagram.

Or

(b) Visualize the digital exchange with neat block diagram and explain.

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B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics – Core

COMMUNICATION SKILLS

(For those who joined in July 2020 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is used in the optical fiber for total internal reflection?  
(a) Core (b) Cladding  
(c) Both (a) and (b) (d) Only light is enough

2. In which of the following are the optical fibers commonly used?  
(a) Communication  
(b) Electrical transformers  
(c) Musical Instruments  
(d) Nuclear Reactors
3. Mobile communication is built with  
(a) Protocols (b) Speed  
(c) Services (d) All the above
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5. Subscriber telephone in the PSTN are connected through \_\_\_\_\_ to end offices.  
(a) Regional offices (b) Local loops  
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6. Which of the following are the features of mobile communication?  
(a) High load balancing capacity  
(b) Highly scalable  
(c) Good network management system  
(d) All of the above mentioned
7. What is frequency reuse?  
(a) Process of selecting and allocating channels  
(b) Process of selection of mobile users  
(c) Process of selecting frequency of mobile  
(d) Process of selection of number of cells
8. What is a 'cell' in cellular system?  
(a) A group of cells  
(b) A group of subscribers  
(c) A small geographical area  
(d) A large group of mobile systems
9. A typical satellite link involves in \_\_\_\_\_ of a signal from an earth station to a satellite.  
(a) Uplinks (b) Downlinks  
(c) Both (a) and (b) (d) None of the above

10. Which of the following are the disadvantages of satellite communication?  
(a) Is a cost effective procedure  
(b) It may block frequencies  
(c) There is a chance for signal interference  
(d) All the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Mention the advantages of fiber optic cables.  
Or  
(b) Discuss briefly about the operations of light emitting diode.
12. (a) Write about the basic call procedures of telephone.  
Or  
(b) Explain electronic telephone system with necessary diagram.
13. (a) Describe the step-by step switching.  
Or  
(b) Give the concept of electronics private automated exchange system.

14. (a) Write short note on cellular telephone.

Or

(b) Write briefly about 'Roaming' and 'Hand off' in cellular telephone system.

15. (a) Briefly explain the Kepler Laws.

Or

(b) Give an account on the classifications of satellite in communication.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Explain in detail the Snell's law for refraction of light.

Or

(b) Elaborately discuss about the light detectors.

17. (a) With suitable diagram explain the cordless telephone.

Or

(b) Discuss in detail about the functions of a telephone set.

18. (a) Explain in detail about Co-Channel and Adjacent channel interferences.

Or

(b) Write in detail about communication protocol.

19. (a) Discuss in detail about telephone switching system:

Or

(b) Explain Trunk circuits and Exchanges.

20. (a) Explain in detail about Geosynchronous satellites.

Or

(b) Discuss in detail about satellite system link models.



D2

(6 pages)

Reg. No. : .....

Code No. : 20183 E Sub. Code : SEEL 5 B/  
AEEL 52

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER-2022.

Fifth Semester

Electronics

Major Elective — MOBILE COMMUNICATION

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Rayleigh fading is also called as \_\_\_\_\_ fading in mobile radio environment.
  - self
  - capacitive
  - multipath
  - inductive

- Coherence bandwidth for two fading amplitudes of two received signals is
  - $\frac{1}{2\pi\Delta}$
  - $\frac{5}{2\pi\theta}$
  - $\frac{1}{3\pi\phi}$
  - $\frac{1}{2\pi\gamma}$
- Frequency reuse method \_\_\_\_\_ efficiency of spectrum usage.
  - decreases
  - increases
  - changes
  - stalls
- SINAD stands for
  - Single Indian Administration
  - Sine alt deviation
  - Signal to noise and distortion ratio
  - Signal in analog duration
- In each cell site a \_\_\_\_\_ connects to the respective location antenna.
  - battery
  - transmitter
  - location receiver
  - solar cell

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- \_\_\_\_\_ antennas are ideal antenna structures for hanging on sides of wall.
  - Yagi
  - Turnstile
  - Panel
  - Dipole
- GPRS refers to
  - Global pilot radio service
  - Gaussian packet radar sensor
  - Global phase receiver sensitivity
  - General packet radio service
- Bluetooth operates in \_\_\_\_\_ ISM band.
  - 50 Mhz
  - 2.4 Ghz
  - 108 Mhz
  - 10Thz
- AIN stands for \_\_\_\_\_
  - Artificial Intra Network
  - All India Network
  - Advanced Intelligent Network
  - Analog Industrial Node
- Frequency allocation for FPLMTS were made in the year \_\_\_\_\_
  - 1987
  - 1985
  - 1992
  - 1904

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

- (a) Write a note on voice quality in cellular system.  
Or  
(b) Explain propagation attenuation.
- (a) What is co-channel interference? Explain.  
Or  
(b) Write about propagation over water and flat open land with diagram.
- (a) Write about omnidirectional antennas.  
Or  
(b) What is Handoff? Briefly explain types of handoff.
- (a) Write about IS-95B for 2.5G CDMA.  
Or  
(b) Explain briefly about 3G CDMA 2000.

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[P.T.O.]

15. (a) Write about intelligent network evolution and network characteristics.

Or .

- (b) Explain general structure of ATM switch with a neat diagram.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Describe a basic cellular system with a neat diagram.

Or

- (b) Explain what is cell splitting? How it is done?

17. (a) Explain about real time cochannel interference measurement at mobile radio transceivers.

Or

- (b) Write about the phase difference between a direct path and ground reflected path.

18. (a) Explain about umbrella pattern antennas with neat diagram.

Or

- (b) Write in detail about cell sharing and borrowing.

19. (a) Explain about second generation cellular networks.

Or

- (b) Explain 3G TD-SCDMA.

20. (a) With a neat diagram explain architecture of AIN system.

Or

- (b) Write about wireless sensor networks.

\_\_\_\_\_

U.G. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Part IV

Common Skill Based Subject — PERSONALITY  
DEVELOPMENT

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following concepts best exemplifies a personality characteristic?
  - (a) A disposition
  - (b) A mood
  - (c) A habit
  - (d) An attitude

2. Which of the following could be a threat?
  - (a) Changes in technology
  - (b) A market vacated by an ineffective competitor
  - (c) Location of your business
  - (d) Lack of marketing expertise
3. In the direct theory of perception, information in the visual field that remains constant is the
  - (a) Optic array
  - (b) Optic flow
  - (c) Invariant
  - (d) Affordance
4. Which one is not a benefit to employee which results through positive attitude of an Employee \_\_\_\_\_ ?
  - (a) Promotion
  - (b) Less stress
  - (c) Job security
  - (d) Enjoying life

5. A key barrier to team development is:
  - (a) A strong matrix management structure
  - (b) When major problems delay the project completion date or budget targets
  - (c) When team members are accountable to both functional and project managers
  - (d) When formal training plans cannot be implemented
6. If a trait theory of leadership were true, then all leaders would possess
  - (a) Charisma
  - (b) The same traits
  - (c) Different traits
  - (d) Seven traits
7. Stress management prevents \_\_\_\_\_.
  - (a) Psychological disorders
  - (b) Behavioral problems
  - (c) Both of the above
  - (d) None of the above

8. The internal stress caused by \_\_\_\_\_
  - (a) Pent-up worries
  - (b) Laziness
  - (c) Survival stress
  - (d) Experiences
9. Communication begins with \_\_\_\_\_.
  - (a) Encoding
  - (b) Idea origination
  - (c) Decoding
  - (d) Channel selection
10. When we don't take with our mouths full of food, that is \_\_\_\_\_.
  - (a) Strange
  - (b) Good manners
  - (c) Silly
  - (d) Painful

**PART B — (5 × 5 = 25 marks)**

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the importance of personality development.

Or

- (b) Write a short note developing self awareness.

12. (a) Explain the advantages of self monitor.

Or

- (b) What are the three components of forming attitudes?

13. (a) State the importance of team building.

Or

- (b) Point out the negotiation process.

14. (a) What is Johari Window Model?

Or

- (b) How to develop emotional quotient?

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19. (a) Explain the barriers to communication.

Or

- (b) Enumerate the types of transactions.

20. (a) What is interview? Explain types of interview skills.

Or

- (b) Discuss the process of group discussion.

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15. (a) Explain the importance of table manners and etiquette.

Or

- (b) List out the personality traits required for group discussions.

**PART C — (5 × 8 = 40 marks)**

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss the theories of personality.

Or

- (b) Explain the importance of SWOT analysis.

17. (a) Discuss the perception process.

Or

- (b) Explain the methods of attitude change.

18. (a) Explain the leadership theories.

Or

- (b) What is conflict? Explain its types.

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Code No. : 20183 E Sub. Code : SEEL 5 B/ AEEL 52

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Electronics

Major Elective — MOBILE COMMUNICATION

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. Rayleigh fading is also called as \_\_\_\_\_ fading in mobile radio environment. (a) self (b) capacitive (c) multipath (d) inductive

2. Coherence bandwidth for two fading amplitudes of two received signals is

- (a) 1 / (2πΔ) (b) 5 / (2πθ) (c) 1 / (3πφ) (d) 1 / (2πγ)

3. Frequency reuse method \_\_\_\_\_ efficiency of spectrum usage.

- (a) decreases (b) increases (c) changes (d) stalls

4. SINAD stands for

- (a) Single Indian Administration (b) Sine alt deviation (c) Signal to noise and distortion ratio (d) Signal in analog duration

5. In each cell site a \_\_\_\_\_ connects to the respective location antenna.

- (a) battery (b) transmitter (c) location receiver (d) solar cell

6. \_\_\_\_\_ antennas are ideal antenna structures for hanging on sides of wall.

- (a) Yagi (b) Turnstile (c) Panel (d) Dipole

7. GPRS refers to

- (a) Global pilot radio service (b) Gaussian packet radar sensor (c) Global phase receiver sensitivity (d) General packet radio service

8. Bluetooth operates in \_\_\_\_\_ ISM band.

- (a) 50 Mhz (b) 2.4 Ghz (c) 108 Mhz (d) 10Thz

9. AIN stands for \_\_\_\_\_

- (a) Artificial Intra Network (b) All India Network (c) Advanced Intelligent Network (d) Analog Industrial Node

10. Frequency allocation for FPLMTS were made in the year \_\_\_\_\_

- (a) 1987 (b) 1985 (c) 1992 (d) 1904

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

11. (a) Write a note on voice quality in cellular system.

Or

(b) Explain propagation attenuation.

12. (a) What is co-channel interference? Explain.

Or

(b) Write about propagation over water and flat open land with diagram.

13. (a) Write about omnidirectional antennas.

Or

(b) What is Handoff? Briefly explain types of handoff.

14. (a) Write about IS-95B for 2.5G CDMA.

Or

(b) Explain briefly about 3G CDMA 2000.

15. (a) Write about intelligent network evolution and network characteristics.

Or

(b) Explain general structure of ATM switch with a neat diagram.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Describe a basic cellular system with a neat diagram.

Or

(b) Explain what is cell splitting? How it is done?

17. (a) Explain about real time cochannel interference measurement at mobile radio transceivers.

Or

(b) Write about the phase difference between a direct path and ground reflected path.

18. (a) Explain about umbrella pattern antennas with neat diagram.

Or

(b) Write in detail about cell sharing and borrowing.

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19. (a) Explain about second generation cellular networks.

Or

(b) Explain 3G TD-SCDMA.

20. (a) With a neat diagram explain architecture of AIN system.

Or

(b) Write about wireless sensor networks.

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Code No. : 20163 E Sub. Code : SMEL 52/ AMEL 52

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Electronics — Core

MEDICAL ELECTRONICS

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. The active transducer used for the measurement of pressure is \_\_\_\_\_
  - (a) Piezo electric transducer
  - (b) Seeback effect
  - (c) Capacitive effect
  - (d) Inductive effect

- 2. When the force is applied on a crystal the potential charges? This is called \_\_\_\_\_
  - (a) Piezo electric effect
  - (b) Seeback effect
  - (c) Capacitive effect
  - (d) inductive effect
- 3. The blood contains \_\_\_\_\_
  - (a) RBC
  - (b) WBC
  - (c) Platelets
  - (d) All the above
- 4. The red blood cells used to provide \_\_\_\_\_
  - (a) fuel supply
  - (b) immune power
  - (c) pressure
  - (d) none
- 5. The brain wave with frequencies between 8 and 13 Hz and amplitude of 50 μV are called
  - (a) spike
  - (b) alpha waves
  - (c) beta waves
  - (d) theta waves
- 6. In ECG the calibration signal amplitude is \_\_\_\_\_
  - (a) 1 mv
  - (b) 1 v
  - (c) 1.5 mv
  - (d) 0.5 mv

- 7. The level of consciousness can be followed by means of the \_\_\_\_\_
  - (a) ECG
  - (b) EEG
  - (c) EMG
  - (d) ERG
- 8. Internal defibrillator voltage range is \_\_\_\_\_
  - (a) 60 V – 250 V
  - (b) above 250
  - (c) below 250 V
  - (d) 250 V
- 9. The wavelength used in short wave diathermy \_\_\_\_\_
  - (a) 11 meters
  - (b) 12 meters
  - (c) 10 meters
  - (d) 5 meters
- 10. The more powerful chamber of the heart
  - (a) Left ventricle
  - (b) Right ventricle
  - (c) Right atrium
  - (d) Left atrium

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- 11. (a) What is a bio electric potentials? Explain it.
 

Or

- (b) Compare the resting potential and action potential of a living cell.

- 12. (a) Explain the method of blood pressure measurement.
 

Or

  - (b) Write short notes on plythysmography with diagram.
- 13. (a) How the heart sound is measured? Explain it.
 

Or

  - (b) Write note on cardio vascular system.
- 14. (a) What are the diagnosis calibration of monitoring system?
 

Or

  - (b) What are the applications of telemetry?
- 15. (a) Write a note on bio telemetry components.
 

Or

  - (b) What is an imaging system? Explain it.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) What are the bio medical applications of transducers?

Or

- (b) Explain the measurement of bio-potentials with two electrodes.

17. (a) What are all the characteristics of blood flow measurement?

Or

- (b) Explain the problems encountered in ECG recorder.

18. (a) Explain the reparability of patient monitoring equipment.

Or

- (b) Mention the block diagram of intensive care mentoring system.

19. (a) What are the bio feedback instrumentation? Explain it in detail.

Or

- (b) Explain the physiological parameters of measurements.

20. (a) Explain the functions of magnetic resonance imaging system with diagram.

Or

- (b) Write the functions of CT scanner with block diagram.
- \_\_\_\_\_



U.G. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Third Semester

Part II – English

GENERAL ENGLISH – I

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Our country needs great scientists, technologists and engineers with a lot of \_\_\_\_\_.  
(a) Strength (b) Wealth  
(c) Humanism (d) Desire
- Stephen Leacock wants to speak about the \_\_\_\_\_ of medicine.  
(a) Popularity (b) Progress  
(c) Advantages (d) Cost

- "The trumpet of a prophecy". What is referred to here?  
(a) The poet's words  
(b) The noise of the wind  
(c) The sound of the waves  
(d) The music of the lyre
- Who wrote the poem, "Once upon a Time"?  
(a) Sarojini Naidu (b) P.B. Shelley  
(c) Gabriel Okara (d) Walt Whitman
- The novel, *The Dark Room* depicts Ramani's family consisting of his wife, Savitri and \_\_\_\_\_ children.  
(a) two (b) three  
(c) four (d) five
- The rich bungalows were found in \_\_\_\_\_.  
(a) Lawley Extension  
(b) South Extension  
(c) Fourth Crossroad  
(d) Market road
- Direct Speech is also called \_\_\_\_\_.  
(a) reported speech (b) indirect speech  
(c) quoted speech (d) none

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- There are \_\_\_\_\_ consonant sounds in English.  
(a) 14 (b) 24  
(c) 34 (d) 44
- \_\_\_\_\_ of the English consonants are called fricatives.  
(a) six (b) two  
(c) nine (d) three
- Alibi* means \_\_\_\_\_.  
(a) an evidence (b) an incident  
(c) an accident (d) up-to-date

PART B — (5 × 5 = 25 marks)

Answer the following questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- Annotate the following:  
(a) (i) But we should not believe that science and technology alone are enough.  
(ii) "The difference is the word 'try'".  
Or  
(b) (i) Now the doctors allow them to carry absolutely anything they like.  
(ii) And he would be right.

