Seat No. : _____

AG-129

April-2015

B.Sc., Sem.-VI (CBCS Sem. System)

Phy-311 : Physics & Electronics (Section-C)
Electronics (Visual Basic)

Time : 3 Hours] **[Max. Marks : 70**

1. (a) Explain the importance of Visual Basic in Education. 7

OR

Describe the Data type variant in VB.

(b) Explain List box & Combo box in VB. 7

OR

Describe the project explorer in detail.

2. (a) Write a VB script to print first 25 natural numbers. 7

OR

Write short note on if-then-else statement in VB.

(b) Explain Edit Menu in VB. 7

OR

Explain the uses of following :

(1) Window menu

(2) File menu

3. (a) Write a VB script to prepare a simple calculator. 7

OR

Write a VB script to print any two digit even numbers.

(b) Write a note on Explicit type Declaration System. 7

OR

Explain Option Button and Text Box Controls in VB.

4. (a) Explain Object Data type in VB. 7

OR

Explain code window and how we execute that window ?

(b) Write note on Control statements in VB. 7

OR

Write a VB script to calculate factorial of first 7 numbers.

5. Write the True / False : 14

(1) for loop is used to check any condition.

(2) if-then statement to check any condition.

(3) Input box function is used to get result on screen.

(4) Dim statement is used to define any variable.

(5) Boolean data type is used for logical variable.

(6) Print command is used for printing.

(7) Frame control is used to write any text.

Seat No. : _____

AK-118

April-2017

B.Sc., Sem.-VI

Ele.-311 : Physics & Electronics
(C : Visual Basics)

Time : 3 Hours] [Max. Marks : 70

1. (a) Explain the application of VB. 7

OR

Explain the print menu of VB.

(b) Explain command button control in VB. 7

OR

Describe the term Explicit type Declaration in VB.

2. (a) Write short note on nested loops statements in VB. 7

OR

Write short note on nested if-then-else statement in VB.

(b) Write a VB script to print prime number from 1 to 50. 7

OR

Explain the uses of following :

(i) Run menu (ii) Query menu

3. (a) Write a VB script to find minimum number of notes of ₹ 500, 100, 50, 20, 10, 5, 2, and 1. 7

OR

Write a note on Data Types in VB.

(b) Write a VB script to print two digits odd numbers and find its sum. 7

OR

Explain Option Button and Text Box Controls in VB.

4. (a) Explain Dim statement in VB. 7

OR

Write a VB script to calculate sum of the series 1+ ½ + ¼ + … 1/20.

(b) Write a note on logical error handling in VB. 7

OR

Write a VB script to print prime number from 1 to 100.

5. Write the True / False : 14

(1) A variable name should not exceed 128 characters.

(2) Nested if-then-else selection structures test for single condition.

(3) Print command is to Input values.

(4) Select …..Case structure is an alternative of while loop.

(5) Boolean data type is used for character variable.

(6) An Implicit type declaration is used to define the type of variable.

(7) Visual basic starts indexing the array with 1.

Seat No. : _____

AK-118

April-2017

B.Sc., Sem.-VI

Ele.-311 : Physics & Electronics

(B : Instrumentation)

Time : 3 Hours] [Max. Marks : 70

Instructions : (1) All questions are compulsory and carry equal marks.

(2) The symbols have their usual meaning.

1. (a) What is a transducer ? Describe the detailed classification of transducers based on various aspects. 5

OR

What is a strain gauge ? Explain the construction and working principle of bonded strain gauge. State the advantages of wire strain gauge.

(b) What is piezoelectric effect ? Describe the working principle of Piezoelectric transducer using the necessary figure. 5

OR

Describe the working of an electromagnetic flow meter with the neat diagram.

(c) A relay is controlled by a photoconductive cell having a dark resistance of 200 KΩ. If its resistance is reduced to 2 KΩ when illuminated by light with intensity 400 lm/m^2. The relay supplies 8 mA current from 24 V battery when illuminated by light with intensity 400 lm/m^2 and it is required to be de-energized when the cell is dark. Calculate the required series resistance and the dark current. 4

OR

The hot junction of a thermocouple is shifted from 200 °C to an environment of 700 °C. If the time constant of thermocouple is 1 second, find the temperature of hot junction after time elapse of (i) 1 second (ii) 2 seconds (iii) 5 seconds.

