FACULTY OF ENGINEERING

B.E. 2/4 (Civil) II-Semester (Old) Examination, December 2016

Subject : Surveying - II

Time : 3 hours
Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 What is a non-transit Theodolite?
2 What is the least count of a Transit Theodolite?
3 Define the term slip.
4 Name the sources of error in theodolite survey.
5 What is a compound curve?
6 What is super elevation?
7 What are the linear or chain / tape methods of setting out curves?
8 Name the applications of a total station.
9 What is Tacheometry?
10 Draw a neat sketch of Beaman Stadia Arc.

PART – B (50 Marks)

11 a) Enlist all the permanent adjustments of a theodolite. 6
   b) Explain the procedure for measuring the horizontal angles by Repetition method. 4

12 The table below gives the length and bearing of the lines of a traverse ABCDE, the length and bearing of EA having been omitted. Calculate the length and bearing of the line EA. 10

Line	Length (mts)	Bearing
AB	204.0	87^0 30'
BC	226.0	20^0 20'
CD	187.0	280^0 0'
DE	192.0	210^0 3'
EA	?	?

13 Calculate all the data necessary for setting out a 6^0 curve by tangential deflection angles method between two tangent lines BA and BC with the following data : Included angle ABC = 142^0, chainage of B is 1288 mts, peg interval being 30 mts. 10

14 Calculate the reduced levels of the various station pegs on a vertical curve connecting two uniform grades of + 0.5% and -0.7%. The chainage of the point of intersection is 500m and reduced level of this point is 330.750 mts. Take the rate of change of grade as 0.1% per 30 mts. 10

15 The following reading were taken with a tachometer on to vertical staff :

Horizontal distance	Staff readings (mts)
25.5	0.780 ; 0.905 ; 1.035
35.5	1.675 ; 1.805 ; 1.980

    Calculate tachometric constants.   10

16 a) What is meant by sounding? Write the various methods of taking soundings. .   5

   b) What is meant by shift of curve? Write a note about types of Reverse curves.   5

17 a) Derive a Relationship between the radius and the degree of curve.   5
   b) Write a note about the various problems in setting out curves. How would you
       circumvent these problems in the field.   5

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FACULTY OF ENGINEERING
B.E. 2/4 (Civil) II – Semester (New) (Suppl.) Examination, December 2016

Subject : Surveying-II

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Differentiate between a transit and non-transit theodolite ?
2 What is double sighting ?
3 What are cut off lines ?
4 What are omitted measurements ?
5 Calculate the length of curve and length of long chord for a curve with a deflection angle of 34^0 and radius of 40 m.
6 With the help of neat sketch, explain a reverse curve ?
7 What is shift of curve ? Draw a neat sketch of the same.
8 What is a vertical curve ? Enlist the various methods of setting out a vertical   curves.
9 Differentiate between GIS and GPS.
10 What is tangential tacheometry ?

PART – B (5x10=50 Marks)

11 (a)   Explain the measurement of the following a theodolite :-
          (i) Vertical angle and (ii) Magnetic bearing of a line.   (5)
   (b)   Explain, with a neat sketch, the procedure for measuring horizontal
          angles by direction method.   (5)

12   An incomplete traverse table is as follows. Calculate the
          missing information.   (10)

Line	Length(m)	WCB
AB	100	?
BC	80.5	$140^030'$
CD	60	$220^030'$
DA	?	$310^015'$

13   Calculate all the data necessary for setting out a 4^0 curve by tangential
          deflection angles, method between two tangent straights, BA and BC, with the
          following information : Angle ABC = 146^0, chainage of P.I. = 1240 m and peg
          interval = 30m.   (10)

14   Calculate the reduced levels of the various station pegs on a vertical curve connecting uniform grades of + 0.5% and -0.7%. The chainage of point of intersection is 500 m and reduced level of this point is 330.750m. Take the rate of change of grades as 0.1.% per 30 cm.   (10)

15   A tacheometer was set up at a station C and the following readings were obtained on a staff held vertically. Calculate the horizontal distance CD. the RL of D and the gradient of BD, when the constants of the instruments are 100 and Zero.   (10)