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- Annotate the following:  
(a) (i) Like Krishna and like Radha, encompassed with delight.  
(ii) If winter comes, can spring be far behind?  
Or  
(b) (i) Now they shake hands without hearts.  
(ii) Mind not the timid – mind not the weeper or prayer.
- (a) Describe Ramani, the patriarch of the family in the novel, *The Dark Room*.  
Or  
(b) Write a short note on Savitri's attempt of suicide.
- (a) Change the following sentences into *direct speech*:  
(i) They said that they would be leaving the next day.  
(ii) He told me that he regarded me as his worst enemy.  
(iii) I told them that they should always speak the truth.  
(iv) She said that she had written the book the previous year.  
(v) You told me that you would not be attending the meeting that day.

Or

Page 4 Code No. : 10493  
[P.T.O.]

- (b) Change the following sentences into *indirect speech*:
- Ravi said, "I am printing a book".
  - Sylvia said, "How do you dance"?
  - The Principal said, "Have you finished your homework"?
  - The Judge said to them, "Bring the culprit".
  - "What a lovely evening!" The young woman said.
15. (a) Fill in the blanks with correct Homophones:
- He is \_\_\_\_\_ (fain/feign) to address the meeting.
  - I am \_\_\_\_\_ (confident/confidant) of passing the I.P.S. examination.
  - They have \_\_\_\_\_ (divers/diverse) opinions.
  - Nehru was in \_\_\_\_\_ (gaol/goal) for many years.
  - He is a \_\_\_\_\_ (knave/nave).
- Or
- (b) Give the meaning for the following Foreign words and phrases:
- alma mater*
  - bon voyage*
  - In situ*
  - magnum opus*
  - vis-a-vis*

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- Education/of/the/is/goal/knowledge.
- Body/the/change/of/a/can/colour/chameleon/its.
- Lining/has/silver/every/a/cloud.
- a/hand/in/bird/is/two/bush/worth/in/the.
- cured/must/cannot/what/be/endured/be.

Or

- (b) Identify the sentence pattern for the following:
- Kannan laughed.
  - We punished them.
  - He gave him a gift.
  - The old man is my grandfather.
  - The boys elected me president.
  - Kala appointed Leela manager.
  - We were hungry.
  - In the morning I consulted a doctor.
20. (a) Develop the following hints into a readable passage and give a suitable title:
- Dick - actor - brilliant - strange character - insists on realism - headache to the manager - a new drama - first drinking scene - water provided in a cup as usual -

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PART C — (5 × 8 = 40 marks)

Answer the following questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the attributes required to build a great nation.
- . Or
- (b) What is self esteem? How can it be developed positively?
17. (a) Justify the statement, "Nature offers the best recourse and bliss" in the poem, "Summer Woods".
- Or
- (b) Write a critical appreciation of the poem, "Ode to the West Wind".
18. (a) Sketch the role of Mari.
- Or
- (b) Sketch the character of Savitri.
19. (a) Rearrange the jumbled words to form meaningful sentences:
- Lunch/what/is/for/today.
  - Company / he / a man / keeps / the / by / is known.
  - Trees/either/road/were/on/of/the/there/ side.

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Dick insists on liquor - manager has to buy a bottle of liquor - second scene - fight - insists on real swords - refuses to handle wooden swords - steel swords brought - third scene - hero drinks poison - manager has real poison - actor in a fix - promises to be sensible in future.

Or

- (b) Differentiate the following Homophones by writing the sentences of your own:
- adapt/adopt
  - berth/birth
  - beside/besides
  - desert/deserts
  - fain/feign
  - farther/further
  - gentle/genteel
  - lea/lee.

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Reg. No. : .....

Code No. : 20438 E Sub. Code : CMEL 31/ CMES 31

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Electronics/Electronics and Communication — Core

ELECTRONIC MEASUREMENTS AND CIRCUIT THEORY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. What is the very first practical oscillator based on?
  - (a) electric arcs
  - (b) feedback
  - (c) frequency
  - (d) linearity

- 2. Which of the following is the most popular method for measuring low resistance?
  - (a) Ducter ohmmeter method
  - (b) Kelvin double bridge method
  - (c) Ammeter - voltmeter method
  - (d) Potentiometer method
- 3. A sampling oscilloscope is a \_\_\_\_\_ type of sampling oscilloscope?
  - (a) Analogue
  - (b) Digital
  - (c) Both (a) and (b)
  - (d) None of the above
- 4. Which of the following device is used to measure power in A.C. circuits?
  - (a) ammeter
  - (b) wattmeter
  - (c) voltmeter
  - (d) ohmmeter
- 5. Which of the following is the principle of sampling oscilloscope?
  - (a) stroboscopic
  - (b) lonoscopic
  - (c) lightscopy
  - (d) none of the above
- 6. The \_\_\_\_\_ is responsible for the current to flow in a closed circuit.
  - (a) Electric charge
  - (b) Potential difference
  - (c) Resistance
  - (d) All of the above

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- 7. In inductive circuit, when inductance (L) or inductive reactance (XL) increases, the circuit current decreases, but the circuit power factor \_\_\_\_\_?
  - (a) increases
  - (b) also decreases
  - (c) remain same
  - (d) none of the above
- 8. Reciprocal of power factor = \_\_\_\_\_?
  - (a) Q factor
  - (b) Demand factor
  - (c) Diverstiy factor
  - (d) Utilization factor
- 9. The purely inductive circuit takes power from the ac mains when
  - (a) both applied voltage and current increase .
  - (b) both applied voltage and current decrease
  - (c) applied voltage decreases but current increases
  - (d) applied voltage increases but current decreases
- 10. A closed path made by several branches of the network is known as
  - (a) branch
  - (b) loop
  - (c) circuit
  - (d) junction

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- 11. (a) Write in detail about bridge wave rectifier.
 

Or

 (b) Write in detail about wein bridge oscillator.
- 12. (a) Write about DC ammeter.
 

Or

 (b) Write about ohmmeter.
- 13. (a) Describe Kirchoff's law.
 

Or

 (b) Describe resistance in series and parallel.
- 14. (a) Illustrate impedance of LC circuits.
 

Or

 (b) Illustrate impedance of RC circuits.
- 15. (a) Explain the concept of branch networks.
 

Or

 (b) Explain the concept of thevenin theorem.

Page 4 Code No. : 20438 E [P.T.O.]

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Summarize the complete details of RLC coupled amplifiers.

Or

- (b) Summarize the AC/DC bridge measurements and their applications.

17. (a) Write in detail about VOM or multimeters.

Or

- (b) Write in detail about CRO with necessary diagrams.

18. (a) Summarize the complete details of ohms law and its applications.

Or

- (b) Summarize the complete details of mesh and node analysis.

19. (a) Distinguish RL and RC impedance circuits.

Or

- (b) Distinguish resonance in AC series and parallel circuit.

20. (a) Design a circuit and explain superposition theorem.

Or

- (b) Design a circuit and explain power transfer theorem.

\_\_\_\_\_

Code No.: 20349 E

Sub. Code: AMEL 54

B.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

Fifth Semester

Electronics – Core

COMMUNICATION SKILLS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is used in the optical fiber for total internal reflection?
  - (a) Core
  - (b) Cladding
  - (c) Both (a) and (b)
  - (d) Only light is enough

2. In which of the following are the optical fibers commonly used?
  - (a) Communication
  - (b) Electrical transformers
  - (c) Musical Instruments
  - (d) Nuclear Reactors
3. Mobile communication is built with
  - (a) Protocols
  - (b) Speed
  - (c) Services
  - (d) All the above
4. Which of the following are the examples of mobile communication systems?
  - (a) Cellular phones
  - (b) Cordless phones
  - (c) Both (a) and (b)
  - (d) None of the above
5. Subscriber telephone in the PSTN are connected through \_\_\_\_\_ to end offices.
  - (a) Regional offices
  - (b) Local loops
  - (c) Repeaters
  - (d) Toll

6. Which of the following are the features of mobile communication?
  - (a) High load balancing capacity
  - (b) Highly scalable
  - (c) Good network management system
  - (d) All of the above mentioned
7. What is frequency reuse?
  - (a) Process of selecting and allocating channels
  - (b) Process of selection of mobile users
  - (c) Process of selecting frequency of mobile
  - (d) Process of selection of number of cells
8. What is a 'cell' in cellular system?
  - (a) A group of cells
  - (b) A group of subscribers
  - (c) A small geographical area
  - (d) A large group of mobile systems
9. A typical satellite link involves in \_\_\_\_\_ of a signal from an earth station to a satellite.
  - (a) Uplinks
  - (b) Downlinks
  - (c) Both (a) and (b)
  - (d) None of the above

10. Which of the following are the disadvantages of satellite communication?
  - (a) Is a cost effective procedure
  - (b) It may block frequencies
  - (c) There is a chance for signal interference
  - (d) All the above

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Mention the advantages of fiber optic cables.
 

Or

 (b) Discuss briefly about the operations of light emitting diode.
12. (a) Write about the basic call procedures of telephone.
 

Or

 (b) Explain electronic telephone system with necessary diagram.
13. (a) Describe the step-by step switching.
 

Or

 (b) Give the concept of electronics private automated exchange system.

14. (a) Write short note on cellular telephone.

Or

(b) Write briefly about 'Roaming' and 'Hand off' in cellular telephone system.

15. (a) Briefly explain the Kepler Laws.

Or

(b) Give an account on the classifications of satellite in communication.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Explain in detail the Snell's law for refraction of light.

Or

(b) Elaborately discuss about the light detectors.

17. (a) With suitable diagram explain the cordless telephone.

Or

(b) Discuss in detail about the functions of a telephone set.

18. (a) Explain in detail about Co-Channel and Adjacent channel interferences.

Or

(b) Write in detail about communication protocol.

19. (a) Discuss in detail about telephone switching system.

Or

(b) Explain Trunk circuits and Exchanges.

20. (a) Explain in detail about Geosynchronous satellites.

Or

(b) Discuss in detail about satellite system link models.

(6 Pages)

Reg. No. : .....

Code No. : 30453 E Sub. Code : SSEL 3 A

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL, 2022

Third Semester

Electronics

Skill Based Subject — CONSUMER ELECTRONIC APPLIANCES

(For those who joined in July 2017–2019)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which of the following is not a part of the microwave heating system?  
(a) Magnetron (b) Anode  
(c) Cathode (d) None of the above

- The microwave oven was invented by an American engineer named as  
(a) Percy Spencer (b) Raymond Lemieux  
(c) Peter Williamson (d) Enrico Fermi
- The working principles of a Washing machine is \_\_\_\_\_  
(a) Fuzzy logic (b) Configuration  
(c) Centrifugation (d) Digital logic
- The fuzzy logic is simply way by which washing machines determines \_\_\_\_\_ in machine.  
(a) Weight of load  
(b) Wash load quantity  
(c) Stored program control  
(d) Space parameters control
- In an air conditioning system, a compressor is used to increase the \_\_\_\_\_  
(a) pressure of the coolant  
(b) pressure of the evaporator  
(c) pressure of the temperature  
(d) pressure of the refrigerant

Page 2 Code No. : 30453 E

- The \_\_\_\_\_ an appliance that is used for the short-term preservation of food products in the home.

- (a) refrigerator (b) refrigerant  
(c) compressor (d) throttle

- A telescoping is also called \_\_\_\_\_ machine.

- (a) Xerox copy (b) Fax  
(c) Hoping (d) entitling

- The \_\_\_\_\_ printing is a printing process that uses electrical charges to collect from area to be printed.

- (a) Electrophotographic  
(b) Xerox  
(c) Fax  
(d) Laser

- The basic advantage of ISDN is to facilitate the user with \_\_\_\_\_ channels.

- (a) multiple digital (b) multiple analog  
(c) single digital (d) single analog

- The packet switching is require \_\_\_\_\_ protocols for delivery.

- (a) regular (b) complex  
(c) data (d) online

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Write short notes on wave guides.

Or

- (b) Explain about Microwave oven.

- (a) Paraphrase the Washing machine controller.

Or

- (b) Define : Washing cycle. Explain about washing cycle.

- (a) State : Air conditioning.

Or

- (b) What do you understand by refrigeration system?

- (a) Explain the digital clocks.

Or

- (b) Discuss about calculators.

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Page 4 Code No. : 30453 E

[P.T.O.]

15. (a) What are the functions of BROSCHT?  
Explain.

Or

(b) Give short introduction about message switching.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Enumerate about Microwave cookware in detail.

Or

(b) Interpret about features and parts of Microwave oven.

17. (a) Briefly explain about washing machine hardware with suitable diagram.

Or

(b) Discuss in detail about Fuzzy logic washing machines.

18. (a) Summarize in detail about components of air conditioning system.

Or

(b) Describe about domestic refrigerators with neat diagram.

19. (a) Explain the following terms :

(i) Basic operation of ATM

(ii) Facsimile machine.

Or

(b) Explain in detail about process of Xerographic copier with neat diagram.

20. (a) Illustrate about Barcode scanner and decoder with neat diagram.

Or

(b) Write in detail about automated teller machines with suitable diagram.



B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2022

Fourth Semester

Electronics / Electronics and Communication - Allied

NUMERICAL METHODS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- The value of  $\frac{y'}{x'}$  in terms of the angle  $\theta$  is given by  
(a)  $\tan \theta$  (b)  $\sec \theta$   
(c)  $\cot \theta$  (d)  $\operatorname{cosec} \theta$
- The equation  $f(x)$  is given as  $x^2 - 4 = 0$ . Considering the initial approximation at  $x = 6$  then the value of  $x_1$  is given as  
(a)  $10/3$  (b)  $4/3$   
(c)  $7/3$  (d)  $13/3$

- Solve the equations using Gauss Jordan method.  
 $x + y + z = 9, 2x - 3y + 4z = 13, 3x + 4y + 5z = 40$ .  
(a)  $z = 1, y = 3, z = 4$  (b)  $x = 1, y = 3, z = 5$   
(c)  $x = 1, y = 3, z = 7$  (d)  $x = 1, y = 3, z = 2$
- Find the values of  $x, y, z$  in the following system of equations by gauss Elimination Method.  
 $2x + y - 3z = -10, -2y + z = -2, z = 6$ .  
(a) 2, 4, 6 (b) 2, 7, 6  
(c) 3, 4, 6 (d) 2, 4, 5
- Newton-Gregory Forward interpolation formula can be used \_\_\_\_\_  
(a) only for equally spaced intervals  
(b) only for unequally spaced intervals  
(c) for both equally and unequally spaced intervals  
(d) for unequally intervals

- Find  $n$  for the following data if  $f(0.2)$  is asked.

