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14CHE12/22

First/Second Semester B.E. Degree Examination, Dec.2016/Jan.2017
Engineering Chemistry

Time: 3 hrs. Max. Marks: 100

Note: ***Answer FIVE full questions, selecting ONE full question from each module.***

Module-1

1 a. Define ion selective electrode. Explain the principle and construction of glass electrode. **(05 Marks)**

b. Describe the construction and working of Ni-metal hydride battery. Write its application. **(05 Marks)**

c. Define concentration cell. The spontaneous cell $Sn|Sn^{2}$ (0.024 M)$||Sn^{2}$ (0.064)$|Sn$ at 25°C. Calculate the emf of the cell and cell reactions. **(05 Marks)**

d. Explain the following battery characteristics:
i) Voltage,
ii) Energy efficiency,
iii) Cycle life **(05 Marks)**

2 a. Derive Nernst's equation for single electrode potential. **(05 Marks)**

b. Define fuel cell. Explain the construction and working of Lithium MnO_2 cell. Write its application. **(05 Marks)**

c. What are secondary reference electrodes? Explain the construction and working of Calomel Electrode. **(05 Marks)**

d. Explain the construction and working of Methanol Oxygen fuel cell. **(05 Marks)**

Module-2

3 a. Explain the following corrosion types:
i) Differential metal corrosion,
ii) Differential aeration corrosion. **(05 Marks)**

b. Define electroplating. Write technological importance of metal finishing. **(05 Marks)**

c. What is anodic metal coating? Explain the process of Galvanizing. **(05 Marks)**

d. Describe the electroplating of chromium. **(05 Marks)**

4 a. Explain the electrochemical theory of rusting of iron. **(05 Marks)**

b. Discuss the electroless plating of copper with reactions. **(05 Marks)**

c. Explain the factors affecting the rate of corrosion:
i) Nature of corrosion product
ii) pH **(05 Marks)**

d. Discuss the following principles of metal finishing:
i) Decomposition potential
ii) Over voltage. **(05 Marks)**

Module-3

5 a. Define calorific value of a fuel. Explain the calorific value of solid fuel by determination by bomb calorimeter. **(05 Marks)**

b. Define photovoltaic cell. Explain construction and working of PV cell. **(05 Marks)**

c. Explain the synthesis of petrol by Fischer-Tropsch process. **(05 Marks)**

d. Explain the purification of Silicon by zone refining process. **(05 Marks)**

6 a. Define cracking. Explain the process of fluidized bed catalytic process cracking with neat diagram. (05 Marks)
b. Discuss the production of solar grade Silicon by Union Carbide process. (05 Marks)
c. Write a short note on power alcohol and knocking in petrol engine. (05 Marks)
d. Define doping. Write two physical and two chemical properties of silicon. (05 Marks)

Module-4

7 a. Define polymer. Explain the addition and condensations polymerization with examples. (05 Marks)
b. Discuss the synthesis and application of Silicon rubber and polyurethane. (05 Marks)
c. Explain any two structures and property of relations of polymers. (05 Marks)
d. Write the mechanism of conduction in polyaniline. (05 Marks)

8 a. Explain free radical mechanism of addition polymerization by taking Vinyl Chloride as an example. (05 Marks)
b. Explain the synthesis and applications of (i) plexi-glass, (ii) Teflon. (05 Marks)
c. Discuss the factors influencing the T_g:
i) Flexibility
ii) Branching and cross linking. (05 Marks)
d. What are conducting polymers? Write synthesis properties of Carbon fibres. (05 Marks)

Module-5

9 a. How scales and sludges are formed in boilers and write its disadvantages. (05 Marks)
b. What are nanoscale materials? Explain synthesis of nanomaterials by chemical vapour condensation method. (05 Marks)
c. What is desalination of water? Explain the desalination of sea water by reverse osmosis. (05 Marks)
d. Write a note on size dependent properties of nanomaterials. (05 Marks)

10 a. Write a note on secondary sewage treatment method. (05 Marks)
b. Write an account on carbon nanotubes. (05 Marks)
c. Define fullerenes. Explain hydrothermal synthesis of nanomaterials. (05 Marks)
d. 25 cm^3 of an effluent sample requires for oxidation of 8 cm^3 of 0.001M $K_2Cr_2O_7$. Calculate the COD of the effluent sample. (05 Marks)

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CBCS Scheme

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15CHE12/22

First/Second Semester B.E. Degree Examination, Dec.2016/Jan.2017
Engineering Chemistry

Time: 3 hrs. Max. Marks: 80

Note: *Answer FIVE full questions, choosing one full question from each module.*

Module-1

1 a. Describe the construction and working of Li-MnO_2 battery. **(05 Marks)**

b. Define battery. Explain the following battery characteristics:
(i) Electricity storage density.
(ii) Energy efficiency.
(iii) Cycle life.
(iv) Shelf life. **(05 Marks)**

c. Define reference electrode. Explain the construction and working of Calomel electrode. **(06 Marks)**

OR

2 a. A concentration cell was constructed by immersing two silver electrodes in 0.02 M and 2 M $AgNO_3$ solution. Write the cell representation, cell reactions and calculate the EMF of the cell at 25°C. **(05 Marks)**

b. Derive Nernst equation for single electrode potential. **(05 Marks)**

c. Explain the construction and working of methanol oxygen fuel cell. Mention its application. **(06 Marks)**

Module-2

3 a. What is cathodic protection? Explain how a metal article is protected by sacrificial anodic method. **(05 Marks)**

b. Explain the following factors affecting the rate of corrosion:
(i) Nature of the metal.
(ii) Ratio of anodic to cathodic areas.
(iii) pH. **(05 Marks)**

c. Explain electroless plating of copper with relevant reaction. **(06 Marks)**

OR

4 a. What is metal finishing? Give the technological importance of metal finishing. **(05 Marks)**

b. Explain the influence of the following factors on the nature of electrodeposit:
(i) pH.
(ii) Temperature.
(iii) Concentration of the metal ion. **(05 Marks)**

c. Explain stress and differential metal corrosion with example. **(06 Marks)**

Module-3

5 a. Define cracking. Describe fluidized bed catalytic cracking. **(05 Marks)**

b. What is biodiesel? Explain the synthesis and advantages of biodiesel. **(05 Marks)**

c. Explain the production of solar grade silicon by union-carbide process. **(06 Marks)**

OR

6 a. Define photo voltaic cell. Explain the construction and working of photo voltaic cell. **(06 Marks)**

b. Explain the purification of silicon by zone refining. **(04 Marks)**

c. A 0.6 g of coal sample (carbon 90%, H_2 3% and ash 7%) was subjected to combustion in a bomb calorimeter. Mass of water taken in the calorimeter was 2000 g and the water equivalent of calorimeter was 400 g. The rise in temperature was 3°C. Calculate the gross and net calorific value of the sample. Given, specific heat of water is 4.187 KJ/kg/°C and latent heat of steam is 2454 KJ/kg. **(06 Marks)**

Module-4

7 a. Explain the free radical mechanism for addition polymerization by taking vinyl chloride as an example. **(06 Marks)**

b. Explain the synthesis, properties and applications of epoxy resin. **(04 Marks)**

c. What is glass transition temperature? Explain the following factors affecting glass transition temperature.
(i) Chain flexibility and
(ii) Intermolecular forces. **(06 Marks)**

OR

8 a. Explain structure – property relationship of polymers with respect to,
(i) Crystallinity (ii) Tensile strength **(05 Marks)**

b. What is polymerization? Explain addition and condensation polymerization with example. **(05 Marks)**

c. What are polymer composite? Explain the synthesis, properties and application of Kevlar fibre. **(06 Marks)**

Module-5

9 a. Write a note on fullerenes. Mention its application. **(05 Marks)**

b. Discuss the synthesis of nanomaterials by gas condensation method and chemical vapour condensation processes. **(05 Marks)**

c. Discuss the experimental determination of Dissolved Oxygen (DO) of waste water. Mention the reactions involved in it. **(06 Marks)**

OR

10 a. What is desalination? Discuss the desalination of sea water by ion exchange process. **(05 Marks)**

b. What is boiler feed water? Explain the scale and sludge formation in boilers. **(05 Marks)**

c. Explain any three size dependent properties of nanomaterials. **(06 Marks)**

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10CCP13/23

First/Second Semester B.E. Degree Examination, June/July 2016
Computer Concepts and 'C' Programming

Time: 3 hrs. Max. Marks:100

Note: 1. ***Answer any FIVE full questions, choosing at least two from each part.***
2. Use of steam tables is not permitted.

PART – A

1 a. Choose the correct answers for the following : **(04 Marks)**

i) Which of the following is not a type of computer based on individual usage?
A) Desktop computer B) Workstation
C) Digital computer D) Smart phone

ii) Note book computer is also called as _____
A) PDA's B) Laptops C) Smart phones D) Tablet computer

iii) Display system in table computer can be rotated by _____
A) 60^0 B) 120^0 C) 90^0 D) 180^0

iv) One Terabyte = _____
A) 1024 GB B) 1024 MB C) 1024 KB D) 1024 bytes

b. Explain briefly the basic structure of a computer along with a block diagram. **(06 Marks)**

c. Explain the different types of audiovisual input devices. **(10 Marks)**

2 a. Choose the correct answers for the following : **(04 Marks)**

i) The capacity of a floppy disk is _____
A) 2.44 MB B) 1.44 MB C) 2.48 MB D) 2.48 MB

ii) Which of the following is an example of system software?
A) MS - WORD B) Microsoft excel C) Text editor D) Payroll

iii) In star topology the central computer is called
A) Host B) Source C) Hub D) None

iv) 1 byte = ____ Nibbles.
A) 4 B) 2 C) 8 D) 1

b. Explain how the data is organized in magnetic disk. **(04 Marks)**

c. What is Operating system? Explain the types of operating system. **(08 Marks)**

d. Mention the need for networking. **(04 Marks)**

3 a. Choose the correct answers for the following : **(04 Marks)**

i) Which of the following command is used to save the program?
A) F3 B) Cntrl + V C) F2 D) Cntrl

ii) Which of the following is a newline character?
A) \t B) \f C) \b D) \n

iii) _____ format specifier converts the data into floating point value.
A) % e B) % o C) % d D) % u

iv) Which input function accept the string as input from the keyboard?
A) getchar ( ) B) gets ( ) C) getch ( ) D) getche ( )

