Code No: 14518/CBCS

FACULTY OF ENGINEERING

B.E III-Semester (CBCS) (Civil) (Backlog) Examination, July 2021

Subject: Surveying – I

Time: 2 Hours **Max. Marks: 70**

Missing data, if any may be suitably assumed

PART – A

Note: Answer any Five Questions **(5x2= 10 Marks)**

1. State the principles of Surveying?
2. What is meant by reciprocal ranging?
3. Define the terms 'Local attraction' and 'declination?
4. Define isogonic and agonic lines?
5. What are the different methods of Plane Table surveying. Explain briefly.
6. What do you mean by fiducial edge of the alidade.
7. What are the arithmetical checks for HI method and Rise and Fall method?
8. What are the different types of bench marks?
9. Define the terms contour, contour interval and horizontal equivalent.
10. List the three characteristics of contour lines.

PART-B

Note: Answer any Four Questions **(4x15= 60 Marks)**

11. a) What is a well conditioned trangle. why is it necessary to use well conditioned triangle.
    b) Plot the following cross staff survey of a field ABCDEFG and calculate its area.

	750	D
	650	210E
		E
C 180	490	
	300	250 F
B 160	180	
	100	50 G
	0	A

12. The following bearings were observed in running a compass traverse.

Line	FB	BB
AB	S 45°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.

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13. Explain in detail about three 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.

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) Draw a typical diagram of Dumpy level and label its components.
    b) Write the Bessels method of Resection adopted for solving three point method of plane table surveying.

17. Write short notes on any two:
    a) Obstacles in chaining.
    b) Bowditch's method
    c) Reciprocal leveling.

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Code No: 14526/CBCS

FACULTY OF ENGINEERING

BE III-Semester (EE/EIE/M/P/CSE) (CBCS) (Backlog) Examination, July 2021

Subject: Environmental Science

Time: 2 Hours **Max .Marks: 70**

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 Write a note on Solar Energy.
2 Define Environmental Studies. Justify why it is a multidisciplinary subject.
3 Classify Natural Resources.
4 What is meant by Disaster? Give any two examples.
5 Define Biodiversity and Ecosystem.
6 Write a note on Deforestation.
7 Explain Bioaccumulation.
8 Write a note on Soil Pollution.
9 What is Blue Baby Syndrome Disease? Why it is caused?
10 Write a note on Acid Rain.

PART – B

Answer any four questions. **(4x15=60 Marks)**

11 (a) Explain levels of biodiversity. What are the threats to biodiversity?
(b) Explain why Energy Pyramid will always be upright? Explain with examples.

12 (a) Explain why there is a need to aware public about environmental protection.
(b) With the help of a neat diagram, explain structure and functions of Marine Ecosystem.

13 (a) What are the endangered and endemic species of India.
(b) Explain disaster management cycle.

14 (a) What is Solid Waste Management? What are the problems associated with unattended waste?
(b) Write a Water Pollution Prevention and Protection Act.

15 (a) What are the impacts of fertilizers and pesticides?
(b) Discuss the various strategies of biodiversity conservation.

16 (a) What is Green House Effect? What are the ill impacts of Global Warming?
(b) Define Ecosystem. “Energy doesn’t cycle in ecosystem but chemicals do.”Elaborate with examples.

17 (a) Write a note on
(i) Hotspots of Biodiversity
(ii) Effects of CO.
(iii) Soil Erosion.
(b) Write a note on Watershed Management.

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Code No. 15018/AICTE

FACULTY OF ENGINEERING

B. E. (CE/EE/EIE/CSE) III – Semester (Main & Backlog) Examination, July 2021

Subject: Environmental Science

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5x2 = 10 Marks)**

1. Define Natural Resources.
2. What is Desertification?
3. What is ecological pyramid?
4. Distinguish between producers and consumer.
5. List bio geographic zone of India.
6. State the benefits of biodiversity.
7. Enumerate the objective of air pollution act.
8. List the causes of noise pollution.
9. Mention the types of disaster.
10. What is watershed management?

PART – B

Answer any four questions. **(4x15 = 60 Marks)**

11. (a) Differentiate between Convention and non Conventional energy resources.
    (b) Explain the benefits and problems of dam.
12. (a) Describe salient features of grassland ecosystem.
    (b) Explain the concept of food chain and food web with the help of neat sketch.
13. (a) Briefly explain the values of biodiversity.
    (b) Explain different methods of conservation of biodiversity.
14. (a) Define water pollution and write a brief note on types of water pollutants.
    (b) Write and explain salient features of Forest act.
15. (a) Write the causes, effect and control measures of global warming.
    (b) Describe any two manmade disasters with suitable example.
16. (a) Explain in detail about nitrogen cycle.
    (b) Discuss in brief about Acid rain.
17. Write a short note on the following:
    (a) Rainwater harvesting.
    (b) Principal of solid waste management.

