

FACULTY OF ENGINEERING**B.E. II/IV (Civil) I – Semester (Backlog) Examination, April/May 2019****Subject: Surveying – I****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part A & any FIVE questions from Part – B.****PART – A (25 Marks)**

- 1) State the principles of Surveying. 2
- 2) What is meant by representative fraction? 3
- 3) What is well conditioned triangle? 2
- 4) Define isogonic and agonic triangle? 3
- 5) A light house is visible just above the horizon from a ship. If the height of light house is 200 m. Determine the distance between the light house and the ship 3
- 6) Define two-point problem. 2
- 7) What is fly leveling? 2
- 8) Define the terms contour interval and horizontal equivalent 3
- 9) List the three uses of a contour map 3
- 10) State the trapezoidal rule. What are its limitations? 2

PART – B (50 Marks)

- 11 a) Briefly describe the classification of surveying. 4
- b) The area of the plan of an old survey plotted to a scale of 10 cm measure now as 150.5 sq. cm as found planimetre. The plan is found to have shrunk so that a line originally, 10 cm long now measures 9.7 cm only. There was a note on the plan that the 20m chain used was 8 cm too short. Find the true area of the survey. 6
- 12 a) Explain the difference between prismatic compass and surveyor's compass. 4
- b) The following are the fore and back bearings of the sides of a closed traverse: 6

Side	FB	BB
AB	150 ⁰ 15'	330 ⁰ 15'
BC	20 ⁰ 30'	200 ⁰ 30'
CD	295 ⁰ 30'	115 ⁰ 45'
DE	218 ⁰ 0'	38 ⁰ 0'
EA	120 ⁰ 30'	300 ⁰ 30'

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- 13 a) What are the advantages and disadvantages of plane table surveying 4
 b) Explain radiation method of Plane table surveying with a next sketch 6
- 14 The following is the page of level field book from which several values are missing. Reconstruct the page and fill all the entries when X mark is present. Apply all necessary checks?

Station	B.S.	I.S.	F.S.	Rise	Fall	R.L	Remarks
1	1.385					100.00	B.M.
2		1.430			X	X	
3		X			0.395	X	
4		1.275				X	
5	0.630		0.585	X		X	TP1
6		0.920			X	10.13	
7		X			0.210	X	
8			1.740		X	X	

- 15 a) How do you determine the capacity of reservoir 10
 b) A railway embankment is 8 m wide with slopes of 15 to 1 4
 The ground is level transversely. The centre heights at 30 m interval are 0.76, 1.25, 1.40, 1.78, 1.73, 1.22 and 0.20 m. Compute the volume contained in this reach by prismatic formula. 6
- 16 a) Explain the procedure for estimation of volumes of earthwork using contours. 5
 b) Describe the distribution of closing error graphically by Bowditch's method. 5
17. Write short notes on: 10
 (a) Errors in compass survey
 (b) Orientation of plane table
 (c) Reciprocal leveling

FACULTY OF ENGINEERING**B.E. 2/4 (EEE/Inst. /MP/I.T) I-Semester (Backlog) Examination, April/May 2019****Subject: Environmental Studies****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part – A & answer any 5 questions from Part –B.**

1. Mention the Biogeographical zones of biodiversity in India 2
2. Write the functions of Pollution control board. 2
3. List out the control measures of Air pollution? 3
4. Discuss the ill effects of population explosion. 3
5. Write the effects of climate change on environment. 2
6. What is ocean thermal energy? 3
7. Explain Hydrological cycle? 2
8. Discuss the concept of “Endemic Species”. 3
9. Differentiate Earthquake and Tsunami. 3
10. Define the term detritivores with examples. 2

Part – B(5x10 =50)

11. a) Discuss the various causes, effects and control measures of soil erosion. 5
b) Discuss the environmental issues related with tapping nuclear energy? 5
12. a) With the help of a neat sketch explain about lake ecosystem. 5
b) Define ecological succession. Write the difference between autogenic and allogenic succession. 5
13. a) Explain the biodiversity conservation by In-situ and Ex-situ methods. 5
b) Enumerate and explain the values of biodiversity. 5
14. a) Write the causes, effects and mitigation measures of thermal pollution. 5
b) Describe the salient features of India’s forest conservation act. 5
15. a) What is disaster management. Explain the impact of disasters on environment and infrastructure. 5
b) Write short notes on
(i) Environmental ethics (ii) Global warming 5
16. a) Write short notes on:
(i) Desertification (ii) Carbon cycle 5
b) Define food chain. Explain the different types of food chains. 5
17. a) Write the causes, effects and mitigation measures of landslides. 5
b) Write the effects of modern agricultural practices. 5