b. Explain the basic data types available in C language. **(08 Marks)**

c. Explain the formatted Input and Output function with example. **(08 Marks)**

4 a. Choose the correct answers for the following : **(04 Marks)**

i) Which of the following operator is R → L associativity.
A) < B) + C) ^ D) =

ii) What is the output of the following statement printf ("% d\n" , 12,345, 678)?
A) 12 B) 12 C) 12,345 D) 12,345, 678

iii) An expression with only one operand but not any operator is called ____
A) Primary B) Ternary C) unary D) Binary

iv) If i = 3 , j = 4, what is the value of j + 1 / i – 1.
A) 2 B) 1 C) 4 D) 3

b. Simplify the expression a + = b * = C - = 5, where a = 1, b = 3, c = 7. **(04 Marks)**

c. Write a C program to find the area of a triangle given the 3 sides. **(06 Marks)**

d. Explain the increment and decrement operator with program. **(06 Marks)**

PART – B

5 a. Choose the correct answers for the following : **(04 Marks)**

i) Which of the following header file is used if we use floor ( ) function :
A) stdio.h B) conio.h C) math.h D) stdlib.h

ii) Which element of user defined function is not terminated by semicolon (;)
A) function prototype B) function definition
C) function call D) function declaration

iii) Pass by value is also called as _____
A) call by value B) call by reference
C) function call D) function declaration

iv) _____ type of variable is accessible through out the program
A) local variable B) global variable
C) static variable D) register variable

b. Explain briefly the different methods of passing parameter. **(10 Marks)**

c. Write a C program to compute cube of a given number using functions. **(06 Marks)**

6 a. Choose the correct answers for the following : **(04 Marks)**

i) The complement of < is _____
A) > = B) < = C) > D) = =

ii) What is the output of the following program segment

```
# include(stdio.h)
Void main ( )
{
 int i = 10 ;
 while (0)
 {
  Printf ("%d", i) ;
 }
}
```

A) 0 B) 10
C) No output D) 0 is displayed ∞ times

iii) Which of the following is valid :
A) Case 4 : B) Case "4" : C) Case i + 2 : D) Case 'choice' :

iv) Which of the following loop is used when we do not know exactly how many times a set of statements have to be repeatedly executed.
A) for B) while C) do while D) switch

b. Write a C program to find the roots of quadratic equation. **(08 Marks)**

c. Differentiate between while and do while loop with example. **(08 Marks)**

7 a. Choose the correct answers for the following : **(04 Marks)**

i) Array always starts from index _____

A) 1 B) -1 C) 0 D) 2

ii) Linear search is also called as _____

A) Binary search B) Sequential search

C) Traversal D) Sort

iii) The string "0" occupies _____bytes

A) 2 byte B) 1 byte C) 4 byte D) 8 byte

iv) In a variable length string, string always ends with a delimeter

A) POS B) POS - 1 C) NULL D) NULL + 1

b. Explain briefly the declaration and initialization of one dimensional array. **(08 Marks)**

c. Write a C program to count vowels and constants in a given string. **(08 Marks)**

8 a. Choose the correct answers for the following : **(04 Marks)**

i) SET 1 stands for

A) Search for extra terrestrial intelligence

B) Search for extra topology intelligence

C) Search for extraordinary terrestrial intelligence

D) Search for extra typical intelligence

ii) The concept of sharing of memory by various threads in program is called _____

A) sharing memory B) shared memory

C) sequential memory D) sorting memory

iii) Which of the following directive is not used during synchronization of tasks

A) barrier directive B) include directive

C) ordered directive D) flush directive

iv) Which of the function returns non zero value if dynamic adjustment is enable

A) void Omp – get – dynamic (int dynamic _ thread)

B) int Omp – get – dynamic ( )

C) void Omp – get – nested (int nested)

D) int Omp – get – nested ( )

b. What is Thread? Explain the logical memory model of a thread. **(10 Marks)**

c. What are the various motivating factors of Parallel programs? **(06 Marks)**

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14PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2016/Jan.2017
Programming in 'C' and Data Structures

Time: 3 hrs. Max. Marks:100

Note: *Answer any FIVE full questions, selecting ONE full question from each module.*

Module-1

1 a. List all the restrictions on the variable names. **(06 Marks)**
b. Explain the block structure of a 'C' program. **(08 Marks)**
c. What are the basic data types available in 'C"? Write the significance of each data type. **(06 Marks)**

2 a. What is an assignment statement? Give the general form of an assignment statement. **(05 Marks)**
b. Explain with example, the various constants available in 'C' program. **(05 Marks)**
c. List and explain any five operators used in 'C' programming language. **(10 Marks)**

Module-2

3 a. Explain with example, the meaning of statement and block in a 'C' program. **(05 Marks)**
b. Explain with a syntax, the different loops used in 'C' program. **(09 Marks)**
c. Write a program in 'C' to find the sum of 'n' natural number without using any loops. **(06 Marks)**

4 a. Explain with example, the need of 'break' statement in a 'C' program. **(05 Marks)**
b. Write a 'C' program to demonstrate the use of unconditional goto statement. **(06 Marks)**
c. Explain with syntax, if, if-else and nested if-else statements in 'C' program. **(09 Marks)**

Module-3

5 a. What is the purpose of an array? Explain how two dimensional arrays is declared and initialized. **(06 Marks)**
b. Explain with example :
i) Character string
ii) String literal. **(06 Marks)**
c. Write a program in 'C' using functions to swap two numbers. **(08 Marks)**

6 a. Explain with syntax and example, the different types of string manipulation functions. **(10 Marks)**
b. Explain with example, the general form of puts and gets function. **(04 Marks)**
c. What are the three possibilities of defining a user defined functions in 'C'? **(06 Marks)**

Module-4

7 a. What is a structure data type? Give the general form of a structure declaration. **(05 Marks)**
b. Explain the syntax of fprintf and fscanf functions in 'C'. **(05 Marks)**
c. Using the structure data type, write a program in 'C' to read a student record from the keyboard and store it in a file called student.dot. **(10 Marks)**

8 a. Explain the differences between arrays and structures. **(05 Marks)**

b. What is a file? Explain fopen( ) and fclose( ) functions in 'C' language. **(06 Marks)**

c. Write a program in 'C' using structure to read USN, name and marks in 3 subjects for each student and store it in a file called studmarks.dat. **(09 Marks)**

Module-5

9 a. Write a 'C' program to define macros for logical operators. **(08 Marks)**

b. Explain the following :

i) preprocessor directive

ii) malloc( ) function

iii) # include directive. **(06 Marks)**

c. Explain the need of dynamic memory allocation. **(06 Marks)**

10 a. Explain with example # define directive. **(04 Marks)**

b. What is a stack? What are the operations we can carry out on a stack? **(08 Marks)**

c. Write a program in 'C' to create a simple linked list. **(08 Marks)**

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CBCS Scheme

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15PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2016/Jan.2017
Programming in C and Data Structures

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Define an Algorithm. Write an algorithm to find the area and perimeter of a rectangle. **(06 Marks)**

b. Write a General structure of C. Explain with an example. **(06 Marks)**

c. Convert the following mathematical expression into C equivalent:

i) area = $\sqrt{s(s-a)(s-b)(s-c)}$

ii) $x = \frac{-b+\sqrt{b^2-4ac}}{2a}$ **(04 Marks)**

OR

2 a. Explain different types of input output functions in C with syntax and examples. **(06 Marks)**

b. Explain the following operators :

i) Unary
ii) Bitwise
iii) Conditional. **(06 Marks)**

c. Draw the flowchart and write a C program to compute simple interest. **(04 Marks)**

Module-2

3 a. List all the conditional control statements used in C. Explain any two with syntax and example. **(06 Marks)**

b. Write a C program that reads from the user an arithmetic operator and two operands perform the corresponding arithmetic operation on the operands using switch statement. **(06 Marks)**

c. Implement a C program to find the reverse of an integer number and check whether it is palindrome or not. **(04 Marks)**

OR

4 a. What are unconditional control statements? Explain any two with example. **(06 Marks)**

b. List the types of looping statements in C. Explain any two with syntax and example. **(06 Marks)**

c. Develop a C program to read a year as an input and find whether it is Leap year or not. **(04 Marks)**

Module-3

5 a. What is Array? Explain the declaration and initialization of one dimensional and two dimensional Array with example. **(06 Marks)**

b. Explain any four string manipulation library function with example. **(04 Marks)**

c. Write a C program to implement string copy operation STRCOPY (str1, str2) that copies a string str1 to another string str2 without using Library function. **(06 Marks)**

OR

6 a. What is string? Write a C program that reads a sentence and prints the frequency of each of the vowels and total count of consonants. **(06 Marks)**

b. What is a Function? Explain the type of functions based on parameters. **(06 Marks)**

c. What is Recursion? Write a C program to compute polynomial co-efficient ${}^{n}C_{r}$ using Recursion. **(04 Marks)**

Module-4

7 a. What is structure? Explain the C Syntax of structure declaration with example. **(04 Marks)**

b. What is a FILE? Explain any five file manipulation functions with example. **(06 Marks)**

c. What are actual and formal parameters? Explain various storage classes available in C. **(06 Marks)**

OR

8 a. Explain array of structure and structure within a structure with an example. **(06 Marks)**

b. Write a C program to maintain a record of 'n' students details using an array of structures with four fields (roll no, name, marks and grade). Assume appropriate data type for each field. Print the marks of the student given the student name as input. **(06 Marks)**

c. Explain various modes of FILE with example. **(04 Marks)**

Module-5

9 a. What is a pointer? Explain how the pointer variable is declared and initialized. **(04 Marks)**

b. What is dynamic memory allocation? Explain different dynamic memory allocation functions in C. **(06 Marks)**

c. Write a C program using pointers to compute the Sum, Mean and Standard deviation of all elements stored in an array of 'n' real numbers. **(06 Marks)**

OR

10 a. Explain the Array of pointers with example. **(04 Marks)**

b. Explain any two pre-processor directives in C. **(04 Marks)**

c. What is Stack? Explain operations on Stack. **(04 Marks)**

d. What is a Queue? Explain its applications. **(04 Marks)**

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CBCS Scheme

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15ELN15/25

First/Second Semester B.E. Degree Examination, Dec.2016/Jan.2017
Basic Electronics

