

FACULTY OF ENGINEERING
B.E 2/4 (Civil) I – Semester (Backlog) Examination, October 2020

Subject: Surveying – I

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 State the principles of Surveying?
- 2 The length of a line measured with a 20m chain was found to be 250m. Calculate the true length of the line if the chain was 10cm too long.
- 3 Differentiate between loose needle and fast needle methods of compass traversing.
- 4 Define isogonic and agonic lines?
- 5 State the advantages of Plane Table surveying.
- 6 Define three-point problem with a neat sketch.
- 7 What are the different types of bench marks?
- 8 The staff reading at a distance of 80m from a level with a bubble at centre is 1.52m, and when it is moved 5 divisions out of the centre, the reading is 1.60m. Find the angular value of the bubble.
- 9 Define the terms contour, contour gradient and horizontal equivalent.
- 10 What are the different methods of contours?

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 (a) Explain with a neat sketch principle and working of optical square.
 (b) Explain the obstacles in chaining with neat sketches.
- 12 The following bearings were observed in running a compass traverse.

Line	FB	BB
AB	S45°30' E	N 45°30' W
BC	S 60°0' E	N60°40' W
CD	N5°30' E	S 3°20' W
DE	N 54°30' W	S 51°40' W

Determine the corrected bearings due to the local attraction.

- 13 Explain in detail about two point problem in plane table surveying.
- 14 (a) An observer at a height of 30 m above mean sea level just observes a luminous object on the top of a hill, situated at a distance of 80 km from him. What is the height of the hill above sea level?
 (b) Derive an expression to determine effect due to Curvature Refraction on linear measurements.
- 15 (a) State and prove the trapezoidal rule.
 (b) The following perpendicular offsets were taken from a chain line to an irregular boundary. Calculate the area using Simpson's rule.

Distance (m)	0	10	20	30	40	50	60	70
Offset (m)	3.10	4.20	5.35	6.45	7.15	8.25	7.95	5.20

- 16 (a) Describe the distribution of closing error graphically by Bowditch's method.
 (b) Explain radiation method of plane table surveying with a neat sketch.
- 17 Write short notes on:
 - (a) Dumpy level with a neat sketch.
 - (b) Characteristics of contours
 - (c) Errors in chain surveying.

FACULTY OF ENGINEERING**BE 2/4 (EE/Inst./M/P/I.T) I-Semester (Backlog) Examination, October 2020****Subject : Environmental Studies****Time: 2 hours****Max. Marks: 75****PART – A****Note: Answer any seven questions.****(7x3 = 21 Marks)**

1. Write about the scope of Environmental Education?
2. How does Land degradation take place? Write its adverse effects.
3. What is Desertification? Explain its causes.
4. What is Bio-Magnification?
5. What is meant by Ethical value of biodiversity?
6. "India is a mega diversity nation". Explain briefly how human activities can introduce pollution in Environment.
7. Differentiate between Primary Pollutants and Secondary Pollutants.
8. Define drought. Suggest some control measures to combat droughts.
9. Define Eutrophication.
10. Write a short notes on Acid rains.

PART – B**Note: Answer any three questions.****(3x18 = 54 Marks)**

11. a) Explain the need for public awareness about the environment.
b) How do you contribute for Environmental Conservation.
12. a) What do you understand by biotic and a biotic parts of nature?
b) Discuss the significance of food chains, food webs and food pyramids to maintain balanced ecosystem
13. a) What is biodiversity? Explain the importance of biodiversity to the humankind.
b) Briefly explain the conservation methods of biodiversity.
14. Write short notes on
a) Soil pollution b) Thermal pollution
15. Classify solid waste. Write the adverse effects of solid waste. State how the solid waste can be managed.
16. a) Write and explain the salient features of "Forest Conservation Act" of the Indian constitution.
(5M)
b) Write merits and demerits of Solar Energy.
17. Write short notes on the following
a) Disaster Management. b) Water conservation.

FACULTY OF ENGINEERING
B.E. 2/4 (ECE) I – Semester (Backlog) Examination, October 2020

Subject: Electrical Technology

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

1. Draw the torque-speed characteristics of DC shunt motor?
2. Application of DC series motors?
3. Write the relation between V_L and V_P ; I_L and I_P in 3 ϕ Delta connected system.
4. Different losses in DC machines.
5. What is meant by synchronous impedance of the alternator?
6. Define efficiency and regulation of Transformer.
7. Draw the phasor diagram of transformer on NO LOAD.
8. An 8-pole, 50HZ, 3- ϕ induction motor has a rotor emf frequency of 2HZ. Calculate the slip and speed.
9. Why starter is necessary in Induction motor? Different types of starter.
10. Difference between squirrel cage and slip ring induction motor.