2. (a) With a suitable diagram, explain how can a basic moving galvanometer be used to measure the different electrical quantities. Derive the necessary equations to convert a moving coil meter into (i) an ammeter and (ii) a voltmeter. What precautions will you observe when using such meter as an ammeter and voltmeter for the practical measurement ? 10

OR

Give the comparison between VOM and VTVM. Using the neat diagrams explain the working of (i) Two tubes VTVM and (ii) FETVM.

(b) The two resistors of 100 KΩ and 50 KΩ are connected in series with a DC source of 150 V. The voltage across 50 KΩ resistor is measured with two voltmeters of sensitivities 1 KΩ/V and 20 KΩ/V respectively in 50 V range one by one. Determine the % error introduced by each meter during the measurement. What will you conclude from this calculations ? 4

OR

A 1 mA d' Arsonval meter movement with an internal resistance of 100 Ω is to be used as multi range dc ammeter of current ranges (i) 10 mA (ii) 20 mA (iii) 50 mA respectively. Calculate (i) multiplying factor and (ii) shunt resistance for each of the range.

3. (a) What are the signal generators ? State the types of signal generators. Describe the conventional standard signal generator using a neat schematic diagram. 7

OR

Draw the schematic block diagram of AF sine and square wave generator. Name the front panel controls of a typical AF generator and describe the function of each control. State the applications of fixed an variable frequency oscillators.

(b) What is the difference between a signal generator and a function generator ? Explain how can the different shaped waveforms be generated using a function generator. 7

OR

What is the difference between pulse and a square wave form ? With help of a neat block diagram, explain the working of a sweep generator.

4. (a) State the principle of self generating inductive transducer. Explain the construction and working of LVDT (Linear Variable Differential Transformer). 5

OR

What are photoelectric transducers ? State different types of such transducers. Explain the construction and working of a solar cell.

(b) Describe the rectifier type voltmeters used to measure AC voltages. 5

OR

Describe how can a basic moving coil meter be used as an ohm meter.

(c) Explain how will you generate 1 kHz pulse waves of 30% duty cycle using different type of multivibrators. 4

OR

What is random noise ? Draw the block diagram of random noise generator.

5. Answer the following questions in short : 14

(1) Write the name of any two biological transducers.

(2) What do you mean by 3 ½ digit DVM (Digital Voltmeter) ?

(3) The three d' Arsonval meter movements have the full scale deflection currents of 50 μA, 100 μA and 500 μA respectively. Which of these is most sensitive ? What will be its sensitivity in Ω/V ?

(4) Why is the silicon more advantageous to use as the strain gauge material ?

(5) What is the taut-band mechanism in a d' Arsonval meter movement ?

(6) What is the difference between series and shunt type multi range voltmeter ?

(7) On which factor does the signal level (amplitude) accuracy of a signal generator depend ?

(8) Define duty cycle of a given pulse wave.

(9) What will be the pulse width of 1 kHz pulse waves having 40% duty cycle ?

(10) What do you mean by a time constant of thermistor ?

(11) What is the use of buffer amplifiers in modern signal generators ?

(12) What will be the Poisson ratio of a strain gauge having a gauge factor equal to 1.7 ?

(13) What is the difference between photovoltaic cell and a solar cell ?

(14) How can the true r.m.s. and average responding type AC voltmeter differ from each other ?

Seat No. : _____

AK-118

April-2017

B.Sc., Sem.-VI

Ele.-311 : Physics & Electronics

(Modern Communication)

Time : 3 Hours] [Max. Marks : 70

Instructions : (1) All questions carry equal marks.
(2) Figures on the right indicate marks.
(3) Symbols have their usual meanings.

1. (a) What is Last mile and Switch Hook ? Discuss about telephone set in detail. 7

OR

Discuss Cordless telephone concepts. Give its features and capabilities.

(b) With block diagram explain Subscriber Line Interface Circuit (SLIC) basic functions. 7

OR

Explain electronic telephones with a block diagram.

2. (a) Explain Cellular Telephone Systems with the help of frequency allocation. 7

OR

Explain 4th Generation Cell phone system in detail.

(b) Draw the block diagram explain the advanced mobile phone system. 7

OR

Explain Time-Division and Code Division Multiple Access with diagrams.

3. (a) Explain frame relay & asynchronous transfer mode with block diagram. 7

OR

Define the terms : Email, File transfer, WWW, E-commerce, VoIP, SDH and STS.

