

FACULTY OF ENGINEERING**B.E. 2/4 (Civil) I – Semester (Backlog) Examination, May/June 2018****Subject: Surveying I****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part A and any FIVE questions from Part – B.****PART – A (2.5x10=25)**

- 1) What is the fundamental difference between surveying and leveling 3
- 2) What is hypotenusal allowance? 2
- 3) What is meant by reciprocal ranging? 3
- 4) What is the angular check of a closed traverse? 2
- 5) Find the correction for curvature and refraction for a distance of 1200m. 3
- 6) Define three-point problem. 2
- 7) What are the different types of bench marks? 3
- 8) What is a contour? Enlist two properties of contours. 2
- 9) List any three characteristics of a contour with neat sketches? 3
- 10) State the prismoidal rule. What are its limitations? 2

PART – B (50 Marks)

- 11 a) Describe briefly how Plane surveying differs from geodetic surveying? 4
- b) Plot the following cross staff survey of a field ABCDEFG and calculate its area. 6

	750	D
	650	210E
C180	490	
	300	25F
B160	180	
	100	50G
	0	A

Contd..2...

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

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

At what station do you suspect the local attraction? Determine the correct

magnetic bearings. If the declination was $5^{\circ}10' E$, what are the true bearings? 10

13 What is Three – point problem? Explain mechanical method with a neat sketch? 10

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** 10

15 Calculate the volume of earthwork using Simpson's rule and trapezoidal rule for the embankment for which the cross-sectional areas at 20 mts intervals are as follows: 10

Distance(mtr)	0	20	40	60	80	100	120
Cross-sectional area(m²)	42	64	72	16	18	26	11

16 a) Explain Intersection Method of Plane table Survey. 5

b) Explain with a neat diagram the construction and working of Optical square. 5

17 Write short notes on: 10

a) What is GIS? What is GPS? Write about the 4M's of GIS

b) Errors in prismatic compass

c) Temporary adjustments of dumpy level.

FACULTY OF ENGINEERING & INFORMATICS
B.E. 2/4 (EE.Inst./MP/I.T.) I - Semester (Backlog) Examination, May / June 2018

Subject: Environmental Studies

Time: 3 Hours

Max. Marks: 75

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

PART-A (25 Marks)

1. What is environmental studies and its importance (2)
2. Define the term drought and write its causes (2)
3. What is producers and consumers in an ecosystem (2)
4. Represent the energy flow in an ecosystem (2)
5. Describe the various types of biodiversities. (3)
6. What is an endangered and endemic species (3)
7. List the various water borne diseases (3)
8. State the purpose of air act (3)
9. What is the purpose of ozone layer in stratosphere (2)
10. What are the different types of disasters (3)

PART - B (50 Marks)

11. (a) Explain the any one river water dispute in India. (5)
 b) Discuss the impacts of modern agriculture on soil.
12. (a) Explain the concept of food chain and food web with neat sketches (5)
 (b) Write the salient features of marine ecosystem (5)
13. (a) Describe the various factors that are threaten to biodiversity (5)
 (b) Explain the different hotspots of biodiversity in India (5)
14. (a) Discuss the various causes of air pollution and their control measures (5)
 (b) Write and explain the salient features of Wild life act (5)
15. (a) What are floods? Write its causes and measures to mitigate floods(5)
 disaster.
 (b) What is green house effect. Explain the its causes and control measures (5)
16. (a) Discuss the causes and effects of noise pollution (5)
 (b) Explain the various methods of solid waste disposal (5)
17. (a) Write notes on population explosion (5)
 (b) Define ecosystem. Explain the structure and function of an ecosystem (5)

FACULTY OF ENGINEERING

B.E 2/4 (ECE) I – Semester (Backlog) Examination, May / June 2018

Subject : Electrical Technology

Time: 3 Hours

Max. Marks : 75

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

Part - A (10x 2 = 25 Marks)

- | | |
|--|---|
| 1. What do you understand by commutation in DC machines ? | 2 |
| 2. A 250V, DC shunt motor draws 51A and has field and armature resistance of 250Ω and 0.2Ω respectively find the back emf. | 3 |
| 3. Draw characteristic of DC series motor | 3 |
| 4. The reading of two wattmeter's of s^3 -phase power measurement are 50w and 100w respectively calculate power factor. | 2 |
| 5. Derive emf equation of alternator . | 3 |
| 6. What are different types of alternator? | 2 |
| 7. Why transformer rating is in KVA? | 2 |
| 8. If iron and copper losses at half load are 100w and 200w respectively, the full load iron and copper losses one | 3 |
| 9. Different between S^3 phase and 1 phase induction motor | 2 |
| 10. Write about power stage in induction motor | 3 |