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Code No.15038/AICTE

FACULTY OF ENGINEERING

B. E. III – Semester (AICTE) (ECE/M/P/AE/IT) (Main & Backlog) Examination, July 2021

Subject: Indian Constitution

Time: 2 hours **Max. Marks: 70**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any five questions. **(5 x 2 = 10 Marks)**

1. Why was Minto Morley reforms introduced?
2. What is need and importance of Constitution?
3. What is the role of the Council of Ministers?
4. What are the functions of urban local self government?
5. How many fundamental duties are there in Indian Constitution?
6. How does the Constitution reflect federalism?
7. What is difference between NITI Ayog and Planning Commission?
8. What is the composition of Electoral College.
9. Who is responsible for free and fair election in India?
10. What are the major activities of the National Commission for Women?

PART – B

Answer any four questions. **(4 x 15 = 60 Marks)**

11. What is a Constituent Assembly? Assess the Contribution made by the Constituent Assembly to form the Indian Constitution.
12. Critically analyse the provisions in the Government of India Act, 1935.
13. Describe powers and function of the President of India.
14. Write about powers and functions if the state Governor.
15. Discuss the main provisions of the 73th Constitution Amendment Act 1992.
16. Explain the administrative relationship between the central and state government in India?
17. Write a short notes on:
    (a) What are the three levels of Panchayati Raj System?
    (b) Directive Principles of State Policy
    (c) Appointment of the Chief Minister
    (d) What is the role of the National Human Rights Commission?

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Code No.15151/AICTE

FACULTY OF ENGINEERING

B.E. III – Semester (CME) (AICTE) (Main & Backlog) Examination, July 2021

Subject: Data Structures

Time: 2 Hours **Max.Marks: 70**

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any five questions. **(5x2=10 Marks)**

1 What are asymptotic notations?
2 What is the role of balance factor in AVL tree?
3 Write about space complexity.
4 How to test for an empty queue.
5 In a binary tree with 9 nodes give the maximum number of leaf nodes.
6 Write the different ways of representing a graph.
7 List out any two applications of graphs.
8 Define max, min heap.
9 What is the post fix notation of (a+b) * (c+d)?
10 Given a binary tree of height 6, how many nodes will be present in a complete binary tree.

PART – B

Answer any four questions. **(4x15=60 Marks)**

11 a) Write a program to implement stack using arrays.
b) Write about performance analysis of an algorithm.

12 a) What is sparse matrix? Explain different representations of sparse matrix.
b) Write the properties of B-tress. How insertion and deletion are done in B-trees.

13 a) Write about binary tree traversal.
b) Write in detail about red black trees.

14 a) Explain minimum spanning tree kruskals's algorithm.
b) Explain depth first search with suitable example

15 a) Write a program to implement quick sort.
b) Explain in detail about insertion sort and discuss its time complexity.

16 a) Construct an AVL tree using the following:
3 2 15 10 28 18 4 14 30 9 21 26
b) Differentiate between BST, AVL and red black trees.

17 a) Explain in detail about insertion of elements in doubly linked list.
b) Write note on circular linked list.

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Code No: 14009

FACULTY OF ENGINEERING

B.E 2/4 (Civil) I – Semester (Backlog) Examination, July 2021

Subject: Surveying – I

Time: 2 hours **Max. Marks: 75**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1 What is the principle of chain surveying? Explain with a sketch.

2 List out the obstructions in chaining. Explain any one in detail.

3 The MB of line PQ is $124^0 35'$. Find it's TB, if the MD is $10^0 10'$w.

4 Define the following; True meridian, magnetic declination, Isogonic lines.

5 State the advantages and disadvantages of planet table.

6 What are the various methods of resection? Explain resection by back sighting.

7 Explain briefly about profile levelling.

8 Derive the equation for correction for curvature in levelling.

9 Define the terms contour interval and horizontal equivalent.

10 Write the uses of contour maps.

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11 a) What is the use of optical square? Describe in detail how it is used in the field.

b) A distance of 2000 m was measured by a 30 m in chain. Later, it was detected that the chain was 0.1m too long. Another 500 m was measured and it was detected that the chain was 0.15 m too long. If the chain was correct initially, determine the exact length that was measured.