(b) With block diagram explain packet-switching concept showing nodes in the backbone. 7

OR

Discuss storage Area networks.

4. (a) Define : Node. Explain WANs, MANs & LANs in detail. 7

OR

Explain Ring and Bus topologies in detail.

(b) Explain coaxial cable connectors and Twisted pair connectors in detail. 7

OR

Discuss Wireless LAN in detail with block diagram.

5. Answer the following : 14

(1) Define Ringer

(2) Define : Voice mail

(3) Give full form of MDMF.

(4) Give full form of DECT.

(5) What is full duplex ?

(6) Define : Multiple Access.

(7) Give the full form of NAM.

(8) Give the full form of URL.

(9) Give full form of ISP.

(10) Give full form of NAPs.

(11) What is FTP ?

(12) Give full form of NIC.

(13) Define : HUB.

(14) Explain Peer-to-Peer configuration

Seat No. : 8575

AF-124

April-2018

B.Sc., Sem.-VI

311 : Physics & Electronics

(Experimental and Measurement Techniques)

Time : 3 Hours] **[Max. Marks : 70**

Instructions : (1) Attempt **all** questions.
(2) Symbols used have their usual meaning.

1. (a) Discuss about the cycle of activities experimental science. **7**

OR

What is Poisson Distribution ? Give its standard form.

(b) To calculate the probability of obtaining 4 head in 6 (six) tosses using an unbiased coin. **7**

OR

A die is thrown 8 times. Find the probability that '5' will show exactly twice.

2. (a) Discuss in detail temperature transducer. **7**

OR

Write a short note on thermistor.

(b) Explain the thermal radiation temperature measurements. **7**

OR

Write short notes on thermocouples.

3. (a) What is pump speed ? Obtain the equation of pumping speed. **7**

OR

Give application of vacuum system.

(b) Explain the construction of vacuum equipment. **7**

OR

Write short note on Turbomolecular pump.

14

4. Attempt any **two** questions :

(1) Explain "random error"

(2) Explain for transducer :

(i) Dead time (ii) Rise time (iii) Setting time

(3) Write short note on Infra-red pyrometers.

14

5. Answer the following short questions :

(1) What is error ?

(2) Define probability.

(3) What is sample distribution ?

(4) What is parent distribution ?

(5) Write down perfect gas equation.

(6) Give the value of universal gas constant (R).

(7) 1 mbar = _____ torr.

(8) Define optical density.

(9) Give the full form of LED.

(10) Write down the Stefan Boltzmann law.

(11) What is thermocouple ?

(12) What is value of boiling point of water ?

(13) What is detectability ?

(14) Define emissivity.

Seat No. : _____

AF-124

April-2018

B.Sc., Sem.-VI

311 : Physics & Electronics

(Instrumentation)

Time : 3 Hours] **[Max. Marks : 70**

Instructions : (1) **All** questions are compulsory and carry equal marks.
(2) The symbols have their usual meanings.

1. (a) Explain construction and working principle of strain Gauge transducer. What is Gauge factor ? Give advantage of the wire strain Gauge. 7

OR

Explain the construction and working of LVDT (Linear Variable Differential Transformer). Give the advantage and application of LVDT.

(b) What is thermistor ? Explain (1) construction (2) Response time. Give the advantage and application of thermistor. 7

OR

What is transducer ? Describe the detail classification of transducer based on various aspects.

2. (a) Give the functions of Instruments. Compare electrical and electronic instruments and give the essentials of electronics instruments. 7

OR

Which two points must be kept in mind while measuring current flowing in a circuit ? With the proper circuit diagram explain how basic meter can be converted to D.C. Ammeter.

(b) What are the measurement standards of instruments ? Explain with proper diagram construction and principle of operation of Basic meter. 7

OR

Which two points must be kept in mind while measuring voltage across a component in the circuit ? With the proper circuit diagram explain how basic meter can be converted to D.C. Voltmeter.

3. (a) With the help of neat block diagram explain the working of Laboratory square and pulse wave generator. 7

OR

With the help of neat block diagram explain the working of AF sine and square wave generator.

(b) Give classifications of the signal generators. Describe the conventional standard signal generator using neat schematic diagram. 7

OR

With the help of neat block diagram explain Random noise generator and sweep generator.

4. (a) Explain inductive and capacitive pressure transducer. 7

OR

Write note on piezoelectric transducer and Resistance temperature detectors.