$x$	0	1	2	3	4	5	6
$f(x)$	176	185	194	203	212	220	229

- (a) 0.4 (b) 0.2  
(c) 1 (d) 0.1

Page 2 Code No. : 30599 E

- Which of the following is an iterative method?  
(a) Gauss Seidel (b) Gauss Jordan  
(c) Factorization (d) Gauss Elimination
- The Gauss Jordan method reduces a original matrix into a \_\_\_\_\_  
(a) Skew Hermitian matrix  
(b) Non-symmetric matrix  
(c) Identity matrix  
(d) Null matrix
- For homogeneous function with no saddle points we must have the minimum value as.  
(a) 90 (b) 1  
(c) equal to degree (d) 0
- Find  $f(0.18)$  from the following table using Newton's Forward interpolation formula.

$x$	0	0.1	0.2	0.3	0.4
$f(x)$	1	1.052	1.2214	1.3499	1.4918

- (a) 0.8878784 (b) 1.9878785  
(c) 1.18878784 (d) 1.8878784

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) Using newton's iterative method find the root between 0 and 1 of  $x^3 = 6x - 4$  correct to two decimal places.  
Or  
(b) Explain Regula-Falsi Method.
- (a) Solve the following system of equation by gauss-Jordan method  $5x + 4y = 15$ ,  
 $3x + 7y = 12$ .  
Or  
(b) Using the gauss Jordan method solve the following equation  $10x + y + z = 12$ ,  
 $2 + 10y + z = 13, x + y + 5z = 7$ .
- (a) Find  $f(x)$  as a polynomial in  $x$  for the following data by Newton's divided difference formula.

$x$	-4	-1	0	2	5
$f(x)$	1245	33	5	9	1335

Or

- (b) State and prove Simpson's 1/3 Rule.

14. (a) Using Newton's forward interpolation formula find the polynomial  $f(x)$  satisfying the following data hence find  $f(2)$

x	0	5	10	15
y	14	379	1444	3584

Or

- (b) Find  $y(2.25)$  using Newton's backward difference formula from the following data.

X	1.00	1.25	1.50	1.75	2.00
Y	0.3679	0.2865	0.2231	0.1738	0.1353

15. (a) Using R-K method of fourth order, solve  $dy/dx = y^2 - x^2/y^2 + x^3$  with  $y(0) = 1, x = 0.2$ .

Or

- (b) Using Milne's method find  $y(4.4)$  given  $5xy + y^2 - 2 = 0$  given  $y(4) = 1, y(4.1) = 1.0049, y(4.2) = 1.0097, y(4.3) = 1.0143$

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Find the positive root of  $x^4 - x = 10$  correct to three decimal places using Newton's Raphson method.

Or

- (b) Find a root of an equation  $f(x) = 2 \times 3 - 2x - 5$  using False Position method (regula falsi method)

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17. (a) Solve the system of equation by Gauss elimination method  $10x - 2y + 3z = 21, 2x + 10y - 5z = -33, 3x - 4y + 10z = 41$ .

Or

- (b) Solve the given system of equation by Gauss Seidel iteration method  $20x + y - 2z = 17, 3x - 20y - z = 18, 2x - 3y + 20z = 25$ .

18. (a) Evaluation  $\int_0^1 e^x dx$ , by Simpson's 1/3 rule

Or

- (b) Using Newton's forward interpolation formula find the cubic polynomial which takes places the following value.

x	0	1	2	3
y	1	2	1	10

19. (a) Using Taylor's series method with the first five terms in the expansion find  $y(0.1)$  correct to three decimal places, given that  $dy/dx = e^x - y^2, y(0) = 1$ .

Or

- (b) Using Euler's method find the solution of the initial value problem  $dy/dx = \log(x + y), y(0) = 2, x = 0.2$ , by assuming  $h = 0.2$ .

Page 6 Code No. : 30599 E

20. (a) Solve for  $y(0.1)$  and  $z(0.1)$  diff equation  $dy/dx = xy/(1 + x^2), y(0) = 1, h = 0.1$  using R-K method of the fourth order.

Or

- (b) Find  $y(1.0)$  accurate upto four decimal places using Modified Euler's method by solving the IVP  $y = -2xy^2, y(0) = 1$  with step length 0.2.

(6 Pages)

Reg. No. : .....

Code No. : 30438 E Sub. Code : SMEL 42/ AMEL 42

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022

Fourth Semester

Electronics — Core

COMPUTER NETWORKS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- The least expensive and most widely used guided transmission medium is \_\_\_\_\_  
 (a) Twisted pair (b) Coaxial cable  
 (c) Optical fiber (d) All the above
- Total data rate of optical fiber is \_\_\_\_\_  
 (a) 4 Mbps (b) 500 Mbps  
 (c) 6 Gbps (d) 220 Mbps

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- In which topology there is a central controller or hub  
 (a) Star (b) Mesh  
 (c) Ring (d) Bus
- Data communication system spanning states, countries, or the whole world is \_\_\_\_\_  
 (a) LAN (b) WAN  
 (c) MAN (d) CAN
- In TDM, slots are further divided into \_\_\_\_\_  
 (a) Seconds (b) Frames  
 (c) Packets (d) Pulses

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- What is guided transmission media? Brief the twisted pair with diagram.

Or

  - Write short note on amplitude modulation.

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- HFC contains  
 (a) Fibre cable  
 (b) Coaxial cable  
 (c) Both fibre and coaxial cable  
 (d) None of the above
- The network layer concerns with  
 (a) bits (b) frames  
 (c) packets (d) none of the above
- The 4 byte IP address consists of  
 (a) Network address  
 (b) Host address  
 (c) Both network and host address  
 (d) None of the above
- The network layer protocol of internet is  
 (a) Ethernet (b) Internet protocol  
 (c) Hypertext protocol (d) All the above
- Physical or logical arrangement of network is \_\_\_\_\_  
 (a) Topology (b) Routing  
 (c) Networking (d) Signalling

- Write short note High level data link control.  
  
Or
  - What is bridge? Brief the routing with bridges.
- Discuss the frame relay call control.  
  
Or
  - Brief the ATM logical connection.
- Write short note on Ethernet.  
  
Or
  - Brief the local area network technology.
- Write short note on session layer.  
  
Or
  - Discuss about the features of e-mail.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Illustrate the encoding technique of digital data into digital signals.

Or

- (b) Explain the circuit switching with neat diagram.

17. (a) Define the OSI layered architecture with neat diagram.

Or

- (b) Explain the X.25 protocol and draw the essential diagrams.

18. (a) Illustrate the frame relay protocol architecture.

Or

- (b) Explain the ATM cell format with neat diagram.

19. (a) Explain the wireless LAN architecture.

Or

- (b) Define the IEEE 802.5 MAC protocol with necessary diagram.

20. (a) Illustrate the encryption technique with neat diagram.

Or

- (b) Explain the message handling system in detail.
-

Code No. : 30635 E Sub. Code : CAEL 21/ CAES 21

B.Sc.(CBCS) DEGREE EXAMINATION, APRIL 2022  
Second Semester

Electronics/ Electronics and Communication - Allied  
INTRODUCTION TO PYTHON LANGUAGE  
(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- If a = 2, b = 5, then the output of c = b % a is \_\_\_\_\_  
(a) 1 (b) 2  
(c) 3 (d) syntax error

- If num = 9, then the output of the expression out = num\*\*0.5 will be  
(a) Syntax error (b) 1  
(c) 2 (d) 3
- The \_\_\_\_\_ function applies a given function to each item of an iterable list and returns an iterator.  
(a) map ( ) (b) filter ( )  
(c) reduce ( ) (d) all the given
- All keywords in Python are in \_\_\_\_\_  
(a) LowerCase letters  
(b) UpperCase letters  
(c) (a) or (b)  
(d) None of the mentioned
- Which one of the following statement is correct?  
(a) print(a\*b)  
(b) print("Python" \*3)  
(c) both (a) and (b)  
(d) None of the mentioned

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

- Which one of the following statement is incorrect while using files in python.  
(a) fp=open("abc.txt", "r")  
(b) fp=open("abc.txt", "w")  
(c) fp= close("abc.txt")  
(d) fp.close()
- Which of the following is a tuple?  
(a) [1, 2, 3] (b) (1, 2, 3)  
(c) "1, 2, 3" (d) {}
- What will be the output of the following Python code?  
>>>t = (1, 2)  
>>>2 \* t  
(a) (1, 2, 1, 2) (b) [1, 2, 1, 2]  
(c) {1, 1, 2, 2} (d) [1, 1, 2, 2]
- The correct way to draw a line in canvas tkinter is \_\_\_\_\_  
(a) line() (b) create.canvas.line()  
(c) canvas.create\_line() (d) create\_line(canvas)
- \_\_\_\_\_ widget is used in GUI of Python to enter user data.  
(a) Entry (b) Text  
(c) Lable (d) both (a) and (b)

- (a) Define function. Explain with an example.  
Or  
(b) What is meant by module ? Explain briefly.
- (a) Write a short note on reduce() function.  
Or  
(b) Explain about string functions in python.
- (a) Explain about operator overloading with example.  
Or  
(b) Explain the concept of inheritance.
- (a) What is a Set in python? Explain its operations  
Or  
(b) Briefly explain about nested tuples.
- (a) What do you mean by widget in python? Explain about Text widget.  
Or  
(b) Explain how a label widget works in GUI of python.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) What do you mean by recursive function? Why it is used? Explain.

Or

- (b) With an program in python, explain how break, continue and pass statement works?

17. (a) Write a program to reverse a given string.

Or

- (b) Write short notes on

- (i) Filter()
- (ii) Cloning list

18. (a) Write short notes on

- (i) Built in exceptions (4)
- (ii) Writing data into files (4)

Or

- (b) With an example, explain how user defined exception works?

19. (a) Discuss in detail about dictionary and its built in functions.

Or

- (b) Write a program to fetch the data from tuples and print them.

20. (a) Write a brief notes on tkinter module and button widget.

Or

- (b) Develop a program in python to accept a text and display it in screen with two different background.
-

U.G. (CBCS) DEGREE EXAMINATION, APRIL 2022

Second Semester

Part II — English — Core

COMMUNICATIVE ENGLISH — II

(For those who joined in July 2020 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Sentences that follow a topic sentence are called \_\_\_\_\_  
(a) topic sentences  
(b) illogical sentences  
(c) supporting sentences  
(d) proverbial sentences

- Many \_\_\_\_\_ species can be found in African and Amazonian forests.

- (a) imperiled (b) unlucky  
(c) risky (d) endangered

- Sentence that asks a question is \_\_\_\_\_

- (a) Assertive (b) Imperative  
(c) Interrogative (d) Exclamatory

- What is collocation?

- (a) Synonym  
(b) Antonym  
(c) Words often go together  
(d) Words in opposition

- I had to walk six flights of stairs because the lift was out of \_\_\_\_\_

- (a) order (b) service  
(c) work (d) control

- Synonym of 'to startle' is \_\_\_\_\_

- (a) surprise (b) terrify  
(c) upset (d) starry

- Which one of the following is not a type of speech?

- (a) Memorized speech  
(b) Manuscript speech  
(c) Extemporaneous speech  
(d) Prompted speech

- An opinion is considered as \_\_\_\_\_

- (a) thought or feeling (b) judgement  
(c) point of view (d) all the above

- A man who owns a shop that sells medicine is called

- (a) a physician (b) a patient  
(c) a pharmacist (d) a compounder

- The teacher gave the class a test. "the class" is

- (a) Subject (b) Indirect object  
(c) Direct object (d) Linking verb

PART B — (5 × 5 = 25 marks)

Answer ALL questions by choosing either (a) or (b).

Descriptive questions should be written in 250 words.

- (a) Write a paragraph on the proverb "A rolling stone gathers no moss".

Or

- (b) Write a conversation between a teacher and a student regarding the merits and demerits of online classes.

- (a) What are the characteristics of a good speech?

Or

- (b) Fill in the blanks with suitable conjunction.

- (i) Is shane playing \_\_\_\_\_ studying?  
(ii) \_\_\_\_\_ he was poor, he came forward to help the poor.  
(iii) Can you buy for me pens, pencils \_\_\_\_\_ note books?  
(iv) They reached late \_\_\_\_\_ their train was delayed.  
(v) Will you wait \_\_\_\_\_ I return?



13. (a) Write some tips to make a good powerpoint presentation.

Or

- (b) Explain the one word phrases.

- (i) plagiarise
- (ii) chef
- (iii) foeticide
- (iv) ornithologist
- (v) omnipotent.

14. (a) Fill in the blanks with responses and instruction given in the brackets.

- (i) Robinhood lived in Sherwood in a \_\_\_\_\_ deep in the woods. [neutral connotation] [shack / cabin/hut]
- (ii) We stopped for lunch at \_\_\_\_\_ in Bangalore. [negative] [a small hotel / a cafe / a restaurant]
- (iii) My \_\_\_\_\_ camera has finally broken. [positive] [dilapidated / venerable / old]

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- (v) When do you leave for college?
- (vi) When do you have your holidays?
- (vii) When is the slowest time of year for you?
- (viii) When did you go to the college lately?

Or

- (b) Write a conversation between a parent and a school teacher regarding the merits and demerits of the online classes.
17. (a) What is a speech? Write in detail about the characteristics of a good speech and the steps to prepare a speech on your own.

Or

- (b) Write two sentences each using interjections to express.
- (i) silence
  - (ii) admiration
  - (iii) surprise
  - (iv) dislike.

18. (a) Write an email of complaint to an online clothing company regarding an error in the size of a dress ordered and paid for.

Or

Page 7 Code No. : 20672

- (iv) The teacher was mildly intimidated by Shelin's \_\_\_\_\_ behaviour. [positive] [bossy / confident / assertive]

- (v) Porridge is a \_\_\_\_\_ meal [neutral] [inexpensive / thrifty / cheap]

Or

- (b) Use imperatives to express how to make a cup of lemon juice. (minimum 5 imperatives)

15. (a) Write a short note on the kinds of adverb clauses.

Or

- (b) List any five commonly used collections and give examples.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, by choosing either (a) or (b).

The answer should not exceed 600 words.

16. (a) Answer the following questions using a time, day, month or year along with a preposition.
- (i) When did you first join the college?
  - (ii) What time do you eat lunch?
  - (iii) When do you meet your friend?
  - (iv) What days don't you go to college?

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- (b) Write two sentences each marking the subject, verb, object.

- (i) SVO
- (ii) SVC
- (iii) SVIODO
- (iv) SVAC.

19. (a) Draft a written text for the brochure of a product of your choice.

Or

- (b) Write a passage of your choice including
- (i) Assertive
  - (ii) Imperative
  - (iii) Interrogative
  - (iv) Exclamatory

sentences and also use short dialogues with speech marks.

20. (a) Write a letter to an editor of a newspaper for the post of a sports reporter along with an effective resume.

Or

- (b) Write elaborately on the types of clauses with examples.

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Reg. No. : .....