FACULTY OF ENGINEERING

B.E.2/4 (ECE) I – Semester (Backlog) Examination, April/May 2019

Subject: Electrical Technology

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. Give the constructional details of DC generators. (3M)
2. Draw the torque vs armature current of DC shunt and series motor. (2M)
3. Give the relation between the line and phase value of voltage and current for star connection. (3M)
4. Give the 3- phase active and reactive power expressions. (2M)
5. Define all day efficiency of a 1-phase transformer. (2M)
6. Draw the phasor diagram of 1-phase transformer for lagging p.f. load. (3M)
7. Define synchronous impedance. (2M)
8. Derive the emf equation of alternator. (3M)
9. Give the constructional details of wound rotor of an 3-phase induction motor (3M)
10. Why single phase induction motors are not self starting. (2M)

Part – B (50 Marks)

11. a) Explain the armature reaction of D.C generator. 5
 b) Explain the various methods of excitation of DC generators with help of neat circuit diagrams. 5
12. a) Explain the 3 point starter for D.C. motor with help of neat schematic diagram. 5
 b) A 400 V, DC shunt motor draws on line current of 5 A at light load. If armature resistance is 0.15Ω and field resistance is 200Ω , Determine the efficiency of the machine running as a generator delivering a load current of 40A. 5
- 13 a) The load in each branch of star connected three phase circuit consist of 10Ω resistance and 0.08 H inductance in series. The line voltage is 420V. Calculate the phase voltage and the phase current. 5
 b) Give the connection diagram of fluorescent lamp and explain its principle operation. 5
14. a) Explain the constructional details and principle operation of 3 – phase alternator. 5
 b) A 3- phase, 8 pole, star connected alternator revolves at 750 rpm. The stator has 90 slots and 8 conductors per slot. The flux per pole is 0.06 Wb . Calculate the Line voltage generated by alternator, assume the winding factors. 5
15. a) With help of neat diagram. Explain the principle of operation of auto transformer

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- and mention its applications. 5
- b) The maximum efficiency of a 250 K V A, 3300/400 V, 50 Hz, 1- phase transformer is 98% and occurs at $\frac{3}{4}$ full load upf. If the impedance is 0.05 Ω referred to the 400 V side, calculate the regulation at full load and 0,8 pf lagging. 5
16. a) Explain the slip – torque characteristics of an 3 – phase induction motor. 5
- b) With help of neat schematic diagram, Explain the constructional details and principle operation of shaded pole motor. 5
17. Write short notes on the following:
- a) Capacitor start motor
- b) Losses in transformer
- c) Mechanical characteristics of shunt motor. [4+3+3]

FACULTY OF ENGINEERING

B.E. 2/4 I – Semester (AE) (Backlog) Examination, April / May 2019

Subject: Automotive Electrical and Electronics Engineering

Time: 3 Hours

Max. Marks 75

Note: Answer All Questions from Part – A & Any Five Questions from Part - B

Part – A (2 x 10 = 25 Marks)

1. What is earth return system and insulated return system?
2. How is sound produced by the horn?
3. What is the effect of temperature on specific gravity of electrolyte?
4. What do you mean by cranking the engine?
5. List the various lights used in a modern car?
6. State any two troubles of starting motor?
7. What is the purpose of voltage regulator and current regulator?
8. What are the various sensors used for position displacement and speed sensing?
9. What are the different addressing modes in 8085 microprocessor?
10. What is electromagnetic interference?