Time: 3 hrs. Max. Marks: 80

Note: *Answer FIVE full questions, choosing one full question from each module.*

Module-1

1 a. Define the following diode parameters : **(05 Marks)**
   i) Knee voltage
   ii) Maximum forward current
   iii) Peak inverse voltage
   iv) Reverse breakdown voltage
   v) Maximum power rating. **(06 Marks)**

b. With neat circuit diagram and waveform explain the working of Full wave Bridge Rectifier.

c. Draw common emitter circuit. Sketch input and output characteristics. Also explain operating regions by indicating them on characteristic curve. **(05 Marks)**

OR

2 a. Write a note on voltage regulator circuit. **(05 Marks)**

b. Derive the relationship between α and β. Also calculate the α value and β value of a transistor if $I_B = 100\mu A$ and $I_c = 2mA$. **(04 Marks)**

c. With a neat diagram, explain the output characteristics of a transistor in common base configuration. **(07 Marks)**

Module-2

3 a. What is DC load line? Explain with neat circuit the operation of voltage divider bias circuit. **(05 Marks)**

b. What is op-amp? List the characteristics of an ideal op-amp. **(06 Marks)**

c. For the circuit shown in Fig Q3(c). compute
   i) Three transistor currents
   ii) Voltage drop across R_C and R_B. **(05 Marks)**

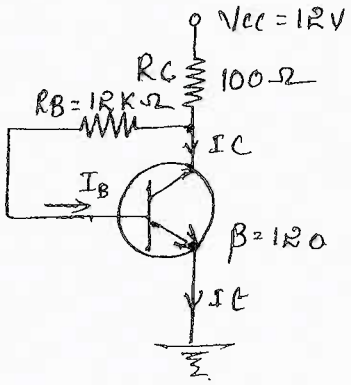

Fig Q3(b)

OR

4 a. Explain how op-amp can be used as
i) An integrator ii) Differentiator iii) Voltage follower. **(06 Marks)**

b. With neat circuit diagram, explain base biased method with necessary equations. **(05 Marks)**

c. Find the output of the following op-amp circuit. **(05 Marks)**

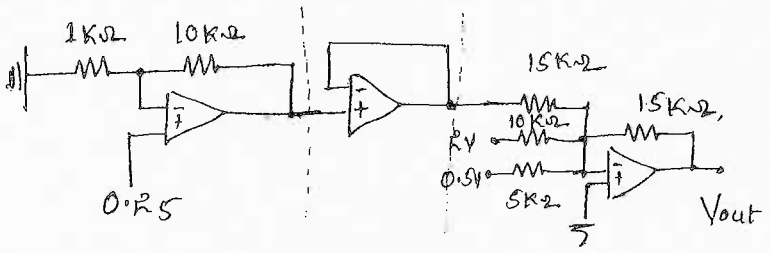

Fig Q4(c)

Module-3

5 a. Convert $(1101101)_2 = (\ )_{10}$ and $(96)_{10} = (\ )_2$. **(04 Marks)**

b. Convert $(FA876)_{16} = (\ )_8$ and $(237)_8 = (\ )_{16}$. **(04 Marks)**

c. Design Full adder circuit. **(08 Marks)**

OR

6 a. State and prove De Morgan's theorem. **(05 Marks)**

b. What are Universal gates? Realize AND, OR Gates using Universal gates. **(05 Marks)**

c. Subtract $(19)_{10}$ from $(15)_{10}$ using 1s and 2s compliment methods. **(06 Marks)**

Module-4

7 a. Write a note on NOR gate latch. **(05 Marks)**

b. Explain the working of clocked RS flip flop using NAND gates. **(06 Marks)**

c. Define microcontrollers. Write their important applications. **(05 Marks)**

OR

8 a. Explain the architecture of 8051 micro controller. **(08 Marks)**

b. Mention the difference between latch and Flip flop. **(02 Marks)**

c. Write a note on interfacing of 8051 microcontroller with stepper motor. **(06 Marks)**

Module-5

9 a. Explain the block diagram of communication system. **(05 Marks)**

b. Define Amplitude modulation. Derive mathematical expression for the same. Draw waveforms. **(06 Marks)**

c. Explain the construction and the principle of operation of LVDT. **(05 Marks)**

OR

10 a. List the differences between Amplitude modulation and frequency modulation. **(05 Marks)**

b. Explain frequency modulation with neat waveforms. **(05 Marks)**

c. A carrier of 10V peak and frequency 100KHz is amplitude modulated by a sine wave of 4V peak and frequency 1000Hz. Determine the modulation index for the modulated wave and draw the amplitude spectrum. **(06 Marks)**

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10CIV18/28

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First/Second Semester B.E Degree Examination, Dec.2016/Jan.2017
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the fifty questions, each question carries **ONE mark**.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. The study of interactions between living organisms and environment is called as,
   a) Ecosystem b) Ecology c) Phytogeography d) Phytosociology

2. The short term properties of the atmosphere at a given place and time is referred as.
   a) Climate b) Microclimate c) Season d) Weather

3. Common energy source in Indian villages is,
   a) Electricity b) Coal c) Sun d) Wood and animal dung.

4. Fossil fuels and metallic minerals are,
   a) Renewable resources b) In exhaustible resources
   c) Non-renewable resources d) None of these

5. Bath power and manure is provided by,
   a) Nuclear plants b) Thermal plants c) Biogas plants d) Hydroelectric plants

6. Deforestation generally decreases,
   a) Rainfall b) Soil erosion c) Drought d) Global warming

7. Chipko movement was started to conserve,
   a) Forest b) Grass land c) Deserts d) Soil

8. Terrace farming is practiced in,
a) Coastal areas b) Deserts c) Hills d) Plains

9. Which ecological pyramid is always straight?
a) Pyramid of biomass b) Pyramid of numbers
c) Pyramid of energy d) Pyramid of numbers and biomass.

10. Increases in fauna and decrease in flora would be harmful due to increase in,
a) Diseases b) CO_2 c) O_2 d) Radioactive pollution

11. Tropical forest occurs in India in,
a) Jammu and Kashmir b) Rajasthan c) Kerala and Assam d) No where

12. If all the plants of the earth die suddenly all the animals die due to deficiency of,
a) Food b) Shade c) Oxygen d) Shelter

13. In our country the percentage of land under forest is about,
a) 20% b) 19% c) 25% d) 30%

14. The area reserved for the welfare of wildlife is called,
a) National park b) Botanical garden c) Sanctuary d) Forest

15. Acid rain is caused by increase in the atmospheric concentration of,
a) Ozone and dust b) SO_2 and NO_2 c) SO_3 & CO d) CO_2 & CO

16. Gas leaked in Bhopal tragedy was,
a) Potassium isothiocynate b) Sodium isothiocynate
c) Ethyl isocynate d) Methyl isocyanate

17. Ozone layer of upper atmosphere is being destroyed by,
a) Sulphur dioxide b) Photochemical oxidants
c) Chloroflurocarbon d) Smog

18. Dysentry spread due to,
a) Food adultration b) Humid weather
c) Water pollution d) Air pollution

19. Maximum deposition of DDT will occur in,
a) Phytoplankton b) Crab
c) Eel d) Sea gull

20. Diesease caused by eating fish inhabiting mercury contaminated water is,
a) Bright's disease b) Minimata diseases
c) Hashimoto disease d) Osteosclerosis

21. Fluoride pollution mainly affects,
a) Kidney b) Brain c) Heart d) Teeth

22. Which of the following is not a greenhouse gas?
a) Oxygen b) CO_2 c) Chloroflurocarbons d) Methane

23. Study of trends in human population growth and prediction of future growth is called,
a) Demography b) Biography c) Kalography d) Psychology

24. The number of babies produced per thousand individuals is called.
a) Natality b) Mortality c) Immigration d) Emigration

25. A pesticide/insecticide which has reported to cause physical deformities and disease in infants in Karnataka and Kerala state recently is,
a) Endosulfan b) DDT c) Amitraz d) None of these

26. The highest concentration of people with HIV infection have been recorded from,
a) USA b) India c) China d) Africa

27. Vasectomy is the method of sterilization in,
a) Man b) Woman c) Both Man and Woman d) None of these

28. ICDS is a welfare scheme for,
a) Public b) Women c) Men d) Children

29. The common pollutants present in ponds and pools nearby agricultural fields are,
a) Dust b) Straw c) Pollons d) Chemical fertilizer & pesticide

30. The non-green plants which obtains food from other plants are called.
a) Hosts b) Parasites c) Saprophytes d) Insectivorous plants

31. The liquid wastes from bathroom and kitchens are called,
a) Sullage b) Domestic sewage c) Storm water d) Runoff

32. EIA is abbreviated form for,
a) Energy impact assessment b) Ecological impact assessment
c) Environmental impact assessment d) Emission impact assessment

33. The fossil fuel which cause maximum environmental pollution due to its use in generation of thermal power is,
a) Coal b) Oil c) Natural gas d) None of these

34. Most stable ecosystem is,
a) Forest b) Desert c) Ocean d) Mountains

35. What is the pH range of drinking water,
a) 6 to 9 b) 6.5 to 8.5 c) 6 to 8.5 d) 6.5 to 7.5

36. Biogas is mostly made of,
a) Hydrogen b) Carbon dioxide c) ethane d) Methane

37. Which of the following is not a natural disaster:
a) Cyclone b) Nuclear explosion c) Earthquake d) Volcane

38. Which state is having highest women illiteracy rate in India?
a) Karnataka b) Punjab c) Rajasthan d) Kerala

39. The percentage of water accounted by oceans and seas is.
a) 90% b) 87% c) 97% d) 99%

40. Which of the is not a biodegradable pollutant?
a) Plastic b) Skins of vegetables and fruits c) Dry leaves d) Paper

41. The concept of BOD comprises of _____?
a) Biochemical oxygen demand b) Usually less than C.O.D
c) A measure of the organic matter present in waste water d) All of these

42. Environmental (protection) act was enacted in the year,
a) 1986 b) 1992 c) 1984 d) 1974

43. Which of the following devices is most suitable for removal of gaseous pollutant?
a) Cyclonic separator b) Fabric filter
c) Electrostatic precipitator d) Wet collector

44. ISO14000 standard deals with,
a) Pollution management b) Risk management
c) Environmental management d) None of these

45. Sound becomes hazardous when noise pollution at _____ decibels.
a) above 30 b) above 80 c) above 100 d) above 120

46. A major nitrogen storage reservoir is,
a) River b) Atmosphere c) Oceans d) Trees

47. Hydrological cycle mainly involves,
a) Air and Water b) Sun and Water c) Animal and Water d) Mountain and Water

48. Khetri (Rajasthan) is famous for,
a) Gold mines b) Copper mines c) Granite stone d) Marble stone

49. Cauvery water dispute is in between,
a) India and Pakistan b) Punjab and Haryana
c) Uttar Pradesh and Madhya Pradesh d) Karnataka and Tamilnadu

50. National park concerned with rhinoceros is,
a) Corbett b) Ranthambore c) Kaziranga d) Valley of flower

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14CIV18/28

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First/Second Semester B.E Degree Examination, Dec.2016/Jan.2017
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the fifty questions, each question carries **ONE mark**.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. Increasing Industrialisation is causing much danger to man's life by
   a) Polluting the environment b) Producing more goods
   c) Providing more jobs d) Utilizing waste land

2. The most environmentally friendly method of insect control from the following is
   a) Application of organophosphates b) Application of chlorinated hydro carbons
   c) Application of pyrethroids d) Crop rotation and Intercropping.