Code No.: 30433 E Sub. Code: SMEL 11/ SMES 11

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022

First Semester

Electronics/Electronics and Communication-Core

BASIC ELECTRONIC DEVICES

(For those who joined in July 2017-2019)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- 1. What is the SI unit of resistance?
  - (a) ohm
  - (b) ohm meter
  - (c) ampere
  - (d) coulomb
  
- 6. The most widely used rectifier is \_\_\_\_\_
  - (a) Half-wave
  - (b) Centre -tap full wave
  - (c) Bridge full-wave
  - (d) none of the above
  
- 7. The UJT may be used as \_\_\_\_\_
  - (a) An amplifier
  - (b) a sawtooth generator
  - (c) a rectifier
  - (d) none of the above
  
- 8. A transistor has \_\_\_\_\_
  - (a) one pn junction
  - (b) two pn junction
  - (c) three pn junction
  - (d) four pn junction
  
- 9. A JFET has three terminals namely \_\_\_\_\_
  - (a) Cathode, anode, grid
  - (b) emitter, base, collector
  - (c) source, gate, drain
  - (d) none of the above

- 2. A capacitor using chemical reactions to store charge is \_\_\_\_\_
  - (a) Paper Capacitor
  - (b) Ceramic Capacitor
  - (c) Polyester Capacitor
  - (d) Electrolyte Capacitor
  
- 3. The most commonly used semiconductor is \_\_\_\_\_
  - (a) Germanium                      (b) Silicon
  - (c) Carbon                              (d) Sulphur
  
- 4. When a pentavalent impurity is added to a pure semiconductor it becomes \_\_\_\_\_
  - (a) An insulator
  - (b) An intrinsic semiconductor
  - (c) P-type semiconductor
  - (d) n-type semiconductor
  
- 5. For a PN junction diode, the current in reverse bias may be \_\_\_\_\_
  - (a) Few milli amperes
  - (b) Between 0.2 A and 1.5 A
  - (c) Few Amperes
  - (d) Few micro or nano amperes

- 10. How many terminals does a MOSFET possess?
  - (a) one                                      (b) two
  - (c) three                                      (d) four

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b). Each answer should not exceed 250 words.

- 11. (a) Write a short note on color code of resistor.  
Or  
(b) Discuss the types of inductors in detail.
  
- 12. (a) What is meant by forbidden energy gap? Explain with neat diagram.  
Or  
(b) Briefly explain about intrinsic semiconductor.
  
- 13. (a) Describe the construction and working of half wave rectifier.  
Or  
(b) Explain forward and reverse biasing of PN junction.
  
- 14. (a) Describe the construction of UJT.  
Or  
(b) Describe transistor as an amplifier.

15. (a) Explain the constructional features of FET.

Or

(b) Briefly explain about LED and LDR.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Give the constructional details of various types of resistors.

Or

(b) What are the different types of capacitors? Explain them with their constructional features.

17. (a) Describe the energy band diagram of conductors, semiconductors and insulators.

Or

(b) What is meant by n-type and p-type semiconductors?

18. (a) Explain the working of a PN junction diode and discuss its V-I characteristics.

Or

(b) Discuss the use of a zener diode as a voltage regulator.

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19. (a) Explain the output characteristics of common Emitter transistor with neat sketches.

Or

(b) Explain the working and principle of operation of Uni Junction transistor.

20. (a) Explain the operation of depletion enhancement MOSFET with neat diagram.

Or

(b) Give the constructional details of a JFET and explain its operation.

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(6 pages)

Reg. No. : .....

Code No.: 30433 E Sub. Code: SMEL 11/  
SMES 11

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL, 2022

First Semester

Electronics/Electronics and Communication-Core

BASIC ELECTRONIC DEVICES

(For those who joined in July 2017-2019)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the SI unit of resistance?  
(a) ohm  
(b) ohm meter  
(c) ampere  
(d) coulomb
  
6. The most widely used rectifier is \_\_\_\_\_  
(a) Half-wave  
(b) Centre -tap full wave  
(c) Bridge full-wave  
(d) none of the above
  
7. The UJT may be used as \_\_\_\_\_  
(a) An amplifier  
(b) a sawtooth generator  
(c) a rectifier  
(d) none of the above
  
8. A transistor has \_\_\_\_\_  
(a) one pn junction  
(b) two pn junction  
(c) three pn junction  
(d) four pn junction
  
9. A JFET has three terminals namely \_\_\_\_\_  
(a) Cathode, anode, grid  
(b) emitter, base, collector  
(c) source, gate, drain  
(d) none of the above

2. A capacitor using chemical reactions to store charge is \_\_\_\_\_  
(a) Paper Capacitor  
(b) Ceramic Capacitor  
(c) Polyester Capacitor  
(d) Electrolyte Capacitor
  
3. The most commonly used semiconductor is \_\_\_\_\_  
(a) Germanium (b) Silicon  
(c) Carbon (d) Sulphur
  
4. When a pentavalent impurity is added to a pure semiconductor it becomes \_\_\_\_\_  
(a) An insulator  
(b) An intrinsic semiconductor  
(c) P-type semiconductor  
(d) n-type semiconductor
  
5. For a PN junction diode, the current in reverse bias may be \_\_\_\_\_  
(a) Few milli amperes  
(b) Between 0.2 A and 1.5 A  
(c) Few Amperes  
(d) Few micro or nano amperes

Page 2 Code No. : 30433 E

10. How many terminals does a MOSFET possess?  
(a) one (b) two  
(c) three (d) four

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Write a short note on color code of resistor.  
Or  
(b) Discuss the types of inductors in detail.
  
12. (a) What is meant by forbidden energy gap?  
Explain with neat diagram.  
Or  
(b) Briefly explain about intrinsic semiconductor.
  
13. (a) Describe the construction and working of half wave rectifier.  
Or  
(b) Explain forward and reverse biasing of PN junction.
  
14. (a) Describe the construction of UJT.  
Or  
(b) Describe transistor as an amplifier.

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[P.T.O.]

15. (a) Explain the constructional features of FET.

Or

(b) Briefly explain about LED and LDR.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Give the constructional details of various types of resistors.

Or

(b) What are the different types of capacitors? Explain them with their constructional features.

17. (a) Describe the energy band diagram of conductors, semiconductors and insulators.

Or

(b) What is meant by n-type and p-type semiconductors?

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Or

(b) Discuss the use of a zener diode as a voltage regulator.

19. (a) Explain the output characteristics of common Emitter transistor with neat sketches.

Or

(b) Explain the working and principle of operation of Uni Junction transistor.

20. (a) Explain the operation of depletion enhancement MOSFET with neat diagram.

Or

(b) Give the constructional details of a JFET and explain its operation.

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B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2022

First Semester

Electronic/Electronics and Communication – Core

BASIC ELECTRONIC DEVICES

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the power dissipation formulae?
  - (a)  $P = V * I$
  - (b)  $P = V^2 / R$
  - (c)  $P = I^2 * R$
  - (d) All are correct

2. The Capacitor stores which type of energy?
  - (a) Kinetic
  - (b) Vibration
  - (c) Potential
  - (d) Heat
3. Which of the following is not a physical component of an electronic circuit?
  - (a) capacitor
  - (b) inductor
  - (c) diode
  - (d) temperature
4. The most commonly used semi conductors is
  - (a) Ge
  - (b) Si
  - (c) Sb
  - (d) Au
5. Multiplier for prefix giga is
  - (a)  $10^6$
  - (b)  $10^9$
  - (c)  $10^{-9}$
  - (d)  $10^9$
6. Which among the below mentioned devices acts as a driver in CMOS inverter circuit.
  - (a) PMOS
  - (b) NMOS
  - (c) both (a) and (b)
  - (d) none of the above

7. In a transistor, collector current is controlled by \_\_\_\_\_
  - (a) collector voltage
  - (b) base current
  - (c) collector resistance
  - (d) all the above
8. The element that has the biggest size in a transistor is
  - (a) base
  - (b) collector
  - (c) emitter
  - (d) emitter base junction
9. A JFET is similar operation to \_\_\_\_\_ valve
  - (a) diode
  - (b) pentode
  - (c) triode
  - (d) tetrode
10. Which of the following terminals does not belong to the MOSFET?
  - (a) drain
  - (b) gate
  - (c) base
  - (d) source

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain the following
  - (i) color code of resistor.
  - (ii) carbon film.

Or

  - (b) Explain the following
    - (i) ceramic capacitors.
    - (ii) mica polystyrene electrolytic capacitors
12. (a) Write short notes on Bohr's atom model.
 

Or

  - (b) Explain the majority and minority carriers.
13. (a) Write a short note on forward and reverse biasing.
 

Or

  - (b) State: voltage regulation using zener diode
14. (a) Write a short note on UJT.
 

Or

  - (b) Write a short note on SCR.

15. (a) Write a short note on FET.

Or

(b) Write a short note on JFET.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Paraphrase the constructional features of Variable Capacitors with suitable diagram.

Or

(b) Explain about the Colour code of resistor with neat sketch.

17. (a) Briefly explain about the classification of solids and energy bands.

Or

(b) Explain the following terms:

(i) Intrinsic semiconductor.

(ii) Extrinsic semiconductor.

18. (a) Explain in detail about static and dynamic resistance.

Or

(b) Explain in detail about the Half wave and Full wave rectifiers.

19. (a) Explain briefly about the common collector (CC) configuration.

Or

(b) Explain the following terms:

(i) Transistor as a switch

(ii) Transistor as an amplifier.

20. (a) Explain briefly about enhancement MOSFET with suitable diagram.

Or

(b) Write a brief notes on MOSFET and their characteristics with neat sketch.

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PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Each task has 3 states and they are \_\_\_\_\_ .
  - (a) Running, Ready and Blocked
  - (b) Running, Rendering and Blocked
  - (c) Reform, Restart and Blocked
  - (d) Running, Ready and Blast

2. Semaphores can solve \_\_\_\_\_
  - (a) Shared Data Problems
  - (b) Big problems
  - (c) Interrupt Problems
  - (d) Data speed
3. Events are \_\_\_\_\_ bit flags with which tasks signal one another.
  - (a) One
  - (b) Two
  - (c) Three
  - (d) Five
4. Even though many RTOS offer standard malloc and free functions programmers often avoid them because \_\_\_\_\_.
  - (a) They are complex
  - (b) They are rapid in nature
  - (c) They are relatively slow and Unpredictable
  - (d) It makes system tick
5. RTK means \_\_\_\_\_.
  - (a) Real time kernel
  - (b) Real time kernel
  - (c) Real test kernel
  - (d) None

6. The RTOS with switch \_\_\_\_\_ number of task in running state
  - (a) One
  - (b) Two
  - (c) Many
  - (d) None
7. How many task will the RTOS will switches to ready state?
  - (a) Any number
  - (b) One
  - (c) Limited to ten
  - (d) None
8. Pipes are much like \_\_\_\_\_.
  - (a) Mail box
  - (b) Message
  - (c) Queues
  - (d) None
9. An event is usually specified by \_\_\_\_\_.
  - (a) Byte
  - (b) Data
  - (c) Boolean flag
  - (d) Address
10. Which of the following will pass more information between tasks/
  - (a) Semaphore
  - (b) Events
  - (c) Timer
  - (d) Queues

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Define Semaphores?
 

Or

 (b) Describe the function queue scheduling architecture.
12. (a) Write a short notes on RTOS
 

Or

 (b) Explain task and task states.
13. (a) Explain how scheduler is used to switch task between various states?
 

Or

 (b) Explain ready, running and blocked state with respect to a task.
14. (a) What happens if all the task are blocked in RTOS based environment?
 

Or

 (b) What is meant by reentrancy and explain its use?

15. (a) Write a short note on SPI communication.

Or

(b) Write a note on addressing of 12C communication.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Compare the operation of SPI and 12C.

Or

(b) Give addressing of 12C and explain its operation with 7bit address timing diagram.

17. (a) How RS232 can be specified and used for serially data communication.

Or

(b) Explain the various registers associated with ADC peripheral for interface.

18. (a) How the ADC can be initialized for various requirements?

Or

(b) Explain the operation of timer programming with its block diagram.

19. (a) Explain the memory management of RTOS

Or

(b) Explain the function of mail box with example.

20. (a) Explain the various pitfalls of message queue and mail box.

Or

(b) Explain the comparison of the method of inter task communication.



PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The internal RAM memory of the 8051 is 1 bytes.  
(a) 32 (b) 64  
(c) 128 (d) 256
2. The 8051 has \_\_\_\_\_ 16 bit counter/timers.  
(a) 1 (b) 2  
(c) 3 (d) 4

3. Which bit permits to enable or disable all the interrupts in an INT register?  
(a) GIE (b) ADIE  
(c) RBIE (d) TOIE
4. Which instruction is applicable to set any bit while performing bitwise operation settings?  
(a) bcf (b) bsf  
(c) both (a) and (b) (d) none of the above
5. On reset what are the contents of the SREG register?  
(a) 00 (b) ffh  
(c) 1 fh (d) 11 h
6. In AVR what is the ISR address for an external hardware interrupt?  
(a) 0002h (b) 0004h  
(c) 0006h (d) all the above
7. The first instructor of bootstrap loader program of an operating system is stored in \_\_\_\_\_  
(a) RAM (b) Hard disk  
(c) BIOS (d) None

8. The communication between the components in a microcomputer takes place via the address and \_\_\_\_\_  
(a) I/O bus (b) Data bus  
(c) Address bus (d) Control lines
9. What role of the cloud in smart grid architecture is?  
(a) collect data (b) manage data  
(c) security (d) store data
10. Identify the java extension file in IOT  
(a) .c (b) .py  
(c) .exe (d) .jar

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write short notes on pin configuration of 8051.  
  
Or  
(b) List out any five application of embedded systems.

12. (a) Paraphrase the program memory.  
  
Or  
(b) Define : CPU register.
13. (a) Explain about Interrupt logic.  
  
Or  
(b) Write short notes on simple programs.
14. (a) Explain about the DAC output.  
  
Or  
(b) Describe about temperature sensor.
15. (a) Explain about briefly interfacing sensors.  
  
Or  
(b) Explain about the embedded 'C' language basics.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Enumerate about micro controllers and embedded processors.

Or

- (b) Briefly explain about the program counter and ROM space on 8051.

17. (a) Briefly explain about hardware architecture and pipelining.

Or

- (b) Discuss in detail about register file structure and addressing modes.

18. (a) Summarize in detail about Timer 2 sealer initialization.

Or

- (b) Describe about the external interrupts and timers.

19. (a) Discuss in detail about the synchronous serial port module.

Or

- (b) Explain in detail serial EEPROM.

20. (a) Illustrate about introduction to Arduino IDE.

Or

- (b) Explain the following terms :

(i) DHT, LDR

(ii) MQ135, IR.

(6 pages)

Reg. No. : .....

Code No. : 6994

Sub. Code : KELM 22/  
PELM 22

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2019.

Second Semester

Electronics

EMBEDDED SYSTEM

(For those who joined in July 2016 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. What is the full form of GPS?

- (a) Global Positioning System
- (b) Global Partitioning System
- (c) Global Packeting System
- (d) None.

- 2. Which embedded system carryout specific task in a specified amount of time?  
(a) Stand alone (b) Real time  
(c) Network appliance (d) Mobile device.
- 3. \_\_\_\_\_ is the heat of embedded system.  
(a) micro controller  
(b) micro processor  
(c) digital signal processor  
(d) digital image processor.
- 4. Which retains its content as long as electrical power is being supplied to the device ?  
(a) SRAM (b) DRAM  
(c) ROM (d) Hybrid memory.
- 5. What is the maximum size of ethernet packet?  
(a) 1575 bytes (b) 1526 bytes  
(c) 1475 bytes (d) 1426 bytes.
- 6. In MP3 sound player, the music files are stored in  
(a) program memory (b) flash memory  
(c) external memory (d) volatile memory.

Page 2

Code No. : 6994

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 250 words.

- 7. Which file is used for establishing serial communication?  
(a) rt\_com.c (b) rt\_com.h  
(c) rt\_comp.h (d) rt\_com.o.
- 8. Which syntax is used to synchronize the data?  
(a) index synx (b) system sync  
(c) filed sync (d) active sync.
- 9. Which module is used in customer relation management program?  
(a) customer module (b) service module  
(c) complaint module (d) all the above.
- 10. Which system is used to monitors a set of parameters continuously?  
(a) process control system  
(b) stand alone system  
(c) both (a) and (b)  
(d) none.