Part – B (5 x 10 = 50 Marks)

11. a) Briefly describe the construction of a lead acid battery with a neat sketch. [5]
b) What are the battery troubles and their remedies? [5]
12. Name the drive arrangements for a starting system. Explain them in brief? [10]
- 13 a) Explain the DC shunt generator Characteristics. [5]
b) Explain the constructional aspects of bridge rectifier. [5]
14. Write short notes on
a) On Board Diagnostics [5]
b) Security and warning systems. [5]
15. With a neat sketch explain the basic functional units of a microprocessor. Draw the pin diagram of 8085 microprocessor. [10]
16. a) With a neat sketch explain the working and functioning of a battery charging system. [5]
b) Explain the construction of starting motor. [5]
17. Explain the principle of voltage and current regulators? [10]

FACULTY OF ENGINEERING

B.E. 2/4 (CSE) I – Semester (Backlog) Examination, April/May 2019

Subject: Logic and Switching Theory

Time: 3 Hours

Max. Marks: 75

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

Part – A (25 Marks)

1. Convert the decimal number $(47.625)_{10}$ into binary, octal and hexadecimal 2
2. Convert the $(1101011)_2$ to hexadecimal number system. 2
3. Realize the 4x1 multiplexer using 2x1 multiplexer 2
4. Express the function in canonical sum of products from $F(x,y,z) = xy' + y$ 2
5. Convert the given function in sum of max terms $F(x,y,z) = xyz + xy'z'$ 3
6. Realize full subtractor using Half-subtractor 2
7. Draw the minimal contact network for the function 3

$$f(x, y, z) = xyz + xyz' + xy'z$$
8. Distinguish between synchronous and asynchronous counters. 3
9. Realize X-NOR gate using NAND gates. 3
10. Write the excitation and characteristic table of JK flip flop. 3

Part – B (50 Marks)

11. Design a circuit for BCD to excess – 3 code. 10
12. a) How do identify a Symmetric Functions? Explain with an example. 5
 b) Distinguish between a ripple counter and a synchronous counter. 5
13. Simplify the function using tabulation method. 10

$$F(A,B,C,D) = \sum (1, 2, 3, 5, 7, 9, 10, 11, 13, 15)$$
14. a) Develop a structural VHDL model for a 4 bit synchronous up down counter. 6
 b) What do you mean understand by ASCII character set? 4
15. a) Simplify the following function into sum of products and products of sum term. 5

$$F(A,B,C,D) = \sum m(2, 3, 5, 7, 8, 10, 12, 13)$$

 b) Write a Data flow VHDL model for Half Adder. 5
16. A sequential circuit has two D-type flip-flop, an input X and output Y. It can be specified by the following equation: 5

$$DA = Ax+Bx, DB = A'x, Y = (A+B)x'$$

 a) Draw the logic diagram of circuit 5
 b) Derive the stable table and state diagram. 5
17. a) Design a 4-bit Priority encoder circuit. 5
 b) Write a Data flow VHDL model for Half Adder. 5

FACULTY OF ENGINEERING**B.E. (CIVIL) III-Semester (CBCS) (Suppl.) Examination, April / May 2019****Subject: Surveying – I****Time: 3 Hours****Max. Marks: 70****Note: Answer all questions from part - A and any five questions from part - B.
PAR-A (20 Marks)**

1. What short notes on the following
 - (i) Geodetic survey
 - (ii) Cadastral survey
2. Explain the following terms:
 - (i) Normal tension
 - (ii) Hypotenusal allowance
3. Different between the following:
 - (i) Isogonic and agonic lines.
4. Convert the following whole circle bearings to quadrantal bearings.
 - (i) $10^{\circ} 18'$
 - (ii) $95^{\circ} 12'$
 - (iii) $225^{\circ} 30'$
 - (iv) $350^{\circ} 10'$
5. State the advantages and disadvantages of plane tabling.
6. State the two – point problem. How is it solved?
7. Distinguish between the following pairs.
 - (i) Back sight and Foresight
 - (ii) Line of collimation and axis of telescope.
8. Describe in detail the processes of cross – sectioning.
9. Find a suitable contour interval on a map draw to a scale of 1:50,000.
10. Write a short note on the uses of contour maps for engineering purpose.