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

11. (a) Speed control of DC shunt motor.
 (b) The armature of a 6 pole DC generator has a wave winding containing 664 conductors. Calculate the generated emf when flux per pole is 0.06 wb. and speed is 250 rpm. At what speed must the armature be driven to generate an emf of 250V if the flux per pole is reduced to 0.058 watts.
12. Explain measurement of 3- ϕ power by two-watt meter method.
13. (a) Determine voltage regulation by the synchronous impedance method.
 (b) Derive emf equation of alternator.
14. (a) Explain the advantage and Disadvantage of auto transformer.
 (b) A 10KVA, 200/400V, 50Hz, 1 ϕ transformer has the following test result
 OC test - 200V, 1.3A, 120W on LV side
 SC test - 22V, 30A, 200w on HV side
 Calculate:
 (i) Magnetising and core loss component at 50 HZ and rated voltage.
 (ii) Magnetising Branch impedance.
 (iii) Regulation at full load at 0.8 pf leading.
15. (a) Describe auto transformer starter of a 3 phase induction motor.
 (b) Explain the operation of a capacitor start induction motor.
16. (a) Explain about 3-point starter in DC motor.
 (b) Derive the torque-slip equation for a 3 ϕ induction motor and also the equation for slip at which maximum torque occurs.
17. (a) A 6 pole, 50 Hz, 3 ϕ induction motor runs at 960 rpm when the torque on the shaft is 200 nm. If the stator losses are 1500w and friction and windage losses are 500w. Find (i) rotor cu loss
 (ii) efficiency of the motor.
 (b) Derive torque equation of DC motor.

FACULTY OF ENGINEERING
B.E. 2/4 (AE) I – Semester (Backlog) Examination, October 2020

Subject: Automotive Electrical and Electronics Engineering

Time: 2 hours

Max. Marks: 75

PART – A

Note: Answer any seven questions.

(7x3 = 21 Marks)

- 1 Why LED is better than conventional lighting system?
- 2 What is meant by sulphation?
- 3 What is the specialty of Bendix drive?
- 4 Draw the electrical characteristics of series motor.
- 5 What is armature reaction?
- 6 What is the purpose of voltage regulator and current regulator?
- 7 Name some security and warning systems used.
- 8 What is electromagnetic interference?
- 9 Name various sensors used for speed measurement.
- 10 What is a microprocessor?

PART – B

Note: Answer any three questions.

(3x18 = 54 Marks)

- 11 Name various tests performed on a battery. Explain them in detail?
- 12 Write short notes on
 - a) Bendix drive
 - b) Overrunning clutch system
- 13 With a neat sketch explain the working and functioning of a battery charging system.
- 14 Bring out in detail the different subsystems of an automotive electronic engine management system as well as overall automotive functioning system.
- 15 Write a short notes on
 - a) Solenoid principle with neat sketch
 - b) Exhaust analyzer functions
- 16 Compare the working principle of alternator and dynamo and then bring out the functional superiority of alternator and why?
- 17 Write a short notes on
 - a) Various sensors used for temperature measurement
 - b) Stepper motor relay

FACULTY OF ENGINEERING**B.E 2/4 (CSE) I Semester (Backlog) Examination, October 2020****Subject: Logic and Switching Theory****Time: 2 hours****Max. Marks: 75****PART – A****Note: Answer any seven questions.****(7x3 = 21 Marks)**

- 1 Convert the following decimal numbers to the indicated bases
 - (a) 7562.45.45 to Octal
 - (b) 175.175 to Binary.
- 2 Specify the rules to be used to perform addition of two BCD numbers.
- 3 Prove the following identity .
 $XY + X' Y' + YZ = XY + X' Y' + X' Z$
- 4 Implement the following Boolean function using 4-to-1- Line Multiplexer
 $F (X, Y, Z) = \sum m (1, 2, 6, 7)$
- 5 Draw the circuit of a Master - Slave JK FF with Nand Gates.
- 6 Determine the value of r . $(365)_r = (194)_{10}$.
- 7 Mention the applications of Shift Registers .
- 8 Derive the even Parity Generator truth table.
- 9 Write down the two application of Counters.
- 10 Draw the relay contact network for the given function
 $F (a, b, c) = a + b'c$.