- 11. (a) Explain the different categories of embedded system.  
Or  
(b) Write the role of embedded system in bio-medical industry.
- 12. (a) Explain the different memories used in embedded system.  
Or  
(b) Write short notes on embedded operating system.
- 13. (a) Explain the project voice over IP.  
Or  
(b) Develop the software to convert ethernet packets into serial communication packets.
- 14. (a) Explain about sending the message over a serial link.  
Or  
(b) Give the applications of embedded database.

Page 3

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Page 4

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[P.T.O.]

15. (a) Explain about system on a chip (SOC).

Or

(b) Explain about embedded process control system.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) What is meant by embedded system? Describe its classification.

Or

(b) Explain about the challenges and issues in embedded software development.

17. (a) Explain about communication interface standards.

Or

(b) Explain the hardware architecture of embedded micro controller.

18. (a) Explain serial communication with 8051 family of microcontroller.

Or

(b) Write a file contains declaration of various methods for accessing packet drive.

19. (a) Explain about the embedded database applications using salary survey.

Or

(b) Elucidate the embedded database applications in energy meter readings.

20. (a) Write about security in embedded system.

Or

(b) Explain about network java enabled information appliances.

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communication – Core

ANALOG AND DIGITAL SYSTEM DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- PSPICE model library includes parameterized models such as \_\_\_\_\_.  
 (a) SCR, Diode                      (b) BJT, MOSFET  
 (c) ICs                                      (d) None of the above

- Which cell can be used instead of a photocell to obtain active transducer in photosensitive devices?  
 (a) Photovoltaic cell  
 (b) Photo diode  
 (c) Photo sensor  
 (d) All of the mentioned
- The current to voltage converter photosensitive device can be used as \_\_\_\_\_.  
 (a) Light intensity meter  
 (b) Light radiating meter  
 (c) Light deposition meter  
 (d) None of the mentioned
- What is the input in the PLD is given through \_\_\_\_\_  
 (a) OR gates                      (b) NAND gates  
 (c) AND gates                      (d) NOR gates
- Vertical and horizontal directions in FPGA are separated by \_\_\_\_\_.  
 (a) A channel                      (b) A line  
 (c) A flip flop                      (d) A strobe

- In a BJT as collector to base voltage increases the emitter current \_\_\_\_\_.  
 (a) Remains same  
 (b) Increases slightly  
 (c) Decreases slightly  
 (d) Depends upon doing of the emitter region
- Find the output voltage of an ideal Op-Amp. If  $V_1$  and  $V_2$  are the two input voltages  
 (a)  $V_0 = V_1 - V_2$   
 (b)  $V_0 = A \times (V_1 - V_2)$   
 (c)  $V_0 = A \times (V_1 + V_2)$   
 (d)  $V = V_1 \times V_2$
- How will be the output voltage obtained for an ideal op-amp?  
 (a) amplifiers the difference between the two input voltages  
 (b) amplifier individual voltage input voltage  
 (c) amplifier product of two input voltage  
 (d) none of the mentioned

- The following logic families have the shortest propagation delay \_\_\_\_\_.  
 (a) AS-TTL                      (b) S-TTL  
 (c) HCMOS                      (d) HS-TTL
- A JFET is similar in operation to \_\_\_\_\_ valve.  
 (a) diode                      (b) pentode  
 (c) triode                      (d) tetrode

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- (a) What is PSPICE?  
 (b) What is the use of probe in PSPICE?
- (a) Explain BJT differential amplifier.  
 (b) Explain FET multistage amplifier.
- (a) State the op-amp characteristics.  
 (b) Explain active filters using op-amp.

14. (a) Explain voltage to frequency converter.

Or

(b) Explain current to voltage converter.

15. (a) Explain about finite state machine.

Or

(b) Explain the implementation of stop watch.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write in detail about circuit design and analysis using PSPICE.

Or

(b) Explain schematic attributes and types of analysis in PSPICE.

17. (a) Design and analyze current sources.

Or

(b) Design and analyze current mirrors in detail.

18. (a) Explain differentiator using Op-Amp.

Or

(b) Explain in detail about non-sinusoidal circuits using op-amp.

19. (a) Explain frequency to voltage converter.

Or

(b) Explain the PLL and its circuit application.

20. (a) Explain sequence detector in detail.

Or

(b) Explain FPGA in detail.



13. (a) Explain the types of data.

Or

(b) Explain discrete probability distribution.

14. (a) What are the measures of central tendency?

Or

(b) What are Z-Transform?

15. (a) State Dirichlet conditions.

Or

(b) What is RMS Value?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Let  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  then show that

$A^2 - 4A + 7I = 0$  using this result calculate  $A^5$ .

Or

(b) If  $A = \begin{bmatrix} 3 & 1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & -1 \\ 2 & 1 \\ 3 & 1 \end{bmatrix}$ , find AB.

17. (a) Calculate  $\iint_R \frac{x}{y^2} dx dy$ , where  $R = [1, 2] \times [4, 6]$  separating variables.

Or

(b) Calculate the volume of solid bounded by curves  $y = x^2$ ,  $y = 1$ ,  $z = 0$ ,  $z = 2y$ .

18. (a) Explain the measures of central tendency.

Or

(b) Explain probability distribution with an example.

19. (a) Explain zeros and poles in detail.

Or

(b) Explain state variable method of circuit analysis.

20. (a) Express  $f(x) = \sin\left(\frac{\pi x}{l}\right)$  as half range cosine series for  $0 \leq x \leq l$ .

Or

(b) Explain RMS values in detail.



(6 pages)

Reg. No. : .....

Code No. : 6518

Sub. Code : ZELM 14/  
ZECM 14

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communications – Core

ADVANCED MICROPROCESSOR

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A memory connected to a microprocessor has 20 address lines and 16 data lines. What will be the memory capacity?  
(a) 8 KB  
(b) 2 MB  
(c) 16 MB  
(d) 64 KB
5. What is stored in the H and L general purpose register?  
(a) Opcode  
(b) Address of memory  
(c) Address of next instruction  
(d) Temporary data
6. Which of the following is a software interrupt?  
(a) TRAP                      (b) INTR  
(c) RST-6.5                      (d) RST-5
7. What is the vectored address of RST-5?  
(a) 0010H                      (b) 0032H  
(c) 0028H                      (d) 0030H
8. How many address lines are required to connect a 4 KB RAM to a microprocessor?  
(a) 10                              (b) 16  
(c) 12                              (d) 20
9. Conditional instructions are independent of which of the following flag?  
(a) Z                              (b) AC  
(c) CY                              (d) P

2. What is the word length of the Pentium – II microprocessor?  
(a) 8 – bit  
(b) 32 – bit  
(c) 64 bit  
(d) 16 bit
3. Which of the following is a non-vectored input?  
(a) TRAP  
(b) RST-7.5  
(c) RST-6.5  
(d) INTR
4. Which of the following addressing modes is used by 8085 microprocessor for array and list operation?  
(a) Base Register  
(b) Direct  
(c) Indexed  
(d) Immediate

Page 2

Code No. : 6518

10. Which of the following interfacing IC is a DMA controller?  
(a) 8257/37                      (b) 8155  
(c) 8253/54                      (d) 8279

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is CISC microprocessor?  
Or  
(b) What are the data formats of Intel X86 family processors?
12. (a) Write short notes on special Pentium registers.  
Or  
(b) Write the new Pentium instructions.
13. (a) Explain RISC properties and evaluation.  
Or  
(b) What is power PC 601? Explain.

Page 3

Code No. : 6518

Page 4

Code No. : 6518

14. (a) Draw the architecture of MIPS RX000 family and explain.

Or

- (b) List the special features of MIPS R4000.

15. (a) Write about MC88110 in detail.

Or

- (b) Write about MC88200.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Draw and explain Intel X86 family architecture.

Or

- (b) Explain the interrupts segmentation in Intel X86 family in detail.

17. (a) Explain about Pentium memory management in detail.

Or

- (b) Explain in detail about Pentium pro and its special features.

18. (a) Compare RISC (V<sub>8</sub>) CISC.

Or

- (b) Explain in detail about IBM Rs. 6,000.

19. (a) Explain MIPS R400 with necessary diagrams.

Or

- (b) Explain the architecture of sun-SPARC family.

20. (a) Explain EPIC architecture.

Or

- (b) Explain in detail about network processors.
-



13. (a) Explain the types of data.

Or

(b) Explain discrete probability distribution.

14. (a) What are the measures of central tendency?

Or

(b) What are Z-Transform?

15. (a) State Dirichlet conditions.

Or

(b) What is RMS Value?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Let  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  then show that

$A^2 - 4A + 7I = 0$  using this result calculate  $A^5$ .

Or

(b) If  $A = \begin{bmatrix} 3 & 1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & -1 \\ 2 & 1 \\ 3 & 1 \end{bmatrix}$ , find AB.

17. (a) Calculate  $\iint_R \frac{x}{y^2} dx dy$ , where  $R = [1, 2] \times [4, 6]$  separating variables.

Or

(b) Calculate the volume of solid bounded by curves  $y = x^2$ ,  $y = 1$ ,  $z = 0$ ,  $z = 2y$ .

18. (a) Explain the measures of central tendency.

Or

(b) Explain probability distribution with an example.

19. (a) Explain zeros and poles in detail.

Or

(b) Explain state variable method of circuit analysis.

20. (a) Express  $f(x) = \sin\left(\frac{\pi x}{l}\right)$  as half range cosine series for  $0 \leq x \leq l$ .

Or

(b) Explain RMS values in detail.

(6 pages)

Reg. No. : .....

Code No. : 6515

Sub. Code : ZECM 11/  
ZELM 11

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communication

ELECTRONIC PROPERTIES OF MATERIALS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- The SI unit of conductivity is \_\_\_\_\_  
(a) Meter (b) Ohm meter  
(c) Ohm (d) 1/ohm meter
- Which material has 98% electrical conductivity?  
(a) Gold (b) Aluminium  
(c) Silver (d) Brass

3. What is the relation between  $\epsilon_r$  and  $X$ ?

- (a)  $\epsilon_r = X$  (b)  $\epsilon_r = 1 + X$   
(c)  $\epsilon_r = 1 - X$  (d)  $\epsilon_r = X - 1$

4. If the dipole moment of a water drop is  $4 \times 10^{-30}$  m and radius is 1 mm, What is the Polarization of the drop?

- (a)  $5.6 \times 10^{-13} \text{ m}^{-2}$  (b)  $7.4 \times 10^{-13} \text{ m}^{-2}$   
(c)  $8.4 \times 10^{-13} \text{ m}^{-2}$  (d)  $9.4 \times 10^{-13} \text{ m}^{-2}$

5. The absorption of Photons in a Photodiode is dependent on \_\_\_\_\_

- (a) Absorption Co-efficient  
(b) Properties of materials  
(c) Charge carries at junction  
(d) Amount light

6. In optical fiber communication, the only weakly absorbing materials over wavelength band required is?

- (a) GaAs (b) Silicon  
(c) GaSb (d) Germanium

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7. The threshold for indirect absorption occurs at wave length \_\_\_\_\_

- (a)  $3.01 \mu\text{m}$  (b)  $2.09 \mu\text{m}$   
(c)  $3.92 \mu\text{m}$  (d)  $1.09 \mu\text{m}$

8. A material with one dimension in Nano range and other two dimensions are large is called \_\_\_\_\_

- (a) Micro material  
(b) Quantum wire  
(c) Quantum well  
(d) Quantum dot

9. The color of the nano gold particles is \_\_\_\_\_

- (a) Yellow  
(b) Orange  
(c) Red  
(d) Variable

10. The melting point of particles in nano form \_\_\_\_\_

- (a) Increases  
(b) Decreases  
(c) Remains same  
(d) Increases then decreases

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain conductivity in detail.

Or

(b) Explain Fermi surfaces.

12. (a) Define ferro electricity.

Or

(b) Define antiferro electricity.

13. (a) Explain Electronic inter bond and intra bond transitions.

Or

(b) Explain Refraction.

14. (a) Explain diamagnetism.

Or

(b) Explain coercive force.

Page 3 Code No. : 6515

Page 4 Code No. : 6515

[P.T.O.]

15. (a) Explain the prime materials in nanotechnology.

Or

(b) Explain the Quantum confinement of nanomaterials.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain conductivity and super conductivity in detail.

Or

(b) Explain conduction in metal oxides and amorphous materials.

17. (a) Explain about local Electric field at an atom.

Or

(b) Explain ferro electricity and ferro elasticity.

18. (a) Explain the Relation between optical properties and band structure.

Or

(b) Explain bond structure determination from optical spectra reflection.

19. (a) Explain about neutron magnetic scattering.

Or

(b) Explain in detail about Ferromagnetic and anti ferrimagnetic order.

20. (a) Explain about nanoparticles and biomaterials.

Or

(b) Explain in detail about Microstructure and defects in monocrystalline materials.

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. When the co-planar arm lengths are not the same, then outputs in the H-plane tee can be
  - (a) in phase
  - (b) out of phase
  - (c) with phase difference
  - (d) none of the above

2. For its S matrix to be unitary, the circuit should be
  - (a) reciprocal
  - (b) lossless
  - (c) both
  - (d) none
3. The waves in a waveguide
  - (a) travel along the border walls of the waveguide
  - (b) are reflected from the side walls but do not travel along them
  - (c) travel through the dielectric without touching the walls
  - (d) travel along all the four walls
4. Waveguides can carry
  - (a) TE mode
  - (b) TM mode
  - (c) Mixed mode
  - (d) All
5. Klystron operates on the principle of
  - (a) Amplitude modulation
  - (b) Frequency modulation
  - (c) Pulse modulation
  - (d) Velocity modulation
6. The negative resistance in gunn diode is due to
  - (a) electron transfer to a less mobile energy level
  - (b) high reverse bias
  - (c) electron domain formation at the junction
  - (d) tunneling across the junction

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

7. TWT is basically
  - (a) an oscillator
  - (b) tuned amplifier
  - (c) wideband amplifier
  - (d) an audio amplifier
8. An attenuator is used with TWT to
  - (a) prevent oscillations
  - (b) increase gain
  - (c) prevent saturation
  - (d) help bunching
9. Due to curvature of earth, microwave repeaters are placed at distance of about
  - (a) 10 Km
  - (b) 50 Km
  - (c) 200 Km
  - (d) 500 Km
10. The biggest disadvantage the IMPATT diode has is its
  - (a) Low efficiency
  - (b) High noise
  - (c) Low BW
  - (d) Inutility to provide pulse operation

11. (a) Write short notes on S matrix.  
Or  
(b) What are impedance matching techniques?
12. (a) Write short notes on types of waveguides.  
Or  
(b) Write short notes on directional couplers.
13. (a) Write short notes on magnetron.  
Or  
(b) Write short notes on GUNN DIODE.
14. (a) Write short notes on YAGI-UDA antenna.  
Or  
(b) Write short notes on microstrip antenna.
15. (a) What is polarization?  
Or  
(b) Explain radiation pattern.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Explain and derive Maxwell's equation.

Or

- (b) Explain lossless and lossy transmission lines.

17. (a) Explain T microwave couplers in detail.

Or

- (b) Write in detail about connectors and adapters.

18. (a) Explain microwave switches in detail.

Or

- (b) Explain in detail about varactor diode.

19. (a) Explain broad side and end fire antenna.