Instrument station	Staff station	Vertical Angle	Hair readings (m)	Remarks
C	B	- 5°20°	1.50, 1.800, 2.450	RI of B=750.50 m
C	D	+ 8°12°	0.750, 1.500, 2.250	

16   In order to ascertain the elevation of the top N of the signal on a hill, observations were made from two instrument stations A and B at a horizontal distance of 150m apart, the stations A and B being in line with N. The angles of elevation of N at A and B were 32^0 20' and 20^0 40' respectively. The staff readings upon the benchmark of elevation 325.425m were respectively 2.605 and 3.615m when the instrument was at A and at B, the telescope being horizontal. Determine the elevation of the foot of the signal if the height of the signal above its base is 3.2m. Draw a neat sketch of the same.   (10)

17 (a)   Write a note about :   (7)
        (i) The various tools of representation of features in GIS and
        (ii) Data models.
   (b)   What are capstan screws ? What are its uses ?   (3)

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FACULTY OF ENGINEERING
B.E. 2/4 (EE/Inst.) II - Semester (Old) Examination, December 2016

Subject : Electromagnetic Theory

Time : 3 Hours   Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.
PART – A (25 Marks)

1	Define scalar and vector fields.	(2)
2	Define Flux Density ($\overline{D}$) and relation between $\overline{D}$ and $\overline{E}$	(2)
3	Define Ampere circuit law.	(2)
4	Explain Electric and Magnetic Boundary conditions.	(3)
5	Write the advantages of Numerical methods for Boundary conditions.	(3)
6	Explain MOM Method.	(3)
7	Explain Faradays Law of Electromagnet Induction.	(3)
8	Write 'Max Wells' equation in time varying field in Point Form.	(3)
9	Define velocity and wave length.	(2)
10	Define EMI.	(2)

PART – B (5x10=50 Marks)

11 (a) Explain Gradiant of scalar and curl of a vector field.   (5)

(b) Find $\overline{E}$ at point P(1,2,3) due to charge density of 12 nc. at (2,3,4)m.   (5)

12 (a) Derive the relation between $\overline{E}$ and V.   (5)

(b) Derive the Formula for Energy stored in $\overline{E}$ field.   (5)

13 (a) State Biot Savarts Law and derive $\overline{H}$ (5)

(b) Find $\overline{H}$ at origin due to current Element Idl = 3π (a_x= 2ay + 3ay) γ Am
at point P (3,4,5) in force space.   (5)

14 (a) Derive $\overline{H}$ and L for solenoid   (5)

(b) Write Max wells equation in point form and integral form for
static $\overline{E}$ and $\overline{H}$ fields.   (5)

15 (a) Explain FUM method in two Dimensional Method.   (10)

16 (a) Explain controlling techniques of FMI   (5)

(b) Explain ch/s and sources of EMI.   (5)

17 (a) Derive Power and Poynting Theorem.   (5)

(b) Derive displacement current and current density (J_D)   (5)

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FACULTY OF ENGINEERING
B.E. 2/4 (EE/Inst.) II - Semester (New) (Suppl.) Examination, December 2016

Subject : Electromagnetic Theory

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	State and Explain Coulombs Law for Electrostatic filed.	(3)
2	Write the steps involved in finite element analysis.	(2)
3	What is displacement Current?	(3)
4	What is Skin Effect?	(2)
5	State Poynting Theorem .	(3)
6	State Maxwells Equation in integral form.	(2)
7	Define Uniform plane wave.	(3)
8	State Biot Savarts Law.	(2)
9	Write the expression for Electric field intensity due to volume charge.	(3)
10	Define Gaussian Surface.	(2)

PART – B (10 x 5 = 50 Marks)

11 (a) State and prove the conditions at a boundary between dielectrics. (5)
   (b) Discuss the conduction,convection and displacement current densities. (5)

12 (a) State and explain Uniqueness theorem. (5)
   (b) Derive wave equation of an electromagnetic wave propagation
        through a lossy dielectric medium. (5)

13 (a) State and explain Gauss law for electrostatic field. (6)
   (b) Determine D at (4, 0, 3) due to a point charge -5 mc at (4, 0 , 0) and
        a line charge 3 mc/m along y-axis. (4)