3. What does the abbreviation 'GIS' stands for
   a) Geographical Information system b) Geological Information system
   c) Geographical Interpretation system d) Geoscience Information system

4. Which of the following is likely to be present in photochemical smog?
   a) Ozone b) Peroxyacetyl nitrates (PAN)
   c) Aldehyde d) All of these

5. Which of the following components of the environment encompass living things?
   a) Atmosphere b) Hydrosphere c) Lithosphere d) Biosphere

6. Ozone depletion will cause
   a) More ultraviolet radiation from the sun to reach the earth
   b) Increased in skin cancer and
   c) Weakening of human immune system d) All of these

7. Noise is,
   a) Loud sound b) Unwanted sound
   c) Constant sound d) Sound of high frequency

8. Which of the following is not a marine pollutant?
   a) Oil b) Plastics c) Dissolved oxygen d) Sewage

9. Which of the following components of the environment is responsible for the large scale recycling of matter on earth?
a) Atmosphere b) Hydrosphere c) Lithosphere d) Biosphere

10. Deforestation includes areas where, the impact of disturbance, over utilization or changing environmental conditions affects the forest to an extent that it cannot sustain a tree cover above the _____ percent threshold.
a) 10% b) 30% c) 60% d) 80%

11. In the developing world
a) Male population is decreasing
b) Male to female ratio is increasing
c) Infant mortality is increasing
d) Life expectancy is decreasing

12. The pollutants which are emitted directly from identifiable sources are called as
a) Secondary pollutants
b) Observable pollutants
c) Tertiary pollutants
d) Primary pollutants

13. Two of the most important atmospheric conditions affecting the dispersion of pollutants are the strength of the wind and the ____ of the air
a) stability b) depth c) temperature d) pressure

14. The three 'R's to save the environment are
a) Reserve, Reduce, Recycle
b) Reduce, Recycle, Resuse
c) Reserve, Reuse, Reduce
d) Reuse, Reserve, Reduce

15. Organic agriculture is
a) Ecological management practice
b) Ecological production management
c) Both (a) & (b)
d) None of these

16. The transfer of "Food energy" through a chain of organisms from one trophic level to another is
a) Energy chain b) Organisms chain c) Trophic chain d) Food chain

17. The severity of an earthquake is a measure of its seismic waves and is called as
a) epicenter b) focus c) magnitude d) ridges

18. The incident of Bhopal gas tragedy occurred on the night of
a) December 3rd 1984
b) December 2nd 1984
c) December 3rd 1982
d) December 1st 1984

19. Most stable form of rock in the environment is
a) Magma b) Igneous rock c) Metamorphic d) Sedimentary rock

20. Which of the following is not true about DDT
a) It do not break down rapidly in the environment
b) Is more soluble in water than in fat
c) It is inexpensive and easy to apply
d) It is capable of causing cancer

21. Amrita Devi Bishnoi sacrificed her life to the protection of
a) Sal tree b) Pine tree c) Khajri tree d) Alpine

22. What is the primary difference between renewable resources and non renewable resources?
a) how easily they are discovered
b) the amount of the resources
c) the length of time it takes for them to be replenished
d) how fast they are being used up.

23. 'Fume' refers to Aerosol consisting of solid particles or a mixture of solid and liquid particles produced by
a) Chemical reaction
b) Heat or fire
c) Heat and chemical reaction
d) Condensation of hot metal vapour

24. Environmental campaign carried out by public digital media like ND – TV is
a) save the tiger
b) save the nature
c) go green
d) save the silent valley

25. Acceptability of dams could be improved by
a) Minimizing the environmental impacts
b) Compensating for involuntary
c) By conducting regular monitoring and periodic review
d) All of these

26. Nuclear power plant in Karnataka is located at
a) Sandur
b) Bellary
c) Kaiga
d) Raichur

27. Which is one of the "hottest hotspots" of biodiversity in Southern India?
a) Western Ghats range
b) Fir forest
c) Foot hills of Hills of Himalayas
d) Dandeli

28. World water day will be celebrated every year on
a) April 1st
b) April 22nd
c) March 22nd
d) December 22nd

29. The two structural components of the ecosystem are _____
a) Plants and animals
b) Plants and light
c) Abiotic & biotic
d) Weeds and micro - organisms

30. Narmada Bachao Andolan was led by
a) Sunderlal Bahuguna
b) Medha Patkar
c) Vandana Shiva
d) Suresh Heblikar

31. Which one of the following groups constitutes the fossil fuels?
a) Coal, oil and natural gas
b) Oil, wood pieces and dry dung
c) Coal, wood pieces and oil
d) Natural gas, oil and wood pieces

32. The environment which has been made or modified by human and used for their activities is called
a) Natural environment
b) Anthrogenic environment
c) Urban environment
d) Modern environment

33. The word Environment is derived from French work 'Environs' which means
a) Air and water
b) Industrial production
c) A beautiful landscape
d) sum total of all condition

34. The top most priority in emergency response to disaster is,
a) Finance
b) Assessment of needs
c) Livelihood and economy
d) Search and rescue

35. The gradual build up of the concentration of chemicals as they transfer through higher levels of the food chain is called
a) Biomagnification
b) Bioconcentration
c) Biodegradation
d) Biomethanation

36. Ozone layer is measured in
a) Centimeters
b) Millimeters
c) Decibels
d) Dobson unit

37. Non point sources of pollution includes all of the following except _____
a) Wind carrying dirt and pesticides from crop lands
b) A smoke stack from power plant
c) Run off from stockyards
d) Fertilizer runoff from agricultural fields.

38. Which one of the following human organ is damaged by fluoride pollution in water
a) Teeth b) Kidney c) Brain d) Lungs

39. Self assimilation of nutrient from 'photons' the light packets is termed as
a) Heterotrophy b) Photo autotrophy c) Autotrophy d) Chemotrophy

40. The IS code for potable water is
a) IS : 10500 b) IS : 10000 c) IS : 20000 d) IS : 2014

41. Succession of life forms that starts in water is called
a) Hydrobionts b) Hydrophytes c) Phytoplanktons d) Hydrosere

42. 'Silicosis' is prevalent in the
a) Textile industry
b) Sugar industry
c) Stone crushers
d) Storage battery industries

43. The minimum DO level needed for existence of life forms in water
a) 1 mg/L b) 2 mg/L c) 3 mg/L d) 4 mg/L

44. The water vapour to Ozone ratio in the healthy troposphere is
a) 1000 : 1 b) 1 : 1 c) 100 : 1 d) 1 : 1000

45. What is the minimum nutritional requirement of the secured foods?
a) 1500 cal b) 2000 cal c) 200 cal d) 500 cal

46. Which of the following remote sensing technologies uses sound?
a) Radar
b) Sonar
c) thermal infrared imaging
d) colour infrared imaging

47. The mile stone marking the birth of the environmental movement was
a) The Publication of the book silent spring by Rachel Carson in 1962
b) Chernobyl disaster
c) Founding of green peace
d) 1st World war

48. The process of conversion of atmospheric nitrogen to available nitrate form is called
a) Nitrogen synthesis b) Denitrification c) Nitrification d) Nitrifixing.

49. Which of the following is not a key concept that is part of our definition of GIS.
a) GIS can be used in all areas of modern science
b) GIS technologies include GPS and remote sensing
c) GIS includes both computer hardware and software
d) People are an important part of GIS.

50. The Mars orbiter Mission (MOM), informally called Mangalayaan is India's first Mars orbiter and was launched by the vehicle.
a) ASLV (Augmented Satellite Launch Vehicle)
b) PSLV (Polar Satellite Launch Vehicle)
c) GSLV (Geo synchronous Launch Vehicle).
d) Ariane - 5.

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CBCS Scheme

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Question Paper Version : A

First/Second Semester B.E Degree Examination, Dec.2016/Jan.2017
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 40

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the forty questions, each question carries **ONE mark**.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. Which of the following conceptual spheres of the environmental is having the least storage capacity for matter?
   a) Atmosphere b) Lithosphere
   c) Hydrosphere d) Biosphere

2. Biosphere is,
   a) The solid shell of inorganic materials on the surface of the earth.
   b) The thin shell of organic matter on the surface of each comprising of all the living things.
   c) The sphere which occupies the maximum volume of all the spheres.
   d) All of the above.

3. The earth's atmosphere is an envelope of gases present upto a height of about _____ kms.
   a) 10 b) 200 c) 1000 d) 2000

4. Primary consumer is,
   a) Herbivores b) Carnivores c) Macro consumers d) Omnivores

5. World environmental day is on,
   a) 5th May b) 5th June c) 18th July d) 16th August

6. Green revolution is,
   a) Crop variety improvements
   b) Increased use of fertilizers
   c) Expansion of irrigation
   d) All of these

7. Environmental is the life support system that includes,
   a) Air
   b) Water
   c) Land
   d) All of these

8. The largest reservoir of nitrogen in our planet is,
   a) Oceans
   b) Atmosphere
   c) Biosphere
   d) Fossil fuels

9. Land conversion through burning of biomass releases,
   a) O_2
   b) CO
   c) N_2
   d) SO_2

10. The movement of carbon between_____ is called carbon cycle,
    a) Atmosphere and biosphere
    b) Atmosphere and hydrosphere
    c) Geosphere and atmosphere
    d) Biosphere, atmosphere, hydrosphere and geosphere

11. The ground water depends on,
    a) Amount of rain fall
    b) Geological formations
    c) Run off
    d) All of these

12. The important three minerals mined into the maximum extent are,
    a) Coal, petroleum and mercury
    b) Coal, Petroleum and Iron
    c) Petroleum, Radium and Xenon
    d) Helium, Xenon and Coal

13. Respiration and photosynthesis are the keywords related to,
    a) Nitrogen cycle
    b) Sulphur cycle
    c) Carbon cycle
    d) Hydrological cycle.