Or

- (b) Explain phased array antenna in detail.

20. (a) Explain about radiation resistance and radiation patterns.

Or

- (b) Derive friss transmission equation.
-



(6 pages)

Reg. No. : .....

Code No. : 30633 E

Sub. Code : CAEL 11/  
CAES 11

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2022

First Semester

Electronics/Electronics and Communication

Allied – INTRODUCTION OF C LANGUAGE

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Who is the founder of C Programming?
  - (a) Steve Jobs
  - (b) James gosling
  - (c) Dennis Ritchie
  - (d) Rasmus Lerdorf

2. All keyword in C are in \_\_\_\_\_ letters.

- (a) Lower case
- (b) Upper case
- (c) Camel case
- (d) None of the these

3. What is an example of iteration in C?

- (a) for
- (b) while
- (c) do-while
- (d) all of the above

4. How many number of pointer (\*) does C have against a pointer variable declaration

- (a) 7
- (b) 127
- (c) 255
- (d) No limit

5. In C language FILE is of which data type.

- (a) int
- (b) char \*
- (c) struct
- (d) none of the above

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6. What are the elements present in the array of the following C code `int array [5] = {5}`

- (a) 5, 5, 5, 5, 5
- (b) 5, 0, 0, 0, 0
- (c) 5, (garbage), (garbage), (garbage), (garbage)
- (d) 0, 0, 0, 0, 5

7. Which keyword can be used for coming out of recursion?

- (a) break
- (b) return
- (c) exit
- (d) both (a) and (b)

8. The format. Identifier "%i" is also used for \_\_\_\_\_ data type

- (a) char
- (b) int
- (c) float
- (d) double

9. What are the types of arrays?

- (a) struct, enum
- (b) int, long, float, double
- (c) char
- (d) all the above

10. An array index starts with?

- (a) -1
- (b) 0
- (c) 1
- (d) 2

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write short notes on Flow chart

Or

(b) Explain about Compilers.

12. (a) Discuss the Identifiers.

Or

(b) Define: Bitwise operators.

13. (a) What are basic steps of IF...ELSE statement?

Or

(b) Differentiate Between WHILE and DO WHILE loops.

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Page 4 Code No. : 30633 E

[P.T.O.]

14. (a) Explain about the prototype functions.

Or

(b) Define: main() function.

15. (a) Identify the multidimensional arrays.

Or

(b) Discover the array of pointers.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Enumerate about the high level and low level assembly language.

Or

(b) Explain the following terms:

(i) Assemblers

(ii) Interpreters.

17. (a) Briefly explain about the Keywords.

Or

(b) Discuss in detail about Arithmetic and Logical operators.

18. (a) Summarize in detail about Nesting of IF Else statement.

Or

(b) Explain the following terms:

(i) FOR loop

(ii) GO.. TO statement.

19. (a) Discuss in detail about library functions with neat sketch.

Or

(b) Explain the following terms.

(i) Calling a function.

(ii) Recursion

20. (a) Evaluate the process of opening and closing of files.

Or

(b) Interpret the basics steps of the creating a data file.

---



3. Measurements in the medical field can be classified into two types.  
 (a) in vivo, in vitro (b) tera, tetra  
 (c) viva, versus (d) None
4. Indirect measurement of blood pressure is called \_\_\_\_\_ method.  
 (a) Amplifier (b) Korotoff  
 (c) Pulmonary (d) Ultrasonic
5. A typical value of the calibration signal in medical electronics is  
 (a) 100  $\mu\text{V}/\text{cm}$  (b) 50  $\mu\text{V}/\text{cm}$   
 (c) 25  $\mu\text{V}/\text{cm}$  (d) 10  $\mu\text{V}/\text{cm}$
6. The amplitude of pacemaker pulse can be as large as \_\_\_\_\_.  
 (a) 80 mV (b) 40 mV  
 (c) 15 mV (d) 1 mV
7. \_\_\_\_\_ modulation is used in bio-telemetry  
 (a) AM (b) FM  
 (c) PAM (d) PCM
8. BSR is due to \_\_\_\_\_ activity.  
 (a) Dermal (b) Thermal  
 (c) Herbal (d) Acute
9. X-rays are discovered in \_\_\_\_\_.  
 (a) 1800 (b) 1900  
 (c) 1895 (d) 1995
10. \_\_\_\_\_ studies doesn't involve with image formation.  
 (a) X-ray (b) MRI  
 (c) CT-scan (d) Ultrasonic

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
 Each answer should not exceed 250 words.

11. (a) How transducers are classified? Explain.  
 Or  
 (b) Write about "Propagation of action potentials".
12. (a) How can identify blood pressure? Explain it.  
 Or  
 (b) Write a short note on "Cardiac O/p measurement".
13. (a) Give an principle of DC defibrillator.  
 Or  
 (b) Explain the types of pacemakers.
14. (a) Explain types of telemetry systems.  
 Or  
 (b) Give short notes on "Sensory measurements".
15. (a) Give the uses of CT scanner.  
 Or  
 (b) Write short notes on "Modes of ultrasonography".

(6 pages)

Reg. No. : .....

Code No. : 30151E Sub. Code : [JACE 21/  
JAIE 21/  
SACE 21/  
SAIE 21]

B.Sc (CBCS) DEGREE EXAMINATION, APRIL 2022.

Second Semester

Electronics/Electronics and Communication

PROGRAMMING IN C

(For those who joined in July 2016-2019)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Each and Every Smallest Individual units in a c-program is called \_\_\_\_\_
  - (a) Structure
  - (b) Token
  - (c) Union
  - (d) None

2. We can access \_\_\_\_\_ from anywhere in a c-program without declaring any Initializing in an application or c-program.
  - (a) Integer Variable
  - (b) Float Variable
  - (c) Environment Variable
  - (d) Const
3. Which of the following is the decision control statement.
  - (a) GOTO
  - (b) FOR
  - (c) IF-ELSE
  - (d) decision
4. In which loop the loop is excuted for first time irrespective of the condition.
  - (a) WHILE
  - (b) DO-WHILE
  - (c) IF
  - (d) None
5. The Index of an array start with \_\_\_\_\_
  - (a) Zero
  - (b) One
  - (c) A
  - (d) none
6. Which of the following has correct syntax.
  - (a) int num(35);
  - (b) int num[35];
  - (c) integer num[35];
  - (d) none

Page 2 Code No. : 30151E

7. Which of the following Function presents in all C-program?
  - (a) char ()
  - (b) open ()
  - (c) main ()
  - (d) All
8. \_\_\_\_\_ is the default way of calling a function in C-Programming
  - (a) call by value
  - (b) call by reference
  - (c) recursion
  - (d) none
9. \_\_\_\_\_ is variable that stores the address of another variable.
  - (a) Structure
  - (b) Union
  - (c) Pointer
  - (d) All
10. \_\_\_\_\_ function is used to close a file.
  - (a) close()
  - (b) fclose ()
  - (c) closed ()
  - (d) none

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What are the data types used in C-Programming? Write with example.  
Or  
(b) Write a C-program to find the Factorial of a given number.
12. (a) Explain with syntex and Example: GOTO statement  
Or  
(b) Write a C-Program to find the Sum of N-elements in an array.
13. (a) Write a C-Program to compare two strings.  
Or  
(b) Write with example of any 5 string handling Functions.
14. (a) How will you define and declare a function?  
Or  
(b) Define: Union with syntex.

15. (a) Explain the process of Random Access of files.

Or

(b) Explain about Input/Output operations on files.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Describe the operators used in C-Programming.

Or

(b) Explain about the Bit wise operators with example.

17. (a) Explain with example: ELSE-IF Ladder.

Or

(b) Write a program to find the biggest number of a given three elements using IF statement.

18. (a) How will you declare and initialize string variables? Write example.

Or

(b) Write a C-Program for : Matrix Multiplication.

19. (a) Explain about passing string to function with example.

Or

(b) Explain about Function that return Multiple values.

20. (a) Explain with syntax: Pointers as Function arguments.

Or

(b) Describe about the Error handling in I/O Operatros.

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Code No. : 30461 E Sub. Code : SEEL 6 A

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022.

Sixth Semester

Electronics — Major Elective

PCB DESIGN

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the component code is for diode?  
(a) R (b) C  
(c) CR (d) T
2. The fundamental rule of conductor width in PCB Fabrication is \_\_\_\_\_  
(a)  $W_{ground} < W_{supply} < W_{signal}$   
(b)  $W_{ground} > W_{supply} > W_{signal}$   
(c)  $W_{ground} = W_{supply} = W_{signal}$   
(d)  $W_{ground} < W_{supply} > W_{signal}$

Page 2 Code No. : 30461 E

7. Etch factor means \_\_\_\_\_  
(a) Ratio of etchant concentration to neutralization liquid.  
(b) Ratio of etching depth to width of the side attack  
(c) Ratio of electric resistance to electric capacitance  
(d) None of the above

8. Pick out the solder alloy \_\_\_\_\_  
(a) Tin - Lead (b) Copper - Iron  
(c) Gold - Silver (d) Gold - Iron

9. Ferric chloride is used as \_\_\_\_\_  
(a) Resin (b) Etchant  
(c) Adhesive (d) Pollutant

10. The recommended etchant choice to day for etching metal -resist boards is \_\_\_\_\_  
(a) Ferric chloride  
(b) alkaline ammonia based  
(c) cupric chloride  
(d) chromic acid

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3. Capacitance between conductors is given by \_\_\_\_\_  
(a)  $0.886Ab/r$  (b)  $0.886Ar/b$   
(c)  $0.886Abr$  (d) none of the above
4. Art work can be done by \_\_\_\_\_  
(a) Black tapping on TBF  
(b) Red/Blue taping on TBF  
(c) Black taping on diazo film  
(d) all the above
5. Which one of the following is an abrasive for PCB cleaning?  
(a) pumice powder (b) alkaline solution  
(c) water (d) none
6. The resin used for manufacturing copper clad laminates is \_\_\_\_\_  
(a) Phenol formaldehyde  
(b) cupric chloride  
(c) Ferric chloride  
(d) chromic acetate

PART B — (5 × 5= 25 Marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Explain the concept of multilayer board.  
Or  
(b) Write a short notes of plated through hole technology.
12. (a) Write a note on art mark check and inspection.  
Or  
(b) What are constraints on optimum package density?
13. (a) Explain the formation and features of photoresists.  
Or  
(b) Explain the features of dry film resist.
14. (a) Explain the various methods of minimizing pollution.  
Or  
(b) Give the most important criteria for the selection of a flux.

Page 4 Code No. : 30461 E  
[P.T.O.]

15. (a) What is the criteria for solder pad diameter?

Or

(b) Write a short note on fluxes.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Explain the concept of components placing and mounting in PCB layout.

Or

(b) In layout approaches state role of materials and aids. Explain the procedures to be adopted.

17. (a) State general art work rules and explain them in details.

Or

(b) Explain how resistance of PCB track and inductance developed due to presence of conductor will have to be considered in details.

18. (a) State different types of laminates and explain their features.

Or

(b) Explain different types involved in manual cleaning process of copper clad laminates.

19. (a) Explain the various types of etching systems.

Or

(b) Explain the working of different etching machines.

20. (a) Describe the difference etching system in detail.

Or

(b) Name the different types of soldering techniques available and describe them in detail.



B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022

Second Semester

Add on Major

PROFESSIONAL ENGLISH FOR PHYSICAL  
SCIENCES — II

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Peasants refer to  
(a)  Farmers (b) Scientists  
(c) Masons (d) None of the above
2. The distance covered by light in one year is  
(a) Photon (b)  Light year  
(c) Quanta (d) Leap year

3. Locate the word that relate to occur at same time  
(a) cross (b) device  
(c) synchronize (d) asymptotic
4. \_\_\_\_\_ is called prince of Mathematicians.  
(a)  Gauss (b) Einstein  
(c) Newton (d) Planck
5. The sequence 1 1 2 3 5 8 13... is  
(a) Taylor series (b)  Fibonacci series  
(c) Euler (d) None
6. EW stands for  
(a)  Electronic warfare (b) Electronic work  
(c) Electro web (d) None
7. Buoyancy is the ability to  
(a) run (b) sink  
(c) fly (d) float
8. Web page is written in  
(a) HTML (b) HTTP  
(c) Coding (d) None

9. Icons are used in poster to improve  
(a) designs (b) pattern  
(c) figures (d) texts
10. Circulars are  
(a) formal (b) informal  
(c) both (a) and (b) (d) none

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Define light year and sundial.  
Or  
(b) Draw a simple mind map of any science concepts.
12. (a) Imagine you are the owner of fitness tracker production company advertise your product.  
Or  
(b) Give the synonyms of  
(i) Geodesy  
(ii) anecdote  
(iii) precocity  
(iv) cyborg  
(v) facilitate

13. (a) Expand the following SMTP, HTTP, IOT, CLI, REST.

Or

- (b) Write note on fibanocci numbers.

14. (a) Create own sentences with the following :  
(i) famous  
(ii) awful  
(iii) pretty  
(iv) artistic  
(v) original.

Or

- (b) Discuss the steps for creating your own blog.

15. (a) Prepare a sample minutes of a meeting.

Or

- (b) Discuss the usage of head phones in listening to music.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss about various compounds you come across in daily life.

Or

- (b) Explain relativity as you know

17. (a) Explain AI in education and research.

Or

- (b) Comment on some persuasive techniques in communication.

18. (a) Make some sentences with the following words Emwaves, GPS, Emission, Defence, Radar, Decode.

Or

- (b) Explain ICT based learning.

19. (a) Give information about few acids and bases.

Or

- (b) Explain Webpage, blog, flyers and brochures.

20. (a) Why is power point presentation more interesting than ordinary type of presentation? Explain.

Or

- (b) Explain the concept of using virtual personal assistants.
-

(6 pages)

Reg. No. : .....

Code No. : 30144 E Sub. Code : [JMEL 5A/  
SEEL 5A]

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022.

Fifth Semester

Electronics

Major Elective — TELEVISION ENGINEERING

(For those who joined in July 2016 onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions

Choose the correct answer.

1. The main purpose of interlacing in television scanning is to
  - (a) Reduce flicker
  - (b) brighten the TV picture
  - (c) Sharper picture outline
  - (d) Increase channel bandwidth

2. If there are 625 lines per TV picture, then lines per field are
  - (a) 1250
  - (b) 312.5
  - (c) 625
  - (d) 2500
3. The main function of the electron gun in cathode ray tube is to electrons
  - (a) Deflect
  - (b) Produce
  - (c) Size
  - (d) Aspect
4. Image orthicon is based on:
  - (a) Photo conduction principle
  - (b) Photo emission principle
  - (c) Any one of two
  - (d) None of these
5. AFC is used for
  - (a) AFC is vertical and horizontal oscillator.
  - (b) Horizontal synchronization
  - (c) Stabilizing picture and sound
  - (d) Vertical synchronization
6. Receiving antenna for television normally a:
  - (a) A folded dipole
  - (b) parabolic reflector
  - (c) Yagi antenna
  - (d) Loop antenna

2 Code No. : 30144 E

7. Automatic correction of colour error is possible in:
  - (a) NTSC
  - (b) PAL
  - (c) SECAM
  - (d) None of these
8. In the term NTSC.TV, C stands for:
  - (a) Colour
  - (b) Committee
  - (c) Camera
  - (d) Code
9. Which of the following system does not use EM fields at any stage of acquiring TV signals:
  - (a) CATV
  - (b) CCTV
  - (c) VCR
  - (d) MATV
10. Which of the following stage is not part of CCTV monitor:
  - (a) Video detector
  - (b) Picture tube
  - (c) Sync separator
  - (d) Video Amplifier

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b)

Each Answer should not exceed 250 words

11. (a) Explain Scanning.