14 (a) Explain Method of Moments Analysis. (5)
   (b) Explain the numerical solution of Laplace's equation. (5)

15 (a) State Boit -savart 's law and derive magnetic field intensity. (5)
   (b) State Stokes Theorem. (5)

16 (a) Calculate the self inductance per unit length of an infinity long solenoid. (5)
   (b) Explain the Maxwells equation for the time variant fields in differential and
        integral forms. (5)

17 Write a short on following (10)
   (a) Divergence theorem
   (b) Continuity equation.

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FACULTY OF ENGINEERING

B.E. 2/4 (ECE) II-Semester (Supplementary) Examination, December 2016

Subject : Networks and Transmission Lines

Time : 3 hours   **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 Differentiate between image, iterative impedance in asymmetrical networks.   2
2 What are the limitations of a constant –K filter. How are they overcome by m-derived filters.   3
3 What are impedance matching networks? Give examples.   2
4 Define attenuation in Neper and Decibel.   2
5 How can you simulate an infinite transmission line?   2
6 Specify reflection coefficient and SWR for
    a) Short circuit   b) Open circuit   c) Matched load   3
7 List properties of positive real function.   3
8 Define insertion loss of a network.   2
9 What is the limitation of single stub matching section?   3
10 List applications of Smith chart.   3

PART – B (50 Marks)

11 a) What are the electrical properties of symmetrical and asymmetrical networks?   5
    b) Draw T and ƒ networks. Derive relation between T and ƒ networks.   5

12 a) Draw the characteristics of low pass, high pass, pass band filters and explain the characteristics.   4
    b) Design a constant –k type low pass filter, given Rk=600 ohms and fc = 3000 Hz.   6

13 a) What are inverting networks? Give examples.   4
    b) Design a T-pad attenuator to give an attenuation of 20 db and characteristic impedance of 75 ohms.   6

14 a) What is the condition for a distortion-less transmission line? Discuss the methods followed to achieve this condition.   5
    b) Explain loading of telephone cables and how is it achieved.   5

15 A low loss transmission line has Zo = 70 ohms and Zr = 115-j80. Find the following using Smith chart.
    a) Standing wave ratio   b) Maximum and minimum line impedance and
    c) Distance between load and first voltage maximum.   10

16 Compare limitations of single stub and double stub matching method. Give the steps involved in design of single stub matching.   10

17 Write short notes on :
    a) Network synthesis methods   5
    b) Notch filter   5

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FACULTY OF ENGINEERING
B.E. 2/4 (ECE) II – Semester (New) (Suppl.) Examination, December 2016

Subject : Networks & Transmission Lines

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Define image transfer constant and iterative transfer constant of an asymmetrical network. 3

2 In a symmetrical T- network, the total series arm impedance is 10   and shunt arm impedance is 10 . Find its characteristic impedance. 2

3 Derive the relation between Neper and Decibels. 3

4 What is the criterion in choosing 'm' value in m-derived filter? 2

5 List the properties of positive real function. 3

6 Explain the need for impedance matching networks. 2

7 What is transmission line? Draw its equivalent circuit at low and high frequencies. 3

8 What do you understand by loading of a line? What is the purpose of loading? 2

9 Specify the reflection coefficient and VSWR values for the following loads.
   (a) Short circuit   (b) Open circuit   (c) Matched load 3

10 Explain how quarter wave transformer acts as impedance inverter? 2

PART-B (50 Marks)

11. a) Obtain the expression for image impedance of asymmetrical L-network. 5
    b) An L-network has a series arm of 300   and shunt arm of 600 . Determine its iterative impedance. 5

12. a) Design a m-derived T- section low pass filter having cutoff frequency 1000 Hz, design impedance 600   and frequency of infinite attenuation 1050 Hz. 5
    b) What is a composite filter? Draw its various sections and mention the importance of each section. 5

13. a) Synthesize the following function using Cauer form 1.
    $Z(S) = S (S^2 + 3) (S^2 + 5) / (S^2 + 2) (S^2 + 4)$. 5
    b) Design a symmetrical T- attenuator to give attenuation of 40 dB and to work into a line of 600   impedance. 5