(b) Using proper diagram explain C.R.O. 7

OR

Using proper diagram explain C.R.T.

5. Answer the following questions in short : 14

(1) Give the definition of transducer.
(2) Give principle disadvantage of piezoelectric transducer.
(3) Give any one name of acoustical transducer.
(4) Find the sensitivity of 0-1 mA meter.
(5) Define analog instrument.
(6) A high input-resistance voltmeter has high/low loading effect.
(7) An ac instrument using a half wave rectifier reads how many percentage of the D.C. value ?
(8) What is an electromagnetic flow meter ?
(9) What are the difference between AC and DC voltmeter ?
(10) What do you mean by a loading effect of voltmeter ?
(11) How is the function generator different from signal generator ?
(12) What do you mean by loading effect of voltmeter ?
(13) Heart of CRO.
(14) Define a gauge factor for strain gauge.

Seat No. : _____

AF-124

April-2018

B.Sc., Sem.-VI

311 : Physics & Electronics

(Modern Communication)

Time : 3 Hours] **[Max. Marks : 70**

Instructions : (1) **All** questions carry equal marks.
(2) The symbols have their usual meanings.
(3) Figures to the right indicate marks.

1. (a) Draw the block diagram of Basic Telephone System. Explain transmit and receive mode. 7

OR

With block diagram explain Cordless Telephone concepts and Limitations.

(b) Discuss BORSCHT functions in the Subscriber Interface with block diagram. 7

OR

With a PBX block diagram explain Private Telephone System.

2. (a) Explain Cellular Telephone System. With block diagram explain Cellular Concepts. 7

OR

Explain Frequency Reuse and Frequency Division Multiple Access with diagrams.

(b) Draw the block diagram of a typical AMPS unit & explain operational procedure. 7

OR

Explain 4G Advanced Cell Phone Systems in detail.

3. (a) Explain the terms: E-Mail, File Transfer, WWW, E-Commerce, Searches, VoIP & Video. 7

OR

Explain Frame Relay and Asynchronous Transfer Mode with figure.

(b) Write a note on Storage Area Networks. 7

OR

With block diagram explain operations for accessing data by using Internet SCSI protocol.

4. (a) What is Node ? Explain WANs, MANs and LANs in detail. 7

OR

Explain Star Topology and Ring Topology in detail with block diagram.

(b) Explain Client-Server and Peer-to-Peer LANs in detail. 7

OR

Explain types of WLANs with block diagram.

5. Answer the following : 14

(1) Define : Subscriber Loop

(2) What is Varistor ?

(3) Give full form of SDMF.

(4) Give full form of DECT.

(5) What is Duplexing ?

(6) Give full form of MIN.

(7) Give full form of GPRS.

(8) Define Push-to-talk feature.

(9) What is Router ?

(10) Give full form of SMTP.

(11) Give full form of NIC.

(12) Define : PAN

(13) Give full form of STP.

(14) Give full form of NAT.

Seat No. :-_____

AF-124

April-2018

B.Sc., Sem.-VI

311 : Physics & Electronics

(Visual Basic)

Time : 3 Hours] **[Max. Marks : 70**

1. (a) Explain the Visual Basic Integrated Development Environment. 7

OR

Explain the Project Menu of VB.

(b) Explain Text Box Controls in VB. 7

OR

Describe the term Form designer.

2. (a) Write short note on Nested Loops statements in VB. 7

OR

Write short note on if-then-else statement in VB.

(b) Write a VB script to print first 25 terms of Fibonacci sequence. 7
1,1,2,3,5,8,13.....

OR

Explain the uses of following :

(1) Edit menu (2) File menu

3. (a) Write a VB script to print Automorphic number from 1 to 100. 7

OR

Write a note on Scope of Global variables in VB.

(b) Write a VB script to print sum of two digits prime numbers from 11 to 99. 7

OR

Explain List Box Controls in VB.

4. (a) Explain Object Browser in VB. 7

OR

Write a VB script to calculate nCr using For loop.

(b) Write a VB script to print sum of Odd numbers from 1 to 100. 7

OR

Write note on Runtime error handling in VB.

5. Write short answer : 14

(1) Write syntax of print command.

(2) How we change caption property ?

(3) Define Explicit Variable in VB .

(4) Write syntax of Inputbox command.

(5) Default Project name in VB and can it be change ?

(6) Visual Basic indexing the array.

(7) Write short cut key to paste any portion within that form.