Or

- (b) Explain television transmitter.

12. (a) Explain working principle of image orthicon.  
Or  
(b) What is mean by modulation? Explain positive modulation.
13. (a) Explain Vestigial sideband correction.  
Or  
(b) Explain sound signal seperotion.
14. (a) Explain Additive mixing of colours in television.  
Or  
(b) Explain NTSC
15. (a) Define DVD. Explain it.  
Or  
(b) Explain High Definition television.

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[P.T.O.]

SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b)  
Each question should not exceed 600 words.

16. (a) Explain the following

- (i) Television transmitter
- (ii) Television Receiver

Or

(b) Explain the following.

- (i) Interlaced scanning.
- (ii) Horizontal and Vertical resolution.

17. (a) Explain the working principle of image orthicon camera tube.

Or

(b) Explain the colour television camera with neat block diagram.

18. (a) Explain monochrome television receiver with a neat diagram.

Or

(b) Define SMPS. Explain SMPS with neat circuit diagram.

19. (a) Explain three colour theory in colour television.

Or

(b) Write an essay about on NTSC with neat Diagram.

20. (a) What is mean by CCTV? Explain a function block Diagram of CCTV.

Or

(b) Explain the following: term.

- (i) VCD
  - (ii) DVD
-

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Code No. : 30144 E Sub. Code : [JMEL 5A/  
SEEL 5A]

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL, 2022.

Fifth Semester

Electronics

Major Elective — TELEVISION ENGINEERING

(For those who joined in July 2016 onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions

Choose the correct answer.

1. The main purpose of interlacing in television scanning is to
  - (a) Reduce flicker
  - (b) brighten the TV picture
  - (c) Sharper picture outline
  - (d) Increase channel bandwidth

2. If there are 625 lines per TV picture, then lines per field are
  - (a) 1250
  - (b) 312.5
  - (c) 625
  - (d) 2500
3. The main function of the electron gun in cathode ray tube is to electrons
  - (a) Deflect
  - (b) Produce
  - (c) Size
  - (d) Aspect
4. Image orthicon is based on:
  - (a) Photo conduction principle
  - (b) Photo emission principle
  - (c) Any one of two
  - (d) None of these
5. AFC is used for
  - (a) AFC is vertical and horizontal oscillator.
  - (b) Horizontal synchronization
  - (c) Stabilizing picture and sound
  - (d) Vertical synchronization
6. Receiving antenna for television normally a:
  - (a) A folded dipole
  - (b) parabolic reflector
  - (c) Yagi antenna
  - (d) Loop antenna

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7. Automatic correction of colour error is possible in:
  - (a) NTSC
  - (b) PAL
  - (c) SECAM
  - (d) None of these
8. In the term NTSC.TV, C stands for:
  - (a) Colour
  - (b) Committee
  - (c) Camera
  - (d) Code
9. Which of the following system does not use EM fields at any stage of acquiring TV signals:
  - (a) CATV
  - (b) CCTV
  - (c) VCR
  - (d) MATV
10. Which of the following stage is not part of CCTV monitor:
  - (a) Video detector
  - (b) Picture tube
  - (c) Sync separator
  - (d) Video Amplifier

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b)

Each Answer should not exceed 250 words

11. (a) Explain Scanning.

Or

- (b) Explain television transmitter.

12. (a) Explain working principle of image orthicon.

Or

- (b) What is mean by modulation? Explain positive modulation.

13. (a) Explain Vestigial sideband correction.

Or

- (b) Explain sound signal seperotion.

14. (a) Explain Additive mixing of colours in television.

Or

- (b) Explain NTSC

15. (a) Define DVD. Explain it.

Or

- (b) Explain High Definition television.

SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b)

Each question should not exceed 600 words.

16. (a) Explain the following

(i) Television transmitter

(ii) Television Receiver

Or

(b) Explain the following.

(i) Interlaced scanning.

(ii) Horizontal and Vertical resolution.

17. (a) Explain the working principle of image orthicon camera tube.

Or

(b) Explain the colour television camera with neat block diagram.

18. (a) Explain monochrome television receiver with a neat diagram.

Or

(b) Define SMPS. Explain SMPS with neat circuit diagram.

19. (a) Explain three colour theory in colour television.

Or

(b) Write an essay about on NTSC with neat Diagram.

20. (a) What is mean by CCTV? Explain a function block Diagram of CCTV.

Or

(b) Explain the following: term.

(i) VCD

(ii) DVD

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B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2022

Sixth Semester

Electronics

Major Elective – EMBEDDED SYSTEM AND RTOS

(For those who joined in July 2017 Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. An \_\_\_\_\_ system is a combination of computer hardware and software.
- (a) RTOS  
(b) VLSI  
(c) embedded  
(d) all of the above

6. Interrupt latency is the \_\_\_\_\_ that elapses from when an interrupt is generated to when the source of the interrupt is serviced.
- (a) amplitude (b) phase  
(c) frequency (d) time

7. \_\_\_\_\_ is software that provides a set of necessary tools in one package.
- (a) Emulator  
(b) Debugger  
(c) IDE  
(d) Linker

8. \_\_\_\_\_ is the process of finding and resolving defects in a computer program.
- (a) Debugging  
(b) Resolving  
(c) Code editor  
(d) all of the above

9. RTOS is an OS intended to process data as it comes in, typically without \_\_\_\_\_
- (a) tools  
(b) buffer delays  
(c) editor  
(d) time delays

2. Which of the following allows the reuse of the software and the hardware components?
- (a) platform based design  
(b) memory design  
(c) peripheral design  
(d) input design
3. A \_\_\_\_\_ is a device to receive the bytes from external peripheral
- (a) Hub (b) bus  
(c) port (d) all of the above
4. A timer is a specialized type of clock which is used to measure \_\_\_\_\_ intervals.
- (a) delay  
(b) time  
(c) Both (a) and (b)  
(d) none
5. The software that directly interfaces with and controls \_\_\_\_\_ is called a device driver.
- (a) driver  
(b) hardware  
(c) software  
(d) bus

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10. A \_\_\_\_\_ is the first tool you need to begin creating an embedded system.
- (a) text editor  
(b) compiler  
(c) assembler  
(d) debugger

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What are hardware units in embedded systems?

Or

- (b) Describe the SOC in embedded system.

12. (a) Explain the working of I/O device.

Or

- (b) Write short note on high speed parallel buses.

13. (a) Write short note on serial port device driver.

Or

- (b) Define interrupt service mechanism.

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[P.T.O.]

14. (a) Write short note on basics of embedded programming.

Or

(b) How the process of getting embedded software into a target system?

15. (a) What is real time OS with example?

Or

(b) Define the use of a target system.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the process involved in software embedded to a system?

Or

(b) Describe the embedded system in a VLSI circuit?

17. (a) Explain briefly about the I/O devices in embedded system.

Or

(b) Describe the parallel communication using PCIX.

18. (a) Describe about the parallel port device drivers in a system.

Or

(b) Describe about the context and periods for context switching.

19. (a) Describe about the IDE.

Or

(b) Explain about the debugging the application.

20. (a) Explain the basic concepts of RTOS.

Or

(b) Explain in detail about the design issues in system development process.

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(6 pages)

Reg. No. : .....

Code No. : 30144 E Sub. Code : [JMEL 5A/  
SEEL 5A]

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022.

Fifth Semester

Electronics

Major Elective — TELEVISION ENGINEERING

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL questions

Choose the correct answer.

1. The main purpose of interlacing in television scanning is to
  - (a) Reduce flicker
  - (b) brighten the TV picture
  - (c) Sharper picture outline
  - (d) Increase channel bandwidth

2. If there are 625 lines per TV picture, then lines per field are
  - (a) 1250
  - (b) 312.5
  - (c) 625
  - (d) 2500
3. The main function of the electron gun in cathode ray tube is to electrons
  - (a) Deflect
  - (b) Produce
  - (c) Size
  - (d) Aspect
4. Image orthicon is based on:
  - (a) Photo conduction principle
  - (b) Photo emission principle
  - (c) Any one of two
  - (d) None of these
5. AFC is used for
  - (a) AFC is vertical and horizontal oscillator.
  - (b) Horizontal synchronization
  - (c) Stabilizing picture and sound
  - (d) Vertical synchronization
6. Receiving antenna for television normally a:
  - (a) A folded dipole
  - (b) parabolic reflector
  - (c) Yagi antenna
  - (d) Loop antenna

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7. Automatic correction of colour error is possible in:
  - (a) NTSC
  - (b) PAL
  - (c) SECAM
  - (d) None of these
8. In the term NTSC.TV, C stands for:
  - (a) Colour
  - (b) Committee
  - (c) Camera
  - (d) Code
9. Which of the following system does not use EM fields at any stage of acquiring TV signds:
  - (a) CATV
  - (b) CCTV
  - (c) VCR
  - (d) MATV
10. Which of the following stage is not part of CCTV monitor:
  - (a) Video detector
  - (b) Picture tube
  - (c) Sync separator
  - (d) Video Amplifier

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b)

Each Answer should not exceed 250 words

11. (a) Explain Scanning.

Or

- (b) Explain television transmitter.

12. (a) Explain working principle of image orthicon.
 

Or

 (b) What is mean by modulation? Explain positive modulation.
13. (a) Explain Vestigial sideband correction.
 

Or

 (b) Explain sound signal seperotion.
14. (a) Explain Additive mixing of colours in television.
 

Or

 (b) Explain NTSC
15. (a) Define DVD. Explain it.
 

Or

 (b) Explain High Definition television.

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SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions choosing either (a) or (b)  
Each question should not exceed 600 words.

16. (a) Explain the following

- (i) Television transmitter
- (ii) Television Receiver

Or

(b) Explain the following.

- (i) Interlaced scanning.
- (ii) Horizontal and Vertical resolution.

17. (a) Explain the working principle of image orthicon camera tube.

Or

(b) Explain the colour television camera with neat block diagram.

18. (a) Explain monochrome television receiver with a neat diagram.

Or

(b) Define SMPS. Explain SMPS with neat circuit diagram.

19. (a) Explain three colour theory in colour television.

Or

(b) Write an essay about on NTSC with neat Diagram.

20. (a) What is mean by CCTV? Explain a function block Diagram of CCTV.

Or

(b) Explain the following: term.

- (i) VCD
  - (ii) DVD
-

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B.Sc. (CBCS) DEGREE EXAMINATION, APRIL, 2022.

Fifth Semester

Electronics/Electronics and Communication – Core

MATHEMATICS FOR ELECTRONICS

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1.  $\mu =$  \_\_\_\_\_

(a)  $\frac{E^{1/2} - E^{-1/2}}{2}$

(b)  $\frac{E^{3/2} - E^{3/2}}{2}$

(c)  $\frac{E^{1/2} + E^{-1/2}}{2}$

(d)  $\frac{E^{3/2} + E^{-3/2}}{2}$

6. Solution of the equation

$x + y = 2$  and  $2x + 3y = 5$  is \_\_\_\_\_

(a) (1, 2)

(b) (1, 3)

(c) (1, 1)

(d) (0, 3)

7. If  $\alpha + i\beta$  be one root of the equation then the another root is \_\_\_\_\_

(a)  $\alpha - i\beta$

(b)  $\alpha - \beta$

(c)  $\beta + i\alpha$

(d)  $\beta - i\alpha$

8. If  $x^3 + ax + b = 0$  be the equation then  $\Sigma\alpha\beta =$  \_\_\_\_\_

(a) 0

(b) -b

(c) a

(d) -a

9. If the reciprocal equation is  $n^{\text{th}}$  type then \_\_\_\_\_

(a)  $a^{n-r} = a_r$

(b)  $a^{n-r} = -a_r$

(c)  $a^{r-n} = -ar$

(d)  $a^{r-n} = ar$

10. Roots of the equation  $x^2 + 4x + 4 = 0$

(a) (-1, -1)

(b) (-2, -2)

(c) (-3, -3)

(d) (-4, -4)

2.  $\Delta y_0 =$  \_\_\_\_\_

(a)  $y_0 - y_1$

(b)  $y_2 - y_1$

(c)  $y_1 - y_0$

(d)  $y_0 - y_2$

3. In Newton's backward formula,  $P =$  \_\_\_\_\_

(a)  $\frac{x - xn}{h}$

(b)  $\frac{x - x_0}{h}$

(c)  $\frac{x_n - x}{h}$

(d)  $\frac{x_n - x_0}{n}$

4.  $[x_{n-1}, x_n] =$  \_\_\_\_\_

(a)  $\frac{y_n - x_n}{y_{n-1} - x_{n-1}}$

(b)  $\frac{y_{n-1} - y_n}{x_n - x_{n-1}}$

(c)  $\frac{y_n - y_{n-1}}{x_n - x_{n-1}}$

(d)  $\frac{x_n - y_n}{y_{n-1} - x_{n-1}}$

5.  $e =$  \_\_\_\_\_

(a) Transcendental number

(b) Algebraic number

(c) Normal number

(d) Quadratic number

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Find the difference table for the following data:

x	0	1	2	3	4	5	6
y	2	5	8	20	38	10	3

Or

(b) Prove that  $\Delta + \nabla = \frac{\Delta}{\nabla} - \frac{\nabla}{\Delta}$ .

12. (a) Find the divided difference table for the following data :

x	0	1	2	5
y	2	3	12	147

Or

(b) Derive Newton's Backward interpolation formula.

13. (a) Use iteration method to solve the equation is  $x^3 + x^2 - 100 = 0$  upto 2 iteration.

Or

(b) Check whether the system of equations.

$3x + 5y - 2z = 7$

$-7x + y + 4z = 3$

$x + 8y - 10z = 5$

is a diagonal system. If not, make it a diagonal system.

14. (a) Diminish the roots of the equation  $x^3 + x^2 + x - 100$  by 4.

Or

- (b) Transform the equation, whose roots are multiplied by 10 into equation  $x^3 + 3x^3 + x - 4 = 0$ .

15. (a) Examine the equation  $2x^2 - 5x + 2 = 0$  is a reciprocal equation and find the root.

Or

- (b) Show that  $4(x^2 - x + 1)^3 = 27x^2(x - 1)^2$  is a standard reciprocal equation.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

16. (a) If  $f(x) = 3x^4 - 4x^3 + 6x^2 + 3x + 1$  in terms of the factorial polynomial and find its 4<sup>th</sup> difference.

Or

- (b) Find the missing data from the following data

$x$	0	5	10	15	20	25
$f(x)$	7	11	?	18	?	32

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17. (a) Calculate the Newtons forward interpolation formula the data given below :

$$x: 0 \quad 1 \quad 2 \quad 3$$

$$f(x): 1 \quad 2 \quad 1 \quad 10$$

Or

- (b) Using Lagranges formula to find the polynomial for the data given below

$$x \quad 0 \quad 1 \quad 3 \quad 4$$

$$y \quad -12 \quad 0 \quad 6 \quad 12$$

and find  $y(2) = ?$

18. (a) Find a root of the equation  $x^3 - 4x - 9 = 0$  by using bisection method in 4 iteration.

Or

- (b) Solve the following equations by Gauss elimination

$$x + y + z = 9$$

$$2x - 3y + 4z = 13$$

$$3x + 4y + 5z = 40$$

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19. (a) Solve the equation  $x^3 - 11x^2 + 37x - 35 = 0$ , given that  $3 + \sqrt{2}$  is a root.