..2

14. a) A 12 Km open wire line is terminated in its characteristic impedance. At a certain frequency the signal voltage measured at a distance of 1 Km reduces to 90 % of the sending end voltage. Determine voltage at the receiving end interms of sending end voltage. 5
    b) Derive an expression for input impedance of a finite length transmission line. 5

15. a) Explain the properties and applications of Smith chart. 5
    b) Explain impedance matching using single stub. 5

16. a) What is an equalizer? Classify them and explain constant resistance equalizer. 5
    b) A load of (50 – j 100) is connected across a 50 line. Design a short circuit stub in order to provide impedance matching between the two at a signal frequency of 30 MHz. 5

17. Write short notes on
    a) Notch filter 5
    b) Distortions in transmission line 5

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FACULTY OF ENGINEERING
B.E. 2/4 (Mech/Prod.) II - Semester (Old) Examination, December 2016

Subject : Basic Electronics

Time : 3 Hours

Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Define term (i) Mobility (ii) Diffusion (iii) Drift   (3)
2 Give the expression for gain of an amplifier with feedback?   (2)
3 Define Break down voltage and what are the types of breakdown voltage?   (3)
4 If voltage gain of an amplifier without feedback is 60dB. It decreases to
   40dB with feedback. Calculate the feedback factor?   (3)
5 What are the values of   and   of a transistor when base
   current (I_B) = 30µA and IC collector current =3 mA?   (3)
6 Difference between the RC and LC Oscillators?   (2)
7 Draw symbol and give truth table for Ex-OR?   (2)
8 Draw Symbols of Photo Diode, UJT, TRIAC and DIAC?   (3)
9 Write the application of Strain gauge?   (2)
10 Define Regulation and PIV as referred to rectifier circuit?   (2)

PART – B (50 Marks)

11.   a) What is an ideal diode? How can it be represented as switch?
         Draw its equivalent circuit and its V-I Character tics?   (6)
      b) Draw and Explain the operation of Zener diode regulator?   (4)

12 Draw and Explain the Full- wave rectifier circuit diagram and give its input and
   output waveform? Derive the expression for Ripple factor and % Efficiency
   for Half-wave rectifier?   (10)

13 a) Draw a neat sketch of Wien bridge Oscillator? & explain its operation?   (5)
   b). In the Wien bridge Oscillator $R_1=R_2=220K$ and $C_1=C_2=250pF$?
      Determine the frequency of Oscillations?   (5)

14. a) Draw and Explain Field Effect Transistor along with drain and transfer
       its characteristics?   (5)
     b) Explain the need of biasing? Draw a equivalent circuit diagram for biasing
        circuit with its expression? Define Operating point with respect to output
        characteristics?   (5)

15. a) Explain the Summer using Op-Amp? Give its Expression? (5)
    b) Explain the Integrator using Op-Amp? Give its Expression? (5)

16. a) Draw the complete logic diagram of Half-Adder using Universal gate and with the help of truth table? (5)
    b) Explain with a neat sketch the principle of operation of a LVDT for measurement of small displacement? (5)

17 Write a short notes any TWO: (10)
    i) Transistorized IC regulator
    ii) Crystal Oscillator
    iii) Draw the four topologies of feedback amplifier.

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FACULTY OF ENGINEERING
B.E. 2/4 (M/P) II – Semester (New) (Suppl.) Examination, December 2016

Subject : Basic Electronics

Time : 3 Hours   **Max. Marks: 75**

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1   What is the purpose of filter.   (2)
2   What is meant by doping ? Why it is necessary for semiconductors.   (3)
3   Classify the regions of operation of BJT   (3)
4   Mention advantages of JEFT over BJT   (2)
5   What is meant by feed back ? What is the purpose of feed back ?   (3)
6   What is meant by Barkhausen criteria ?   (2)
7   What are the ideal characteristics of Op-Amp ?   (2)
8   Give the truth table of full subtractor   (3)
9   Draw V-I characteristics of SCR.   (2)
10 Differentiate photo diode and photo transistor.   (3)