PART – B (5×10=50 Marks)

11. a) Discuss briefly the different types and sources of errors in surveying.
 - b) A line was measured with a steel tape which was exactly 30 m at a temperature of 20°C and a pull of 10kg. The measured length was 1650m, the temperature during measurement was 30°C and pull applied was 15kg. Find the true length of the line, if the cross – sectional area of the tape was 0.025cm^2 . The coefficient of expansion of the material of the tape per $^{\circ} \text{C}$ is 3.5×10^{-6} and modulus of elasticity of the material of tape is $2.1 \times 10^6 \text{ kg/cm}^2$.
12. a) What is meant by local attraction? How is it detected and how are the observed bearings corrected for local attraction?
 - b) Does local attraction at a point affect the size of an angle computed from magnetic bearing read at the point? Explain.
13. a) State the three – point problem. Explain how it is solved by the graphical method.
 - b) Compare the radiation and intersection methods of plane table surveying and give an example of the most desirable application of each.
14. a) Describe the terms line of collimation, height of instrument, back sight, reduced level, and parallax.
 - b) The following notes refer to the reciprocal levels taken with one level:

Instrument At	Staff reading on		Remarks
	A	B	
A	1.03	1.630	Distances AB = 800 m
B	0.95	1.540	R.L. of A = 450 m

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Find (i) True RL of B (ii) Combined correction for curvature and refraction.
 (iii) The error in collimation adjustment of the instrument.

15. a) Discuss in detail, the methods of direct and indirect contouring. 5
 b) Calculate the volume of earthwork in an embankment for which the cross-sectional areas at 20m intervals are as follows: 5

Distance (m)	0	20	40	60	80	100	120
Cross-sectional area (m ²)	42	64	72	16	18	26	11

16. a) A survey line ABC crossing a river angles cut its banks at B and C. To determine the width BC of the river, the following operation was carried out. A line BE 60m long was set out roughly parallel to the river. Line CE was extended to D and m mid – point F of DB was established. Then EF was extended to G such that FG=EF. Line DG was extended to cut the survey line ABC at H. GH and HB were measured and found to be 40m and 80m respectively. Find the width of the river. 5
 b) The following consecutive readings were taken with a level and a 4.0m staff on a continuously sloping ground at a common interval of 30m: 0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.155, 1.960, 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545. The reduced level of the first point A was 180.750m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points by the collimation system, and the rise and fall system. Also calculate the gradient of the line joining the first and the last point. 5

17. Answer any two questions:

- a) Explain in detail about clinometers. 5
 b) Types of declination. 5
 c) Uses of contour maps. 5

FACULTY OF ENGINEERING**BE III-Semester (CBCS) (EE/Inst./M/P/CSE) (Suppl.) Examination, April / May 2019****Subject: Environmental Studies****Time: 3 Hours****Maximum Marks: 70****Note: Answer all questions from Part A and any five questions from Part B.****PART A (20 Marks)**

1. What is Land Degradation? 2
2. Differentiate between Food Chain and Food Web. 2
3. Write a short note on Noise Pollution. 2
4. Write the social and technological methods of water conservation. 2
5. Define Genetic and Species Diversity. 2
6. Write a note on water logging and salinity. 2
7. Write about biogas plant. 2
8. What are the effects of thermal pollution on aquatic life? 2
9. Write a short note on Acid Rain. 2
10. Explain Energy Flow in Ecosystem. 2

PART B (5X10=50 Marks)

11. (a) Explain the causes of loss of biodiversity and suggest methods to conserve biodiversity. 4
(b) Write a detail note on harmful impacts of modern agriculture on health and environment. 6
12. (a) Write about the structure and functions of Lake Ecosystem. 5
(b) Explain in detail any two non-conventional energy resources. 5
13. (a) What are different types of solid waste and describe methods to manage solid waste. 5
(b) Write a detail note on Global Warming. 5
14. (a) Discuss about national and international conflicts for water resources, referring to a few examples. 5
(b) Write what do you understand about Ecological Pyramid? 5
15. (a) Discuss drought as major disaster. 4
(b) What do you mean by bioaccumulation, biomagnification and eutrophication. 6
16. (a) Discuss the salient features of Water (Prevention and Control) Act. 5
(b) Explain the need for awareness about the environment and its degradation. 5
17. (a) What are the ill impacts of Air Pollution on human health and environment? Which equipments are used to control particulate matter? 5
(b) Write a note on Watershed Management. 5