14. Mining means,
    a) To conserve and preserve minerals
    b) To check pollutions due to mineral resources
    c) To extract minerals and ones
    d) None of these

15. The most important fuel used by nuclear power plant is,
    a) V-235
    b) V-238
    c) V-245
    d) V-248

16. The pH value of the acid rain water is,
    a) 5.7
    b) 7.0
    c) 8.5
    d) 7.5

17. Which of the following is not a Green house gas?
    a) Hydro chloroflourocarbons
    b) Methane
    c) CO_2
    d) SO_2

18. E.I.A can be expanded as.
    a) Environment and Industrial Act
    b) Environment and impact activities
    c) Environment Impact Assessment
    d) Environment Important Activity

19. The environmental (protection) act 1986 deals with:
    a) Water
    b) Air
    c) Soil
    d) All of these

20. The first of the major environmental protection act to be promulgated in India was:
    a) The wild life protection act
    b) The air act
    c) The noise pollution act
    d) None of these

21. The meaning of global warming is.
    a) Increase in the temperature of climate
    b) A planet hotter than earth
    c) Solar radiation
    d) Cooling effect

22. Biogas is produced by.
    a) Microbial activity
    b) Harvesting crop
    c) Both (a) and (b)
    d) None of these

23. Biomass consists of.
    a) Lignin
    b) Hemi cellulose
    c) Cellulose
    d) All of these

24. Petroleum based vehicles emit traces of.
    a) CO and NO_x
    b) SPM
    c) Aldehydes
    d) CH_4

25. Urbanization is.
    a) Local environmental issue
    b) National environmental issue
    c) Both (a) and (b)
    d) Not at all an issue

26. Noise pollution limits in industrial area.
    a) 45 dB
    b) 80 dB
    c) 65 dB
    d) 90 dB

27. Ozone layers absorbs.
    a) UV rays
    b) Infrared rays
    c) Cosmic rays
    d) CO

28. Water logging is a phenomenon in which.
    a) Crop patterns are related
    b) Plant nutrients
    c) Erosion of soil
    d) None of these

29. The natural nitrogen cycle is upset due to.
    a) Burning of fossil fuel
    b) Modern agricultural practice of releasing excess fertilization.
    c) Global warming
    d) Biogas production

30. Which of the following are natural sources of air pollution?
    a) Volcanic eruption
    b) Solar flair
    c) Earthquake
    d) All of these

31. Air pollution from automobiles can be controlled by fitting.
    a) Electrostatic precipitator
    b) Wet scrubber
    c) Catalytic converter
    d) All of these

32. Both power and manure provided by,
    a) Nuclear plants
    b) Thermal plants
    c) Biogas plants
    d) Hydroelectric plants

33. BOD means,
    a) Biochemical oxygen demand
    b) Chemical oxygen demand
    c) Biophysical oxygen demand
    d) All of these

34. Deforestation can.
    a) Increase the rain fall
    b) Increase soil fertility
    c) Introduce silt in the rivers
    d) None of these

35. Organic farming is.
    a) Farming without using pesticides and chemical fertilizers
    b) Enhances biodiversity.
    c) Promotes soil biological activity.
    d) All of these.

36. Chloro Fluro Carbon's (CFC) are.
    a) Non toxic
    b) Non flammable
    c) Non carcinogenic
    d) All of these

37. Which of the following statement is true?
    a) Green plants are self nourishing
    b) Producers depends on consumers
    c) Biotic components includes all non-living components
    d) Herbivores depend on Carnivores.

38. Major purpose of most of the Dams around the world is,
    a) Power generation
    b) Drinking water supply
    c) Flood control
    d) Irrigation.

39. Major causes of deforestation are.
    a) Shifting cultivation
    b) Fuel requirements
    c) Raw materials for industries
    d) All of these

40. Smog is,
    a) A natural phenomenon
    b) Combination of smoke and fog
    c) Colorless
    d) All of these

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14CHE12/22

First/Second Semester B.E. Degree Examination, June/July 2017
Engineering Chemistry

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting ONE full question from each module.***

Module – 1

1 a. Derive Nernst equation for single electrode potential. **(05 Marks)**

b. What is reference electrode? Discuss the construction and working of Calomel electrode. **(05 Marks)**

c. Explain the following characteristics of battery,
(i) Cell potential
(ii) Capacity.
(iii) Cycle life. **(06 Marks)**

d. Discuss the construction and working of Zinc-air battery. **(04 Marks)**

2 a. List out different types of electrodes with an example. **(06 Marks)**

b. The emf of the cell $Cd/CdSO_4(0.0093M)//CdSO_4/Cd('X'M)$ is 0.086 V at 25°C. Find the value of 'X'. **(04 Marks)**

c. What are fuel cells? Compare conventional cell and fuel cell. Mention the advantages of fuel cell. **(06 Marks)**

d. Discuss the construction and working of methanol-oxygen fuel cell. **(04 Marks)**

Module – 2

3 a. Explain the electrochemical theory of corrosion by taking Iron as an example. **(05 Marks)**

b. Explain the following factors affecting the rate of corrosion:
(i) Nature of corrosion product.
(ii) Polarization of anodic and cathodic regions. **(05 Marks)**

c. Discuss decomposition potential which governs the electroplating. **(04 Marks)**

d. Explain any three factors which influence the natures of electro deposit. **(06 Marks)**

4 a. Explain waterline corrosion and caustic embrittlement in boilers. **(06 Marks)**

b. Discuss Tinning process. **(04 Marks)**

c. Explain the electroplating of hard chromium. **(05 Marks)**

d. Distinguish electroplating and electroless plating. **(05 Marks)**

Module – 3

5 a. Explain the determination of calorific value of a non-volatile liquid fuel using Bomb calorimeter. **(05 Marks)**

b. What is reformation of petrol? Write the reactions involved in it. **(05 Marks)**

c. Discuss the construction and working of PV-cell. **(04 Marks)**

d. Explain module, array and panel of a PV-cell. **(06 Marks)**

6 a. Discuss : (i) Antiknocking agents and (ii) Biodiesel. **(06 Marks)**

b. Calculate gross and net calorific value of a coal sample from the following data:
Weight of coal sample = 0.89 g
Weight of water taken in calorimeter = 2600 g,
Water equivalent of calorimeter = 350 g,
Latent heat of steam = 2465 KJ/kgs
Specific heat of water = 4.187 KJ/kg/°C
Rise in temperature = 2.8°C
% of H_2 in coal sample = 4% **(04 Marks)**

c. Discuss the production of solar grade silicon by union carbide process. **(06 Marks)**

d. Explain doping of silicon by diffusion technique. **(04 Marks)**

Module – 4

7 a. Explain the free radical mechanism of polymerization taking vinyl chloride as a monomer. **(06 Marks)**

b. Differentiate between addition and condensation polymerization. **(04 Marks)**

c. Give the synthesis reaction of Teflon and polycarbonate. **(04 Marks)**

d. Discuss the synthesis, properties and applications of epoxy resin. **(06 Marks)**

8 a. Explain any three structure property relationships of polymers. **(06 Marks)**

b. Explain the following factors influencing the Tg:
(i) Flexibility (ii) Branching and Cross linking. **(04 Marks)**

c. Discuss the synthesis of carbon fibre. **(04 Marks)**

d. What is conducting polymer? Explain the mechanism of conduction in polyaniline and give the applications. **(06 Marks)**

Module – 5

9 a. What is boiler feed water? Explain the priming and foaming in boilers. **(05 Marks)**

b. Discuss the determination of COD of sewage water. **(05 Marks)**

c. What is nanomaterial? Discuss the synthesis of nanomaterial by gas condensation. **(05 Marks)**

d. Write a note on carbon nanotubes. **(05 Marks)**

10 a. Explain the activated sludge treatment of sewage water. **(05 Marks)**

b. Discuss the Desalination of sea water by reverse osmosis. **(05 Marks)**

c. Write a note on nano composites. **(05 Marks)**

d. Explain the synthesis of nanomaterial by sol-gel method. **(05 Marks)**

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CBCS Scheme

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First/Second Semester B.E. Degree Examination, June/July 2017
Engineering Chemistry

Time: 3 hrs. Max. Marks: 80

Note: *Answer FIVE full questions, choosing one full question from each module.*

Module-1

1 a. Write Electrode reactions and Net cell reaction of
i) Nickel – Metal hydride battery ii) Methanol – oxygen fuel cell. **(06 Marks)**

b. Describe the construction and working of Lithium ion battery. **(05 Marks)**

c. Derive Nernst equation for Single Electrode Potential. **(05 Marks)**

OR

2 a. What are Concentration Cells? Calculate the cell potential of the following cell at 298K.
Ag/Ag Cℓ (0.005M) // Ag Cℓ (0.5M)/ Ag **(06 Marks)**

b. Explain the measurement of electrode potential using Calomel electrode as secondary reference electrode. **(05 Marks)**

c. Define Fuel Cell. What are the differences between Fuel cell and Conventional cell? **(05 Marks)**

Module-2

3 a. What is Galvanisation and Tinning? Explain Galvanisation process by Hot dipping method. **(06 Marks)**

b. Explain Electrochemical theory of corrosion with an example. **(05 Marks)**

c. What is Electroplating? What are the differences between Electroplating and Electroless plating? **(05 Marks)**

OR

4 a. Explain Electroless plating of copper with suitable reactions. **(06 Marks)**

b. Describe Electroplating of Nickel using Watt's bath. **(05 Marks)**

c. Explain the following factors affecting the rate of corrosion : i) Nature of corrosion product ii) Ratio of Anodic to Cathodic area iii) Conductivity. **(05 Marks)**

Module-3

5 a. Define Gross calorific and Net calorific value of a fuel. Calculate the gross and net calorific value of a sample of coal from following data : **(06 Marks)**
Weight of coal = 0.95g ; Weight of water = 2500g ;
Water equivalent of calorimeter = 400g ; Specific heat of water = 4.187 J/g / K ;
Rise in temperature = 3K ; % of Hydrogen in coal = 6
Latent heat of steam = 2454 J/g/K.