PART – B**Note: Answer any three questions.****(3x18 = 54 Marks)**

- 11 (a) Reduce the following Boolean expressions to the indicated number of literals.
 - (i) $X'Y' + XYZ + X'Y$ to 3 literals
 - (ii) $X + Y (Z + X' + Z')$ to 2 literals
 - (iii) $W X (Z + YZ) + X (W + W'YZ)$ to one literal.
 (b) What is Symmetric Function.
- 12 (a) Explain the operation of 4 bits Shift Register.
 (b) Write short notes on Demultiplexer.
- 13 (a) What is an Adder? What are the different types of Adders explain?
 (b) Explain in detail about carry look ahead adder with diagram?
- 14 Simplify using Quine – Mc Cluskey method
 $F (A, B, C, D) = \sum m (1, 2, 3, 5, 7, 9, 10, 11, 13, 15)$
- 15 (a) Design a 4 x 16 Decoder using 3 x 8 Decoders.
 (b) Explain about Encoder.
- 16 Using JK Flip – Flops to design a binary or Synchronous Counter with the following repeated binary sequence: 0, 1, 2, 3, 4, 5, 6, 7.
- 17 Write short notes on the following
 - (a) Logic Simulation
 - (b) HDL
 - (c) Verilog

FACULTY OF ENGINEERING
B.E III-Semester (CBCS) (Civil) (Backlog) Examination, October 2020

Subject: SURVEYING-I

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.

(5x2 = 10 Marks)

- 1 Brief out the classification of surveying.
- 2 The length of a line measured with a 20m chain was found to be 250m. Calculate the true length of the line if the chain was 10cm too long.
- 3 Differentiate between dip and declination.
- 4 What is the angular check of a closed traverse?
- 5 State the advantages of Plane Table surveying.
- 6 What is meant by orientation in plane table survey? Explain briefly.
- 7 Find the correction for curvature and refraction for a distance of 1200m.
- 8 What is cross-sectional levelling?
- 9 State the Trapezoidal rule. What are its limitations?
- 10 List the three uses of a contour map.

PART – B

Note: Answer any four questions.

(4x15 = 60 Marks)

- 11 a) Explain the principles of surveying.
 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.
- 12 The following bearings were observed in running a compass traverse.

<i>Line</i>	<i>F.B</i>	<i>B.B</i>
AB	75° 5'	254° 20'
BC	115° 20'	296° 35'
CD	165° 35'	345° 35'
DE	224° 50'	44° 5'
EA	304° 50'	125° 5'

At what station do you suspect the local attraction? Determine the correct magnetic bearings. If the declination was **5° 10' E**, What are the true bearings?

13. a) What are the advantages and disadvantages of plane table surveying
 b) Explain radiation method of Plane table surveying with a next sketch
14. The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings :
2.228 ; 1.606 ; 0.988; 2.090; 2.864; 1.262; 0.602; 1.982; 1.044; 2.684 meters.
 Enter the above readings in a page of a level book and calculate the R.L of points if the first reading was taken with a staff held on a bench mark of **432.384 m**.
15. a) How do you determine the capacity of a reservoir?
 b) A railway embankment is 8 m wide with side slopes of 15 to 1. 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 prismoidal formula.
16. a) Describe the temporary adjustments of a Dumpy level.
 b) Differentiate between plane and geodetic surveying.
17. Write short notes on any two:
 (a) Reciprocal Ranging (b) Local attraction
 (c) Effect of curvature and Refraction.

FACULTY OF ENGINEERING

BE III-Semester (CBCS)(EE/Inst./M/P/CSE) (Backlog) Examination, October 2020

Subject: Environmental Sciences

Time: 2 hours

Max. Marks: 70

PART – A

Note: Answer any five questions.

(5x2 = 10 Marks)

1. Define environment and write its components.
2. What is a drought?
3. Draw the figure for the pyramid of energy.
4. What is desertification?
5. What is bio-diversity? Write its components.
6. List the major causes for reduction in biodiversity.
7. Explain noise pollution.
8. What is ozone layer depletion?
9. What is population explosion?
10. Explain food chain and food web.

PART – B

Note: Answer any four questions.

(4x15 = 60 Marks)

11. (a) Explain the need for public awareness on environment.
(b) Write in detail the disadvantages of modern agriculture.
12. (a) What is a dam? Write its merits and demerits.
(b) Write short notes on energy resources in India.
13. Define ecosystem. Explain the structure and function of an ecosystem in detail
14. (a) Write about the endangered and endemic species of India.
(b) Explain in detail the effects of air pollution.
15. (a) Write and explain the salient features of Forest Conservation Act of the Indian Constitution
(b) Write short notes on disaster management in India.
16. (a) What is global warming? Write its causes and effects.
(b) Explain the impact of disasters on environment, infrastructure and development.
17. (a) What are the different aquatic ecosystems? Write about the estuarine ecosystem.
(b) Write about the significance of environmental ethics for sustainable environmental quality.