PART – B (5x10=50 Marks)

11 (a)   A specimen of silicon square cross section of 4cmx4cm has length
          of 5 cm. It is subjected to voltage of 2V across its length and current
          flawing through it is 6mA calculate.   (3)
          (i) Concentration of free electrons.
          (ii) drift velocity of electrons.
          Assume mobility of electrons as 1300 cm^2/V-sec and charge on
          one electron as 1.6×10^{-19}c

    (b)   Explain Bridge Rectifier with its wave forms   (7)
          Derive (i) PIV   (iii) TUF
                    (ii) Ripple factor   (iv)   Form Factor.

12 (a)   Explain the working characteristics of p-n-p transistor with its
          current components.   .   (5)
    (b)   Explain the working of JFET. Draw the symbol of n-channel JFET.   (5)

13 (a)   Show the input impedence increases for a Voltage-series feedback
          configurations.   (3)
    (b)   Explain RC-phase shift Oscillator with its equivalent circuit. Derive its
          frequency of Oscillation (Draw the equivalent ckt used in simplifying).   (7)

14 (a)   Explain the Integrator using Op-Amp & derive its required equation.   (5)
    (b)   Draw the ckt for full adder using NAND gates only.   (5)

15 (a) Explain the working of LVDT with its diagram.   (5)
(b) Explain the working of UJT with its characteristics.   (5)

16 (a) Differentiate avalanche and zener breakdown.   (5)
(b) Explain how transistor works as an amplifier.   (5)

17 Write short notes on.
(a) Crystal Oscillator.   (4)
(b) LCD   (3)
(c) Instrumentation amplifier.   (3)

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FACULTY OF ENGINEERING

B.E. 2/4 (CSE) II-Semester (Old) Examination, December 2016

Subject : Microprocessors and Interfacing

Time : 3 hours   Max. Marks : 75

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1	Write the differences between 8085-microprocessor and 8086-microprocessor.	2
2	List the interrupts in 8085 microprocessor.	3
3	What are the applications of microprocessors?	2
4	Define the registers in 8259 interrupt controller.	3
5	Describe the addressing modes of 8051.	3
6	Draw the TCON of 8051.	2
7	Write about the flags of 8086 microprocessor.	2
8	Write an ALP to transfer data from (10 bytes) XX50 to XX90.	3
9	List the logical instructions in 8085-microprocessor.	2
10	Draw and explain the rotate instructions in 8051 microcontroller.	3

PART – B (50 Marks)

11 Draw and explain the 8085 microprocessor functional block diagram.   10

12 a) Explain the stack and subroutine instructions in 8085 with examples.   5
   b) Describe the 8257 DMA controller.   5

13 Explain the 8279 functional black diagram.   10

14 Discuss the 8051 microcontroller architecture.   10

15 Explain the 8086 microprocessor with a neat diagram.   10

16 Draw and describe the functional block diagram of 8255A.   10

17 Write short notes on the following :
   a) A/D converter of 8085   4
   b) IEEE 488   3
   c) Features of 80486   3

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FACULTY OF ENGINEERING
B.E. 2/4 (C.S.E.) II – Semester (New) (Suppl.) Examination, December 2016

Subject : Microprocessor & Interfacing

Time : 3 Hours   Max. Marks: 75

Note: Answer all questions from Part-A and answer any five questions from Part-B.

PART – A (25 Marks)

1	Write a short note on tri-state devices.	2
2	List the control and status signals of 8085 microprocessor.	3
3	Write an Assembly Language Program to display digit 5 at the output port 01.	2
4	What are the various registers used in 8259?	3
5	Draw the command word format of 8255A.	3
6	Define microprocessor and microcontroller.	2
7	Write the applications of microprocessors.	2
8	Draw the TCON of 8051 microcontroller.	3
9	Write a short note on 80386 microprocessor.	3
10	List the bit manipulation instructions of 8051 microcontroller.	2

PART –B (50 Marks)

11 Draw and explain the 8085 microprocessor architecture.   10

12 a) Differentiate between memory- mapped I/O and peripheral I/O.   4
    b) Draw and explain the timing diagram of IN instruction.   6