b. Write a short note on Power Alcohol and Biodiesel. **(05 Marks)**

c. Explain Modules, Panels and Arrays of photovoltaic cells. **(05 Marks)**

OR

6 a. Explain the production of solar grade silicon by Union Carbide process. **(06 Marks)**

b. Explain Doping of silicon by diffusion technique to produce n – type and p – type semiconductors. **(05 Marks)**

c. Describe Synthesis of petrol by Fischer – Tropsch process. **(05 Marks)**

Module-4

7 a. Explain Free Radical mechanism of addition polymerisation taking vinyl chloride as an example. **(06 Marks)**

b. What are Elastomers? Explain synthesis, properties and applications of silicone rubber. **(05 Marks)**

c. What is Glass Transition Temperature? Explain any two factors affecting glass transition temperature. **(05 Marks)**

OR

8 a. A polymer is found to contain the following composition : **(06 Marks)**
200 molecules of molecular mass 2000 g/mol ,
300 molecules of molecular mass 3000 g/mol ,
500 molecules of molecular mass 5000 g/mol. Calculate number average molecular weight and weight average molecular weight of polymer.

b. Discuss Structure property relationship of polymers with respect to **(05 Marks)**
i) Elasticity ii) Chemical resistivity.

c. Explain the Mechanism of conduction in polyaniline. **(05 Marks)**

Module-5

9 a. Write a note on Nanocomposites. Mention its applications. **(05 Marks)**

b. Discuss the synthesis of nanomaterials by Sol – gel process and by precipitation method. **(06 Marks)**

c. Explain the Activated Sludge treatment of sewage water. **(05 Marks)**

OR

10 a. Define BOD. Discuss the experimental determination of BOD of waste water. **(06 Marks)**

b. $50cm^3$ of sewage water was refluxed with $20cm^3$ of 0.1N acidified $K_2Cr_2O_7$. The unreacted acidified $K_2Cr_2O_7$ consumed $10.2cm^3$ of 0.1NFAS. $20cm^3$ of 0.1N $K_2Cr_2O_7$ when titrated under identical condition consumed $31.1cm^3$ of 0.1NFAS. Calculate the COD of sewage water. **(05 Marks)**

c. Write a note on Carbon nanotubes. **(05 Marks)**

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14PCD13/23

First/Second Semester B.E. Degree Examination, June/July 2017
Programming in C and Data Structures

Time: 3 hrs. Max. Marks:100

Note: *Answer FIVE full questions, selecting ONE full question from each module.*

Module – 1

1 a. What is variable? What is the purpose of variable? What are the rules of variables? **(07 Marks)**
b. What is operator? Explain any four operator with an example. **(09 Marks)**
c. Define (i) Keyword (ii) Constants (iii) Datatype (iv) Delimiters **(04 Marks)**

2 a. Explain the formatted and unformatted I/O function in C language. Give example for each. **(10 Marks)**
b. Write a C program to find the largest of three numbers. **(04 Marks)**
c. What is execution character? What are the different escape sequence character in C language? **(06 Marks)**

Module – 2

3 a. What is branching? Explain if, if....else and switch with syntax and example. **(10 Marks)**
b. Write a C program to generate N prime numbers. **(06 Marks)**
c. Explain the significance of goto statement in a C program. **(04 Marks)**

4 a. What is the difference between break and continue statements? Explain with example. **(06 Marks)**
b. Write a C program to find the GCD and LCM of two integer numbers. **(07 Marks)**
c. What is loop? List and explain the different type of loops. **(07 Marks)**

Module – 3

5 a. What is an array? Explain the declaration and initialization of one and two dimensional array. **(06 Marks)**
b. What is string? Explain any five string manipulation functions. **(06 Marks)**
c. Write a program to find the product of two matrices with suitable messages. **(08 Marks)**

6 a. What is recursion function? Find the factorial of number using recursive function. **(06 Marks)**
b. Explain with an example of different passing parameter to function. **(08 Marks)**
c. Write a C program to check the given string is palindrome or not. **(06 Marks)**

Module – 4

7 a. Explain the structures and function with an example. **(08 Marks)**
b. What is structure? Explain with an example of structure declaration and accessing elements. **(06 Marks)**
c. Write C program to accept roll no, name, marks of students and display the sum and average the marks. **(06 Marks)**

8 a. What is file? Explain how the file open and file close function. **(04 Marks)**
b. Write the concepts of array of structures with a suitable C program. **(08 Marks)**
c. Write a C program to read a text file and count numbers of characters, words and lines. **(08 Marks)**

Module – 5

9 a. What is pointer? Explain how pointer variables are declared and initialized with example. **(04 Marks)**

b. Write a C program using pointer to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers. **(10 Marks)**

c. What is dynamic memory allocation? Explain different dynamic memory allocation. **(06 Marks)**

10 a. What is preprocessor? Explain # define preprocessor directive. **(04 Marks)**

b. What is data structure? What are primitive and non primitive data types? **(04 Marks)**

c. Write note on:
(i) Stack (ii) Queue (iii) Linked list (iv) Tree **(12 Marks)**

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CBCS Scheme

USN | | | | | | | | | | |

15PCD13/23

First/Second Semester B.E. Degree Examination, June/July 2017
Programming in C and Data Structures

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

1 a. Define Pseudo code. Explain with an example. **(05 Marks)**

b. Write a C program to find biggest among three numbers using ternary operator. **(05 Marks)**

c. Explain the following constants with example
   i) Integer constant
   ii) Floating constant
   iii) Character constant. **(06 Marks)**

OR

2 a. List the formatted input/output functions of C language. Explain the basic structure of C program with proper syntax and example. **(06 Marks)**

b. Define an algorithm. Write an algorithm to find the area of circle and triangle. **(06 Marks)**

c. Evaluate the following expression/code segment
   i) 22 + 3 < 6 && ! 5 || 22 = = 7&& 22 – 2 > = 5
   ii) a + 2 > b || ! c && a = = d || a – 2 < = e
   where a = 11, b = 6, c = 0, d = 7 and e = 5 **(04 Marks)**

Module-2

3 a. List all branching statements. Explain any two with proper syntax and example. **(06 Marks)**

b. Explain switch case statement with syntax and example. **(05 Marks)**

c. Write a C program to find whether given year is leap year or not. **(05 Marks)**

OR

4 a. Write the syntax of all looping control statements. Explain how break and continue statements are used in C program with example. **(06 Marks)**

b. Write a C program to find the square root of a given number without using library function. **(05 Marks)**

c. List the difference between while and do-while loop. **(05 Marks)**

Module-3

5 a. Define the array. How one and two dimensional arrays are declared and initialized? Explain. **(07 Marks)**

b. Write C program to evaluate the polynomial equation $f(x) = a_0 + a_1x + a_2x^2 + \ldots . a_{n-1}x^{n-1} + a_n x^n$ for given constant 'x' and its co-efficients. **(04 Marks)**

c. Explain string Input/output functions with example. **(05 Marks)**

OR

6 a. Explain how strings are declared and initialized with syntax and example. **(06 Marks)**

b. Write a C program to find the addition of two matrices. **(04 Marks)**

c. Explain function definition, function call and function declaration with example. **(06 Marks)**

Module-4

7 a. Define structure. Explain how structure members are accessed using dot (•) operator with example. **(05 Marks)**

b. Show how structure variables are passed as a parameter to a function with example. **(05 Marks)**

c. Write a C program to maintain record of 'n' students detail using array of structures with four fields (Rno, name, marks, grade). Each field is an appropriate data type. Print the marks of student if student name is given. **(06 Marks)**

OR

8 a. Define file. Explain the different modes of file with suitable examples. **(08 Marks)**

b. Explain the following file function with example.

i) fopen ( )
ii) fprintf ( )
iii) fscanf ( )
iv) fgets ( ) **(08 Marks)**

Module-5

9 a. What is pointer? Explain how pointer variable is declared and initialized. **(05 Marks)**

b. Explain any two preprocessor directives in C with example. **(06 Marks)**

c. Write a C program to swap two numbers using pointer concept. **(05 Marks)**

OR

10 a. What are primitive and non primitive data types? Explain. **(05 Marks)**

b. List the applications of stack and Queue data structure. **(05 Marks)**

c. Write a C program to find sum and mean of all elements in an array using pointer. **(06 Marks)**

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CBCS Scheme

USN 2VDI6ME011

15ELN15/25

First/Second Semester B.E. Degree Examination, June/July 2017

Basic Electronics

Time: 3 hrs. Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

1 a. Explain briefly the PN junction diode characteristics. **(06 Marks)**

b. Explain Zener diode voltage regulator circuit with no load and with load. **(06 Marks)**

c. Derive the relationship between α and β. Calculate the value of I_c for a transistor that has $\alpha = 0.98$ and $I_b = 200\ \mu A$. **(04 Marks)**

OR

2 a. Explain briefly the common emitter circuit and sketch the input and output characteristics. Also explain operating regions by indicating them on characteristics curve. **(06 Marks)**

b. With a neat circuit diagram and waveforms, explain the working of a half-wave rectifier. **(06 Marks)**

c. Explain briefly capacitor filter circuit. **(04 Marks)**

Module-2

3 a. What is a DC load line? Explain the voltage divider bias circuit. **(08 Marks)**

b. Mention and explain the characteristics of ideal operational amplifier. **(04 Marks)**

c. Derive the expression of integrator with circuit diagram. **(04 Marks)**

OR

4 a. With neat circuit and necessary equations, explain the voltage follower. **(06 Marks)**

b. Explain the base bias circuit. **(04 Marks)**

c. Explain briefly inverting and non-inverting operational amplifiers. **(06 Marks)**

Module-3

5 a. State and prove De-Morgan's theorem with truth table. **(06 Marks)**

b. Explain the basic gates AND, OR and NOT gates with truth tables. **(06 Marks)**

c. Explain the half-adder circuit. **(04 Marks)**

OR

6 a. Explain the full-adder circuit. **(06 Marks)**

b. Simplify the given Boolean equation $Y = (A + \overline{B})(CD + E)$ and realize using NAND gates only. **(04 Marks)**

c. Convert the following:

i) $(49.5)_{10} = (\quad ? \quad)_{16}$

ii) $(1062.403)_8 = (\quad ? \quad)_{10}$

iii) $(642.71)_8 = (\quad ? \quad)_2$ **(06 Marks)**

Module-4

7 a. What is R-S flip-flop? Explain its circuit diagram, logic symbol and truth table. **(08 Marks)**

b. Explain the architecture of 8051 microcontroller in detail. **(08 Marks)**

OR

8 a. Explain the gated R-S flip-flop and clocked R-S flip-flop. **(08 Marks)**

b. With the help of block diagram, explain the micro-controller based stepper motor control system. **(08 Marks)**