Or

- (b) If the equation  $x^3 + qx + r = 0$  has one root twice the other then prove that  $343r^2 + 36q^3 = 0$ .

20. (a) Solve  $2x^5 - 15x^4 + 37x^3 - 37x^2 + 15x - 2 = 0$ .

Or

- (b) Solve  $4x^4 - 20x^3 + 33x^2 - 20x + 4 = 0$

(6 pages)

Reg. No. :

Code No. : 30150 E Sub. Code : JACE 11/  
JAIE 11/ SACE 11/  
SAIE 11

R.S. CHURCH'S DEGREE EXAMINATION, APRIL, 2022.

First Semester

Electronics: Electronics and Communication Allied  
INTRODUCTION TO COMPUTERS AND OFFICE  
AUTOMATION

(For those who joined in July 2016-2019)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The only language which the computer understands is \_\_\_\_\_.
- (a) Assembly Language  
(b) Binary Language  
(c) BASIC  
(d) C Language

8. Statistical calculations and preparation of tables and graphs can be done using \_\_\_\_\_.
- (a) Notepad (b) Excel  
(c) Power point (d) Photoshop
9. Microsoft access is a
- (a) Network database model  
(b) RDBMS  
(c) ORDBMS  
(d) None of the above
10. Name the application under MS Office software bundle, which we use to create audio visual presentation.
- (a) MS Word (b) MS Excel  
(c) MS PowerPoint (d) MS Access

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) Mention the usage of mouse.
- Or
- (b) Discuss about creating shortcut for a program.

2. The desktop has several \_\_\_\_\_.
- (a) Application (b) Menu  
(c) Programs (d) Icons
3. The space left between the margin and the start of a paragraph is called \_\_\_\_\_.
- (a) Spacing (b) Gutter  
(c) Indentation (d) Alignment
4. Text-styling feature of MS word is \_\_\_\_\_.
- (a) Word Color (b) Word Font  
(c) Word Art (d) Word Fill
5. To apply center alignment to a paragraph we can press \_\_\_\_\_.
- (a) Ctrl + S (b) Ctrl + C  
(c) Ctrl + C + A (d) Ctrl + E
6. \_\_\_\_\_ is used to present a given data in the form of rows and column.
- (a) Charts (b) Table  
(c) Clip art (d) Shapes
7. What is the intersection of column and row on a work sheet called?
- (a) Column (b) Value  
(c) Address (d) Cell

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12. (a) Write a note on basics of word processor.
- Or
- (b) Give the need of undoing any operation.
13. (a) How to specifying text at the top and bottom of the page?
- Or
- (b) Define the term: mail merge and explain.
14. (a) Explain the functions of Microsoft excel.
- Or
- (b) Illustrate the working of formulas using numbers.
15. (a) What is meant by database? Explain.
- Or
- (b) Explain the concept of slide transition.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) List out and explain the different types of computers.

Or

(b) Describe the function of moving from one window to another enlarging a window to screen size.

17. (a) Explain the following:

(i) Saving the documents previewing

(ii) Printing

Or

(b) Give a brief account on automatic correction of errors.

18. (a) Explain in detail about setting the left, right top and bottom margins.

Or

(b) Draw and explain the steps of inserting rows and columns in detail.

19. (a) What is meant by graphs? Briefly explain the usage of graphs.

Or

(b) Outline the concept of mathematical calculations in Ms-excel with suitable formulas.

20. (a) Define: RDBMS Write down and explain the objects of relational database.

Or

(b) How to create charts and tables in power point presentation? Explain it.

(6 pages)

Reg. No. : .....

Code No. : 6517

Sub. Code : ZELM 13/  
ZECM 13

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communication - Core

ANALOG AND DIGITAL SYSTEM DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. PSPICE model library includes parameterized models such as \_\_\_\_\_.
- (a) SCR, Diode                      (b) BJT, MOSFET  
(c) ICs                                      (d) None of the above

5. Which cell can be used instead of a photocell to obtain active transducer in photosensitive devices?
- (a) Photovoltaic cell  
(b) Photo diode  
(c) Photo sensor  
(d) All of the mentioned
6. The current to voltage converter photosensitive device can be used as \_\_\_\_\_.
- (a) Light intensity meter  
(b) Light radiating meter  
(c) Light deposition meter  
(d) None of the mentioned
7. What is the input in the PLD is given through \_\_\_\_\_.
- (a) OR gates                      (b) NAND gates  
(c) AND gates                      (d) NOR gates
8. Vertical and horizontal directions in FPGA are separated by \_\_\_\_\_.
- (a) A channel                      (b) A line  
(c) A flip flop                      (d) A strobe

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2. In a BJT as collector to base voltage increases the emitter current \_\_\_\_\_.
- (a) Remains same  
(b) Increases slightly  
(c) Decreases slightly  
(d) Depends upon doing of the emitter region
3. Find the output voltage of an ideal Op-Amp. If  $V_1$  and  $V_2$  are the two input voltages
- (a)  $V_0 = V_1 - V_2$   
(b)  $V_0 = A \times (V_1 - V_2)$   
(c)  $V_0 = A \times (V_1 + V_2)$   
(d)  $V = V_1 \times V_2$
4. How will be the output voltage obtained for an ideal op-amp?
- (a) amplifiers the difference between the two input voltages  
(b) amplifier individual voltage input voltage  
(c) amplifier product of two input voltage  
(d) none of the mentioned

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9. The following logic families have the shortest propagation delay \_\_\_\_\_.
- (a) AS-TTL                      (b) S-TTL  
(c) HCMOS                      (d) HS-TTL
10. A JFET is similar in operation to \_\_\_\_\_ valve.
- (a) diode                      (b) pentode  
(c) triode                      (d) tetrode

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) What is PSPICE?  
●r  
(b) What is the use of probe in PSPICE?
12. (a) Explain BJT differential amplifier.  
●r  
(b) Explain FET multistage amplifier.
13. (a) State the op-amp characteristics.  
●r  
(b) Explain active filters using op-amp.

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[P.T.O.]

14. (a) Explain voltage to frequency converter.

Or

(b) Explain current to voltage converter.

15. (a) Explain about finite state machine.

Or

(b) Explain the implementation of stop watch.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Write in detail about circuit design and analysis using PSPICE.

Or

(b) Explain schematic attributes and types of analysis in PSPICE.

17. (a) Design and analyze current sources.

Or

(b) Design and analyze current mirrors in detail.

18. (a) Explain differentiator using Op-Amp.

Or

(b) Explain in detail about non-sinusoidal circuits using op-amp.

19. (a) Explain frequency to voltage converter.

Or

(b) Explain the PLL and its circuit application.

20. (a) Explain sequence detector in detail.

Or

(b) Explain FPGA in detail.





13. (a) Explain the types of data.

Or

(b) Explain discrete probability distribution.

14. (a) What are the measures of central tendency?

Or

(b) What are Z-Transform?

15. (a) State Dirichlet conditions.

Or

(b) What is RMS Value?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Let  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  then show that  $A^2 - 4A + 7I = 0$  using this result calculate  $A^5$ .

Or

(b) If  $A = \begin{bmatrix} 3 & 1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & -1 \\ 2 & 1 \\ 3 & 1 \end{bmatrix}$ , find AB.

17. (a) Calculate  $\iint_R \frac{x}{y^2} dx dy$ , where  $R = [1, 2] \times [4, 6]$  separating variables.

Or

(b) Calculate the volume of solid bounded by curves  $y = x^2$ ,  $y = 1$ ,  $z = 0$ ,  $z = 2y$ .

18. (a) Explain the measures of central tendency.

Or

(b) Explain probability distribution with an example.

19. (a) Explain zeros and poles in detail.

Or

(b) Explain state variable method of circuit analysis.

20. (a) Express  $f(x) = \sin\left(\frac{\pi x}{l}\right)$  as half range cosine series for  $0 \leq x \leq l$ .

Or

(b) Explain RMS values in detail.

Code No. : 6518

Sub. Code : ZELM 14/  
ZRCM 14

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communications – Core

ADVANCED MICROPROCESSOR

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A memory connected to a microprocessor has 20 address lines and 16 data lines. What will be the memory capacity?  
(a) 8 KB  
(b) 2 MB  
(c) 16 MB  
(d) 64 KB

5. What is stored in the H and L general purpose register?  
(a) Opcode  
(b) Address of memory  
(c) Address of next instruction  
(d) Temporary data
6. Which of the following is a software interrupt?  
(a) TRAP (b) INTR  
(c) RST-6.5 (d) RST-5
7. What is the vectored address of RST-5?  
(a) 0010H (b) 0032H  
(c) 0028H (d) 0030H
8. How many address lines are required to connect a 4 KB RAM to a microprocessor?  
(a) 10 (b) 16  
(c) 12 (d) 20
9. Conditional instructions are independent of which of the following flag?  
(a) Z (b) AC  
(c) CY (d) P

3. What is the word length of the Pentium = 4 microprocessor?  
(a) 8-bit  
(b) 32-bit  
(c) 64-bit  
(d) 16-bit
8. Which of the following is a non-vectored input?  
(a) TRAP  
(b) RST-7.5  
(c) RST-6.5  
(d) INTR
4. Which of the following addressing modes is used by 8086 microprocessor for array and list operation?  
(a) Base Register  
(b) Direct  
(c) Indexed  
(d) Immediate

10. Which of the following interfacing IC is a DMA controller?  
(a) 8257/37 (b) 8155  
(c) 8253/54 (d) 8279

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

11. (a) What is CISC microprocessor?  
Or  
(b) What are the data formats of Intel X86 family processors?
12. (a) Write short notes on special Pentium registers.  
Or  
(b) Write the new Pentium instructions.
13. (a) Explain RISC properties and evaluation.  
Or  
(b) What is power PC 601? Explain.

14. (a) Draw the architecture of MIPS RX000 family and explain.

Or

(b) List the special features of MIPS R4000.

15. (a) Write about MC88110 in detail.

Or

(b) Write about MC88200.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Draw and explain Intel X86 family architecture.

Or

(b) Explain the interrupts segmentation in Intel X86 family in detail.

17. (a) Explain about Pentium memory management in detail.

Or

(b) Explain in detail about Pentium pro and its special features.

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18. (a) Compare RISC (Vs) CISC.

Or

(b) Explain in detail about IBM Rs. 6,000.

19. (a) Explain MIPS R400 with necessary diagrams.

Or

(b) Explain the architecture of sun-SPARC family.

20. (a) Explain EPIC architecture.

Or

(b) Explain in detail about network processors.

\_\_\_\_\_

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17. (a) Explain the types of data.  
Or  
(b) Explain discrete probability distribution.
14. (a) What are the measures of central tendency?  
Or  
(b) What are Z-Transform?
16. (a) State Dirichlet conditions.  
Or  
(b) What is RMS Value?

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Let  $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$  then show that  $A^2 - 4A + 7I = 0$  using this result calculate  $A^5$ .  
Or  
(b) If  $A = \begin{bmatrix} 3 & 1 & 2 \\ 1 & 0 & 1 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & -1 \\ 2 & 1 \\ 3 & 1 \end{bmatrix}$ , find AB.

17. (a) Calculate  $\iint_R \frac{x}{y^2} dx dy$ , where  $R = [1, 2] \times [4, 6]$  separating variables.  
Or  
(b) Calculate the volume of solid bounded by curves  $y = x^2$ ,  $y = 1$ ,  $z = 0$ ,  $z = 2y$ .
18. (a) Explain the measures of central tendency.  
Or  
(b) Explain probability distribution with an example.
19. (a) Explain zeros and poles in detail.  
Or  
(b) Explain state variable method of circuit analysis.
20. (a) Express  $f(x) = \sin\left(\frac{\pi x}{l}\right)$  as half range cosine series for  $0 \leq x \leq l$ .  
Or  
(b) Explain RMS values in detail.

(6 pages)

Reg. No. : .....

Code No. : 6515

Sub. Code : ZECM 11/  
ZELM 11

M.Sc. (CBCS) DEGREE EXAMINATION,  
NOVEMBER 2022.

First Semester

Electronics/Electronics and Communication

ELECTRONIC PROPERTIES OF MATERIALS

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- The SI unit of conductivity is \_\_\_\_\_  
(a) Meter (b) Ohm meter  
(c) Ohm (d) 1/ohm meter
- Which material has 98% electrical conductivity?  
(a) Gold (b) Aluminium  
(c) Silver (d) Brass
- The threshold for indirect absorption occurs at wave length \_\_\_\_\_  
(a) 3.01  $\mu\text{m}$  (b) 2.09  $\mu\text{m}$   
(c) 3.92  $\mu\text{m}$  (d) 1.09  $\mu\text{m}$
- A material with one dimension in Nano range and other two dimensions are large is called \_\_\_\_\_  
(a) Micro material  
(b) Quantum wire  
(c) Quantum well  
(d) Quantum dot
- The color of the nano gold particles is \_\_\_\_\_  
(a) Yellow  
(b) Orange  
(c) Red  
(d) Variable
- The melting point of particles in nano form \_\_\_\_\_  
(a) Increases  
(b) Decreases  
(c) Remains same  
(d) Increases then decreases

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- What is the relation between  $\epsilon_r$  and  $X$ ?  
(a)  $\epsilon_r = X$  (b)  $\epsilon_r = 1 + X$   
(c)  $\epsilon_r = 1 - X$  (d)  $\epsilon_r = X - 1$
- If the dipole moment of a water drop is  $4 \times 10^{-30}$  m and radius is 1 mm, What is the Polarization of the drop?  
(a)  $5.6 \times 10^{-13} \text{ m}^{-2}$  (b)  $7.4 \times 10^{-13} \text{ m}^{-2}$   
(c)  $8.4 \times 10^{-13} \text{ m}^{-2}$  (d)  $9.4 \times 10^{-13} \text{ m}^{-2}$
- The absorption of Photons in a Photodiode is dependent on \_\_\_\_\_  
(a) Absorption Co-efficient  
(b) Properties of materials  
(c) Charge carries at junction  
(d) Amount light
- In optical fiber communication, the only weakly absorbing materials over wavelength band required is?  
(a) GaAs (b) Silicon  
(c) GaS6 (d) Germanium

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).  
Each answer should not exceed 250 words.

- (a) Explain conductivity in detail.  
Or  
(b) Explain Fermi surfaces.
- (a) Define ferro electricity.  
Or  
(b) Define antiferro electricity.
- (a) Explain Electronic intern bond and intra bond transitions.  
Or  
(b) Explain Refraction.
- (a) Explain diamagnetism.  
Or  
(b) Explain coercive force.

Page 4

Code No. : 6515

[P.T.O.]

15. (a) Explain the prime materials in nanotechnology.

Or

(b) Explain the Quantum confinement of nanomaterials.

**PART C — (5 × 8 = 40 marks)**

Answer ALL questions, choosing either (a) or (b)  
Each answer should not exceed 600 words.

16. (a) Explain conductivity and super conductivity in detail.

Or

(b) Explain conduction in metal oxides and amorphous materials.

17. (a) Explain about local Electric field at an atom.

Or

(b) Explain ferro electricity and ferro elasticity.

18. (a) Explain the Relation between optical properties and band structure.

Or

(b) Explain bond structure determination from optical spectra reflection.

Page 5

Code No. : 6515

19. (a) Explain about neutron magnetic scattering.

Or

(b) Explain in detail about Ferromagnetic and anti ferrimagnetic order.

20. (a) Explain about nanoparticles and biomaterials.

Or

(b) Explain in detail about Microstructure and defects in monocrystalline materials.

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Code No. : 6515