13 Draw and explain the functional block diagram of 8279- keyboard/display
    interface.   10

14 Draw and explain the block diagram of programmable communication interface
    (8251A).   10

15 Explain the 8051 microcontroller architecture with a neat diagram.   10

16 Explain the addressing modes and register structure of 8086.   10

17 Write short note on the following:
    (a) A/D converter of 8085.   5
    (b) Addressing modes of 8051.   5

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FACULTY OF INFORMATICS
B.E. 3/4 (I.T.) II - Semester (Old) Examination, December 2016
Subject : Web Technologies

Time : 3 Hours   Max. Marks: 75

Note: Answer all questions of Part - A and answer any five questions from Part-B.
PART – A (25 Marks)

1. What is the purpose of the following tags? (3)
   a) <hr />   b) <dt>   c)
2. What is the use of <span> and <div>tags? (2)
3. What is the difference between HTML and XML? (2)
4. What is the purpose of character data (CDATA) section? (2)
5. What are the two fundamental ways in which arrays differ from hashes? (2)
6. What is the difference between single-quoted string literals and double-quoted string literals? (2)
7. Define the following.
   - (a) Servlet (1)
   - (b) Scriptlet (1)
   - (c) Cookie (1)
8. How does a Web server determine whether a requested document contains PHP code? (3)
9. What is the purpose of the following functions in Perl?
   - (a) shift (1)
   - (b) split (1)
   - (c) qw (1)
10. Explain implicit type conversion in JavaScript with an example. (3)

PART-B (5 x 10=50 Marks)

11. a) Explain pseudo classes in CSS with an example. (5)
    b) What are the types of Cascading Style Sheets (CSS)? Explain. (5)

12. a) Explain Document Type Definition with an example. (5)
    b) Write short notes on SAX and DOM parsers. (5)

13. a) Explain pattern matching in Perl with examples. (5)
    b) What is the purpose of CGI.pm module? Explain some common CGI.pm functions. (5)

14. a) What are the advantages of servlets over CGI? (3)
    b) Write an XHTML document that displays a form that collects three numbers from the client and calls a JSP document that computes the value of multiplying the three numbers together. The JSP document should use scriptlets. (7)

15. a) Create an XHTML document which uses nesting of ordered lists. (4)
    b) How do you display XML documents using XSLT? Explain with an example.(6)

16. a) How arrays in PHP are different from those in other programming languages? (4)
    b) Explain how to create and access array elements in PHP. (4)
    c) Write any two array functions in PHP with an example. (2)

17. Write short notes on the following
    a) XML schemas (4)
    b) Constructors in JavaScript (3)
    c) Session tracking methods (3)

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FACULTY OF INFORMATICS

B.E. 2/4 (I.T.) II – Semester (New) (Main) Examination, December 2016

Subject: Web Technologies

Time: 3 Hours   **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1	Explain different table tags used in HTML.	3
2	Define REST service?	2
3	What is JQuery?	2
4	Explain XSLT style sheets.	3
5	Define page directives of JSP.	2
6	Explain the basic Servlet structure.	2
7	Give the differences between JSP and Servlet	3
8	Define WSDL.	2
9	State the goals of UDDI.	3
10	Describe the web controls used in ASP.NET.	3

PART – B (5 X 10 = 50 Marks)

11 a)	Explain and implement the basic tags of HTML.	5
b)	Explain the CSS BOX model.	5
12	Write DTD for the XML document which has the student details with the following fields (regno, studname, phone, email-id). Also assume values of each field.	10
13	Write a Java Servlet program to show passing of initialization parameters from web.xml	10
14 a)	Define JSP page directives. Give an example.	4
b)	Write a JSP program to implement any two JSP Objects.	6
15 a)	How to access MySQL database using JSP?	5
b)	Explain in detail about the structure and content of SOAP Message	5
16 a)	Explain with an example how UDDI and WSDL work together.	7
b)	Describe the web controls used in ASP.NET.	3
17 a)	Explain the working of ASP.NET and AJAX, with suitable example	5
b)	How to manage data using ADO.NET?	5

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