Module-5

9 a. Explain the construction of LVDT and its operation. **(06 Marks)**

b. Explain the frequency modulation with neat waveforms. **(06 Marks)**

c. Explain with diagram the AM detection (demodulation). **(04 Marks)**

OR

10 a. Explain the piezoelectric transducer and photoelectric transducer. **(06 Marks)**

b. Explain with block diagram elements of communication system. **(06 Marks)**

c. Compare AM and FM modulation. **(04 Marks)**

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USN | | | | | | | | | | |

10ELN/15/25

First/Second Semester B.E. Degree Examination, June/July 2017
Basic Electronics

Time: 3 hrs. Max. Marks:100

Note: *Answer any FIVE full questions, choosing at least two from each part.*

PART – A

1 a. Choose the correct answers for the following :

i) The cut in voltage of a silicon diode is about _____
A) 0.6V B) 0.6mV C) 1.2V D) 1.2mV

ii) The ripple factor for a full wave rectifier is
A) 0.482 B) 0.5 C) 1.21 D) −1.21

iii) PIV rating of a diode in a bridge rectifier is _____
A) V_m B) $2V_m$ C) $\frac{V_m}{2}$ D) $\frac{V_m}{\sqrt{2}}$

iv) The zener resistance of a zener diode, which exhibits 50mV change in V_z for a 2.5mA change in I_z is _____
A) 10Ω B) 40Ω C) 20Ω D) 60Ω **(04 Marks)**

b. Draw and explain the V-I characteristics of silicon diode **(04 Marks)**

c. Deduce the following for Fullwave rectifier i) I_{dc} ii) I_{rms} iii) Ripple factor iv) Effeciency of rectification. **(08 Marks)**

d. A full wave rectifier (bridge) supplies a load of 400Ω in parallel with a capacitor of 500μF. If the ac-supply voltage is 230 sin 314t, V find the i) Ripple factor ii) Dc load current. **(04 Marks)**

2 a. Choose the correct answers for the following :

i) The transistor acts as an amplifier in the _____ region.
A) cut off B) active C) saturation D) inverse.

ii) In a transistor the current conduction is due to _____ carriers.
A) Majority B) Minority C) Both D) None of these.

iii) The input resistance is highest for _____
A) CB amplifier B) CC amplifier C) CE amplifier D) None of these.

iv) The position of Q-point on the dc load line should be _____
A) stable B) unstable C) bistable D) all the above. **(04 Marks)**

b. Draw input and output characteristics of a transistors in common emitter configuration and explain in detail. **(04 Marks)**

c. Obtain the relationship between α_{dc} and β_{dc}. **(08 Marks)**

d. Calculate the values of I_c, I_E and β_{dc} for a transistor with $\alpha_{dc} = 0.98$ and $I_B = 120\mu A$. **(04 Marks)**

3 a. Choose the correct answers for the following :

i) The reverse saturation current doubles for every _____ °C rise in temperature.
A) 40 B) 45 C) 10 D) 50.

ii) The stability factor "S" as the rate of change of collector current with _____
A) Base current B) Reverse saturation current
C) Emitter current D) V_{cc}.

iii) For an emitter follower, the voltage gain is _____
A) unity B) greater than unity C) less than unity D) zero.

iv) In the fixed bias circuit, the stabilization of the Q-point is _____.
A) very poor B) very high C) better D) very good. **(04 Marks)**

b. Explain the circuit operation and analysis of voltage divider bias. **(08 Marks)**

c. In the circuit shown in Fig. Q3(c), a NPN transistor with $\beta = 100$ is used. Find I_B, I_C and V_{CE}. Draw the dc load line and indicate the Q-point. Take $V_{BE} = 0.7$ volts. **(08 Marks)**

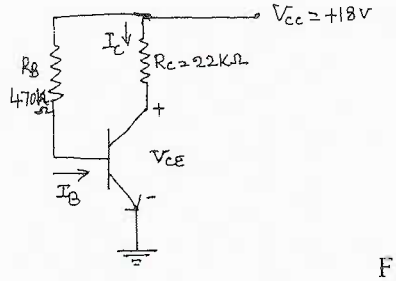

Fig. Q3(c)

4 a. Choose the correct answers for the following :
i) An SCR has _____ number of p-n junctions
A) One B) Two C) Three D) Four
ii) FET is a _____ controlled device.
A) Voltage B) Current C) Power D) None of these.
iii) The holding current is an SCR is _____ the latching current.
A) More than B) Less than C) Equal to D) none of these
iv) A relaxation uses
A) MOSFET B) SCR C) UJT D) BJT. **(04 Marks)**

b. Draw and explain the V-I characteristic of SCR. **(08 Marks)**

c. Explain the basic construction and equivalent circuit of UJT. **(08 Marks)**

PART – B

5 a. Choose the correct answers for the following :
i) Bandwidth of an amplifer is given by _____
A) $BW = f_L - f_H$ B) $BW = f_H - f_L$ C) $BW = f_L + f_H$ D) $BW = 2f_L - f_H$
ii) An amplifier is RC phase shift oscillator contributes _____ phase shift.
A) 180° B) 0° C) 90° D) 60°.
iii) The crystal oscillator finds use, when the _____ stability is required.
A) Amplitude B) Frequency C) Phase D) None of these.
iv) In an oscillator, we use _____ feedback.
A) Positive B) Negative C) Unity grain D) None of these. **(04 Marks)**

b. Draw a neat circuit diagram of Hartley's oscillator and explain its working. What is the frequency of oscillations? **(08 Marks)**

c. With a neat circuit diagram and frequency response, explain the operation of single stage RC coupled amplifier. **(08 Marks)**

6 a. Choose the correct answers for the following :
i) An audio amplifier works over the frequency range _____.
A) 20Hz to 20KHz B) 20Hz to 1MHz C) 1KHz to 4KHz D) None of these.
ii) Op-amp is basically a _____ amplifier.
A) Power B) Differential C) Optical D) Current.
iii) In inverting amplifier there is _____ phase shift between input and output.
A) 0° B) 90° C) 180° D) 360°
iv) The maximum rate at which amplifier output can change in volts per microseconds (V/μs) is called _____.
A) over rate B) slew rate C) under rate D) None of these. **(04 Marks)**

b. List the characteristics of an ideal op.amp. **(06 Marks)**

c. Show with a circuit diagram, how the op-amp can be used as an integrator. **(05 Marks)**

d. Find the O/pP voltage of the 3 i/p adder circuit shown below Fig. Q6(d). **(05 Marks)**

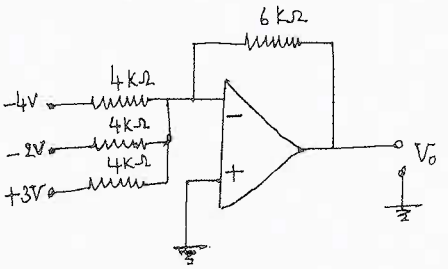

Fig. Q6(d)

7 a. Choose the correct answers for the following :

i) The radio communication uses _____ as communication medium.

A) Optical fibre B) Free space C) conducting wire D) None of these.

ii) The circuit that recovers the original modulating information from an AM signal is known as

A) Modulator B) Mixer C) Demodulator D) Oscillator.

iii) 2's complement of binary number 10110 as

A) 00011 B) 01010 C) 11100 D) 11111.

iv) $(28)_{10} = (\quad)_2$

A) 11100 B) 01110 C) 11000 D) 00011. **(04 Marks)**

b. Explain the need for modulation. **(04 Marks)**

c. Draw the block diagram of a super heterodyne receiver and explain the function of each block. **(06 Marks)**

d. Perform the following :

i) Convert $(725.25)_8 = (\quad)_{10} = (\quad)_2$

ii) Subtract using 2's complement $(4 - 9)_{10}$

iii) $(11010.101)_2 = (\quad)_8 = (\quad)_{16}$. **(06 Marks)**

8 a. Choose the correct answers for the following :

i) Universal gates are _____ and _____.

A) NOT and NOR B) AND or OR C) NAND and NOR D) EX-OR and EX-NOR.

ii) (A+B) (B+C) = _____

A) $B + \overline{A}C$ B) $B + \overline{B}C$ C) $B + AC$ D) AB.

iii) The output is high, when all the inputs are low, such a gate is called _____.

A) NAND B) AND C) OR D) EX-OR

iv) Full adder has _____ inputs.

A) 1 B) 2 C) 3 D) 4. **(04 Marks)**

b. State and prove De Morgan's theorem. **(04 Marks)**

c. Simplify

i) $\overline{A}\,\overline{B}\,\overline{C} + \overline{A}B\overline{C} + A\overline{B}\,\overline{C} + A\overline{B}\,\overline{C}$, realize using basic gates.

ii) $(A + \overline{B} + C)\,(\overline{A} + B + C)$, realize using two input NAND gates. **(08 Marks)**

d. Realize a full adder using 2 Half adder and OR gate. **(04 Marks)**

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10CIV18/28

USN | | | | | | | | | | |

First/Second Semester B.E Degree Examination, June /July 2017
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the fifty questions, each question carries **ONE mark**.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. The Earth is surrounded by a blanket of air which is reffered to as
   a) Atmosphere b) Biosphere c) Hydrosphere d) Lithosphere
2. The term Biosphere was coined by scientist from
   a) Romania b) Russia c) Spain d) Sweden
3. The mantle supporting lithosphere is known as
   a) Asthenosphere b) Mantle c) Magma d) Lava
4. The by – product in Autotrophs is
   a) Carbon b) Oxygen c) Nitrogen d) Hydrogen
5. Fungi and Bacteria are
   a) Producers b) Hyterotrophs c) Consumers d) Decomposers
6. Transpiration by plants is affected by
   a) Temperature b) Pressure c) Humidity d) Gravity
7. The process leading to soil depletion in situ is known as
   a) Soil degradation b) Soil erosion c) Urbanization d) None