12 a) State the differences between prismatic compass and surveyor's compass.

b) The following bearings were taken in running a closed compass traverse, (while surveying in Jhansi, Allahabad)

LINE	F.B.	B.B.
AB	$48^0 25'$	$230^0 00'$
BC	$177^0 45'$	$356^0 00'$
CD	$104^0 15'$	$284^0 55'$
DE	$165^0 15'$	$345^0 15'$
EA	$259^0 30'$	$79^0 00'$

i) State the stations which are affected by local attraction and by how much.

ii) Determine the correct bearings.

13 a) What are the various methods of plane tabling? Explain in detail about any one method.

b) State the three-point problem. Explain how it is solved by the graphical method.

14 a) The following consecutive readings were taken with a level and a 4.0m staff on a continuously sloping ground at a common interval 30m:
0.780,1.565,1.955,2.430,2.985,3.480,1.155,1,960,2,365,3.640,0.935,1.045,1.630 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 rise and fall system.

b) Explain reciprocal levelling in detail. Which errors eliminated by reciprocal levelling?

15 a) Determine the area in hectares between the line AB and a meandering stream for offsets taken at a regular interval of 20m along the line AB, use both the trapezoidal rule and Simpson's rule.

Point	A								B
Distance (m)	0	20	40	60	80	100	120	140	160
Offset length (m)	23	40	42	30	32	60	10	14	22

b) State the various characteristics of contour lines with neat sketches?

16 a) Describe the any three tape corrections in detail.

b) State the fundamental lines of dumpy level? Draw a sketch of dupy level and label its component parts?

17 Write any two from the following:

a) Errors in plane table survey.

b) Sensitivity of bubble tube.

c) Methods of contouring.

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Code No: 14015

FACULTY OF ENGINEERING

BE II/IV (EE/EIE/M/P/IT) I-Semester (Backlog) Examination, July 2021

Subject: Environmental Studies

Time: 2 Hours **Max .Marks: 75**

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any seven questions. **(7x3=21 Marks)**

1 What are the ill effects of water logging?
2 What do you mean by overdraft of ground water?
3 What is extinction? Explain with examples.
4 Discuss the levels of Bio-divinity.
5 What are the causes of acid rains?
6 Discuss the causes and effects global warming.
7 State the characteristics of estuaries.
8 State the Bio geographical zones of India.
9 Define hazardous waste.
10 Define springs. Mention the different types of it.

PART – B

Answer any three questions. **(3x18=54 Marks)**

11 (a) Explain the effects of modern agriculture.
(b) What is the need for involvement of public in mitigating environmental problems?

12 (a) Explain the structure of an ecosystem.
(b) Write detailed notes on Non-Renewable energy resources with advantages and disadvantages.

13 (a) Discuss the thermal pollution and its ecological consequences.
(b) What are the primary and secondary air pollutants?

14 (a) Explain the Bio-geographical classification of India.
(b) Write short notes on (i) Solar Energy (ii) Desertification

15 (a) Explain fresh water aquatic system.
(b) Explain various ecological pyramid with examples.

16 (a) Explain about ozone layer depletion and greenhouse effect.
(b) Write short notes on Watershed management and Rainwater harvesting.

17 (a) Discuss the problems caused due to usage of fertilizers and pesticides.
(b) Write a note on solid waste management.

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Code No: 14022

FACULTY OF ENGINEERING

BE II/IV (ECE) I-Semester (Backlog) Examination, July 2021

Subject: Electrical Technology

Time: 2 Hours **Max .Marks: 75**

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any seven questions. **(7x3=21 Marks)**

1 Calculate the distribution factor for a 36 slots, 4-pole, single-layer three-phase winding?
2 Draw the circuit of series generator, shunt generator and compound generator?
3 What is the importance of transformer voltage transformation ratio?
4 Explain why the three phase induction motor is self-starting?
5 Define voltage regulation of Transformer.
6 Advantage and disadvantage of hydroelectric power plant.
7 An 8-pole 50 Hz, 3-phase induction motor has a rotor Emf frequency of 2Hz. Calculate slip and speed.
8 Draw the phase diagram for transformer on NO LOAD.
9 What are the advantages of high voltage transmission?
10 Define regulation and efficiency of Transmission line.

PART – B

Answer any three questions. **(3x18=54 Marks)**

11 (a) Explain with necessary diagrams about commutation in a DC generators.
(b) A 30kW, 300 V, DC shut generator has armature and field resistance of 0.05Ω and 100Ω respectively. Calculate the total power developed by the armature when it delivers full load output.

12 (a) Prove the power measurement by two-wattmeter method.
(b) Three equal star-connected inductors take 8 kW at power factor 0.8 when connected a 460 V, 3 phase, 3-wire supply. Fin the line current if one inductor is short circuited.