8. Aggregation of clay into sand – sized grains is by
a) Vegetation b) Wild fire c) Conservation d) Overgrazing

9. Removal of trees cause
a) Loss of biodiversity b) Ecological impact c) Soil erosion d) All of these

10. Consumption of fossil fuels result in
a) Ozone depletion b) Global warming c) both d) None of the above

11. Marine Iguanas were killed due to oil spill at
a) Santa Fe b) Andaman c) Nicobar d) Lakshadweep

12. Arsenic , Fluorides , Phosphates emit from
a) Diary plants b) Distillery unit c) Fertilizer plant d) Tanneries

13. Mercaptanes is a gaseous effluent characteristic of
a) Tanneries b) Chemical industry c) Petrochemicals d) All of these

14. As per IS : 10500 – 2003, maximum limit of turbidity is
a) 5 NTU b) 10 NTU c) 15 NTU d) 20 NTU

15. Typhoid is a disease due to presence of
a) Bacteria b) Fungus c) Virus d) All

16. Water borne diseases include
a) Polio b) Meningitis c) Cholera d) All

17. Raw sewage used as fertilizer resulted in cholera at
a) Palestine b) Peru c) Paraguay d) Panama

18. Mathaemoglobinemia is a syndrome due to excess of
a) Nitrates b) Phosphates c) Chlorides d) Sulphates

19. Limestone reefs are built up by
a) Corals b) Algae c) Both d) None of these

20. Coal is a dirty fuel because it emits
a) CO_2 b) SO_2 c) NO_2 d) All

21. Wet gas contains low amounts of
a) Propane b) Pentane c) Methane d) Hexane

22. Chemical added to detect any leakage of LPG is
a) Trihydrothiophe b) Trinitrothiophene
c) Tritrohythiophene d) Tritronitrothiophene

23. Huge radioactive fallout on life across Europe is due to nuclear disaster at
a) Cambodia b) Cameroon c) Chernobyl d) Cape Town

24. Nuclear power plant in Karnataka is Situated in
a) Karwar b) Kaiga c) Kudremukh d) None

25. Tidal energy schemes in India is being experimented in
a) Mumbai b) Kerala c) Tamilnadu d) Orissa

26. Coal mines result in enhancing hardness of water due to emission of
a) Sulphuric acid b) Nitric acid c) Phosphoric acid d) All

27. Accelerated Algae and water plant growth is
a) Putrefaction b) Eutrophication c) Denitrification d) None

28. Silting is encouraged due to photosynthesis of
a) Algae b) Bacteria c) Corals d) Planktons

29. The word soil is derived from
a) English b) French c) Latin d) Italian

30. Source of soil pollution is due to
a) Mining b) Biological agents c) Urban wastes d) All of these

31. Common viruses present in sewage are
a) Adeno viruses b) Anterioviruses c) Glutoviruses d) All of these

32. Process in which MSW is decomposed is known as
a) Sanitary landfill b) Composting c) Incineration d) None

33. Progress of a nation depends on
a) Population density b) Literacy rates c) Family size d) All of these

34. Country not belonging to G7 is
a) Canada b) Britain c) Cambodia d) Germany

35. Population growth is not the cause of poverty according to
a) Karl Marx b) Napoleon c) Nelson Mandela d) Lincoln

36. Key remedy for fast population growth happens to be
a) Prosperity b) Nutrition c) Social security d) All these

37. Major Green House Gas is
a) CO_2 b) CH_4 c) CFC d) O_3

38. Kyoto protocol was opened for signature on
a) February 16, 1998 b) March 16, 1998 c) April 16, 1998 d) May 16, 1998

39. 'Acid Rain' was coined by
a) Albert Rogers b) Albert Agnus c) Robert Angus d) Alfred Rogers

40. Acid rain can be
a) Dry b) Wet c) Both d) None of these

41. Lowest P^H recorded in rainwater is
a) 1.5 b) 2.5 c) 3.5 d) 4.5

42. Primary cause of acid rain is due to presence of
a) SO_2 b) CO_2 c) NO_2 d) P_2O_5

43. Invaluable stone statues are partially dissolved by acid rain in
a) Sweden b) Greece c) Ukraine d) Uganda

44. Acid rain has become an invisible threat particularly in
a) Turkey b) Tuvalu c) Japan d) Jordan

45. U.N. conference on Human Environment held in
a) Manchester b) Glasgow c) Stockholm d) Liverpool

46. Air Act extends to
a) North India b) South Central India
c) Whole of India d) Includes Pakistan

47. Water Act in the first instance applies to
a) Tamilnadu b) Andhra Pradesh c) Karnataka d) Maharashtra

48. Wild Life Act extends in India except
a) Karnataka b) Kerala c) Kashmir d) Assam

49. On 29th April 1999, NGO's are signified by UN
a) President b) Secretary General c) Chief d) All

50. Guiding principles for Environmental Education were formulated at conference held in
a) New York b) Tbilisi c) Los Angeles d) Brimingham

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15CIV18/28

CBCS Scheme

USN | | | | | | | | | | |

Question Paper Version : B

First/Second Semester B.E Degree Examination, June / July 2017
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 40

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the forty questions, each question carries **ONE mark**.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1. Which of the following is considered as an alternate fuel?
a) CNG b) Kerosine c) Coal d) Petrol

2. Wind Farms are located in,
a) River basin b) Plain area c) Hilly area d) Valley area

3. Hydrogen energy can be tapped through,
a) Heat pumps b) Fuel cells c) Photovoltaic cell d) Gasifier

4. With Minimum resource maximum energy can be created by,
a) Solar radiation b) Wind c) Nuclear fuels d) Tidal waves

5. Nuclear fusion uses the following as a fuel,
a) Carbon b) Helium c) Hydrogen d) Water

6. Biogas is gaseous fuel composed mainly of,
a) Methane and carbon dioxide b) Methane and hydrogen sulphide
c) Methane and Carbon monoxide d) None of these

7. Reduction in brightness of the famous Taj Mahal is due to,
   a) Global warming b) Air pollution c) Ozone depletion d) Afforestation

8. Ozone layer thickness is measured in,
   a) PPM b) PPB c) Decibels d) Dobson units

9. Bhopal gas tragedy caused due to leakage of,
   a) Methyl Iso Cyanate b) Sulphur dioxide c) Hydrogen Sulphide d) Methane

10. Septic tank is,
   a) An aerobic attached growth treatment system
   b) An aerobic suspended growth biological treatment system
   c) An aerobic attached growth biological treatment system.
   d) An aerobic suspended growth treatment system.

11. Sound that is safest to the human ear should not exceed,
   a) 45 Db b) 125 Db c) 70 Db d) 85 Db

12. Scientific means of M.S.W management involves,
   a) Collection and transport b) Segregation
   c) Safe disposal d) All of these

13. Cow dung can be used,
   a) as manure b) for production of Bio gas
   c) as fuel d) All of these

14. Biomedical waste can be disposed off by,
   a) Incineration b) Autoclaving and Land filling
   c) Both (a) and (b) d) None of these

15. The objectives of Integrated Child Development Services (ICDS) are,
   a) Immunization b) Health check up and referral services.
   c) Pre-school non-formal education d) All of these

16. The international protocol to protect the ozone layer is,
   a) Montreal protocol b) The Vienna protocol
   c) Kyoto protocol d) Cartagena protocol

17. Environmental (protection) act was enacted in the year,
   a) 1986 b) 1992 c) 1984 d) 1974

18. The forest (conservation) act was enacted in the year,
   a) 1986 b) 1974 c) 1994 d) 1972

19. The leader of Chipko movement is,
   a) Sunderlal Bahuguna b) Medha Patkar c) Vandana Shiva d) Suresh Hebliker

20. Chernobyl Nuclear disaster occurred in the year,
a) 1984 b) 1985 c) 1986 d) 1987

21. The computer driven system that permits storing and retrieving environmental information,
a) GIS b) Digital information c) Information technology d) None of these

22. Bacteria that are commonly associated with root nodules are,
a) Rhizobium b) Bacillus c) Pseudomonas d) None of these

23. Earth's fresh water reserves are about,
a) 2.6% b) 26% c) 0.26% d) 1.6%

24. The Earth is believed to have come to existence some,
a) 3.5 billion years ago b) 4.5 billion years ago
c) 4.5 million years ago d) 5.5 million years ago

25. The term environment has been derived from French word which means to encircle or surround.
a) Environ b) Oikor c) Geo d) Aqua

26. Which of the following component of the environment are effective transport of matter?
a) Atmosphere and hydrosphere b) Atmosphere and Lithosphere
c) Hydrosphere and Lithosphere d) Lithosphere and hydrosphere.

27. Which of the following is a biotic component of an ecosystem:
a) Fungi b) Solar light c) Temperature d) Humidity

28. The sequence of eating and being eaten in an ecosystem is called,
a) Food chain b) Carbon cycle c) Hydrological cycle d) None of these

29. Primary consumer is,
a) Herbivores b) Carnivores c) Macro consumer d) Omni vores

30. The Major atmospheric gas layer in stratosphere is,
a) Hydrogen b) Carbon dioxide c) Ozone d) Oxygen

31. A food web consists of,
a) a portion of a food chain b) an organisms position in a food chain
c) Interlocking of food chain d) a set of similar consumer

32. India has a world's largest share of which of the following:
a) Manganese b) Mica c) Copper d) Diamond

33. Major purpose of most of the dams around the world is,
a) Power generation b) Irrigation c) Drinking water supply d) Flood control

34. The Permissible range of pH for drinking water as per the Indian standard,
a) 6 to 9 b) 6.5 to 7.5 c) 6 to 8.5 d) 6.5 to 8.5

35. Excess of fluorides in drinking water is likely to cause,
a) Blue babies b) Fluorosis c) Taste and Odour d) Colour

36. The largest reservoir of nitrogen on our planet is,
a) Ocean b) Atmosphere c) Biosphere d) Fossil fuels

37. Mining means,
a) Conserve and Preserve minerals
b) Check pollution due to mineral resource
c) Extract minerals and ores
d) None of these

38. E.I.A can be expanded as,
a) Environment and Industrila act
b) Environmental Impact activity
c) Environmental Impact Assessment
d) Environmentally important activity.

39. "Earth Day" is held every year on,
a) June 5th b) November 23rd c) April 22nd d) May 16

40. Water logging is a phenomena in which,
a) Crop patterns are rotated
b) Soil root zone becomes saturated due to over irrigation,
c) Erosion of soil
d) None of these

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