13 (a) Explain how the efficiency of a transformer may be estimated from the open circuit and short circuit tests.
(b) A 10 kVA, 200/400 V, 50 Hz, single phase transformer has the following test result: OC test-200 V, 1.3A, 120 W on LV side SC test-22 V, 30A, 200 W on HV side. Cal.
(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.

14 (a) Explain the principle of rotating magnetic field and hence prove it is of constant magnitude and rotates at synchronous speed.
(b) Explain the operation of a capacitor start induction motor.

15 Explain nuclear power station with neat diagram.

16 (a) Explain various method of speed control of DC shunt motor.
(b) Derive the torque-slip equation for a 3-phase induction motor and also the equation for slip at which maximum torque occurs.

17 (a) Explain and draw characteristic of DC generator and DC motor.
(b) Derive the toque-slip equation for a 3ϕ induction motor and also the equation for slip at which maximum torque occurs.

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Code No: 14032

FACULTY OF ENGINEERING

BE II/IV (AE) I-Semester (Backlog) Examination, July 2021

Subject: Automotive Electrical & Electronics

Time: 2 Hours **Max .Marks: 75**

Note: Missing data, if any, may be suitably assumed

PART – A

Answer any seven questions. **(7x3=21 Marks)**

1 What is trickle charging?
2 What is insulated return system?
3 What is the condition for starting system?
4 What are the characteristics of a series motor?
5 What are the methods used for compensating effect of armature reaction?
6 Draw the block diagram of charging system.
7 What is engine management system?
8 What is electromagnetic compatibility?
9 Name various sensors used for temperature measurement.
10 What are the different addressing models of 8085 microprocessor?

PART – B

Answer any three questions. **(3x18= 54 Marks)**

11 Name the various essential accessories and explain them with neat sketches?

12 Write short notes on:
(a) Starter drives
(b) Over running Clutch system

13 With a neat sketch explain the working and functioning of
(a) Cutout relay and (b) Voltage and current regulators.

14 Write a short notes on:
(a) Electronic Dashboard system
(b) Security and warning system

15 Write short note on:
(a) Where stepper motors are sued in automobiles
(b) Third brush regulation

16 With a neat sketch explain pin diagram of 8085 microprocessor and its applications in automobiles.

17 Write short note on:
(a) Solenoid principle with neat sketch
(b) Maintenance and charging of a battery

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Code No. 14034

FACULTY OF ENGINEERING

B. E. 2/4 (CSE) I – Semester (Backlog) Examination, July 2021

Subject: Logic & Switching Theory

Time: 2 hours **Max. Marks: 75**

Note: Missing data, if any, may be suitably assumed.

PART – A

Answer any seven questions. **(7x3 = 21 Marks)**

1. Convert the hexadecimal number 64CD to binary and then convert it from binary to octal.
2. What are the prime implicants in a K-map method?
3. How do you obtain dual of an expression?
4. Distinguish between implicants, prime and essential prime implicants.
5. Find the complement of the following expression.
   $AB(\overline{C}D+C\overline{D})+\overline{A}\overline{B}(\overline{C}+D)(C+\overline{D})$
6. Realize the following function using only XOR gates:
   $F=\overline{A}\overline{B}CD+\overline{A}BC\overline{D}+A\overline{B}\overline{C}D+AB\overline{C}\overline{D}$
7. Define Decoder? List out the applications of it.
8. Write the excitation table of T flip flop.
9. Write a VHDL code for a 2:4 decoder.
10. Distinguish between synchronous and asynchronous counters.

PART – B

Answer any three questions. **(3x18 = 54 Marks)**

11. (a) Show that

    (i) $A[B+\overline{C}(\overline{AB+A\overline{C}})]=AB$

    (ii) $\overline{B+AD+BC+[B+A(C+D)}=B+\overline{A}+D+\overline{C}$

    (b) Find the compliment and dual of the given function $XY+X(WZ+W\overline{Z})$

12. Simplify the Boolean function

    $F[A,B,C,D,E]=\sum m(0,5,6,8,9,10,11,16,20,24,25,26,27,29,31)$

    using K-Map and the logic circuit.

13. Design a full adder circuit using carry look ahead adder and draw the circuit.

14. (a) Distinguish between a decoder and encoder.

    (b) Design a 4x16 decoder using logic gates and explain its operation with the help of truth table.

15. Design a synchronous mod-10 counter using D-Flip flop.

16. (a) What is a shift Register? Explain about the following modes of operations in a four bit shift registers (i) shift right (ii) shift left (iii) bidirectional.

    (b) Mention how a function can be symmetric with a suitable example.

17. Write short notes

    (a) Ripple carry adder.

    (b) Ripple counter.

    (c) Binary adders and subtracters.

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