Part - B (5 X 10 = 50 Marks)

- | | |
|---|-----|
| 11. a) With diagram explain 3 – point starter | 6 |
| b) Explain speed control of DC series motor | 4 |
| 12. a) Derive with phasor the relationship between phase quantity of voltage and current in star and delta connected system | 5 |
| b) Write about the operation of fluorescent lamp | 5 |
| 13. a) A 500V., 55KVA, 1Φ phase alternator has an effective ion armature resistance of 0.2Ω and a synchronous reactance of 2.25Ω calculate the voltage regulation at full load 0.8 pf leading | 5 |
| b) Write about armature reaction in alternator | 5 |
| 14. a) Explain how the efficiency of a transformer may in estimated from the open circuit and short circuit test | 5 |
| b) Discuss the principle of operation and application of single phase auto transformer | 5 |
| 15. a) Explain the principle of rotating magnetic field and hence proof it is of constant magnitude and rotating at synchronous speed | 5 |
| b) Explain about shaded pole induction motor. | 5 |
| 16. a) DC shunt machine when run as a motor on No load takes 440w and runs at 1000 rpm. The field current and armature resistance are 1A and 0.5 ohm respectively calculate the efficiency of the machine (i) running as generator delivering 40A at 220 V (ii) as a motor taking 40A from from 220V supply | 5 |
| b) Derive the emf equation of DC generator | 5 |
| 17. Write short notes on : | |
| a) Difference losses in transformer and maximum efficiency condition is transformer | 5 |
| b) Starts method of required case induction motor. | (5) |

FACULTY OF ENGINEERING**B.E. 2/4 (AE) I Semester (Backlog) Examination, May / June 2018****Subject: Automotive Electrical & Electronics****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part A and Any Five questions from Part B****PART – A (25Marks)
(Answer all questions)**

1. Why Lead acid battery is called acid battery?
2. Capacity of a battery is expressed by a term.....and why?
3. Which single unit regulator is required for battery charging with a alternator system and why?
4. Torque required at starting is in the range of
5. Speciality of Bendix drive is
6. Define third brush regulation.
7. CDRI stand for And executed byType of electronic engine management system.
8. Why relay is incorporated in a starter motor?
9. How electronic collision system works?

PART – A (5x10=50Marks)

10. (a) Briefly describe the salient characteristics of a battery.
(b) Explain briefly HRD and cell gravity tests.
11. Describe with a neat sketch the tight beam adjusting tests. How dazzling is caused and its prevention.
12. (a) Explain principles and constructions of a motor and a dynamo.
(b) Describe overrunning clutch system with a neat sketch.
13. (a) Explain briefly shunt generator characteristics.
(b) With a neat sketch, explain the working principle of a cut out system.
14. (a) Where do you require a bridge rectifier and why?
(b) Describe briefly engine electronics control, chassis electronic control and transmission electronic control.
15. (a) Where stepper motors are used in automobile and why explain.
(b) How precisely air mass flow is required to be controlled electronically and why?
16. Write short notes on the following:
 - (a) 32 bit microprocessor control unit.
 - (b) CDRI system
 - (c) Infra red brake control system.

FACULTY OF ENGINEERING
B.E. 2/4 (CSE) I Semester (Backlog) Examination, May / June 2018

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. Simplify the Boolean function to a minimum number of literals : (3)
 (a) $ABC + ABC' + A'B$ (b) $(A+B)' \cdot (A'+B')$
2. Prove that the dual of the exclusive – OR is also its complement. (2)
3. Define the term Essential Prime Implicant . (2)
4. Implement the following Boolean function using 4-to-1 line multiplexer :
 $F(x, y, z) = \sum (1, 2, 6, 7)$. (2)
5. Write the Verilog data flow description for 2-to-4 Decoder circuit. (3)
6. Draw the circuit of Master Slave JK flip flop with NAND gates. (3)
7. What is logic synthesis.? (2)
8. State the condition for a function to be symmetric. (2)
9. Draw the excitation table for a JK flip flop and specify method to convert JK flip flop to D type flip flop. (3)
10. Distinguish between a decoder and demultiplexer? (3)

PART –B (Note : 50 Marks)

11. (a) Determine the minimal sum of products for :
 $F(w,x, y, z) = \sum m(0, 2,4,9,12,15) + \sum d(1,5,7,10)$. (5)
 (b) Find a minimal product of sums for
 $F(w,x, y, z) = \sum (1,2,3,5,13) + \sum d(6,7,8,9,11,15)$. (5)
12. Using Tabulation method generate set of prime implicants and obtain minimal expression for the function
 $F(w,x,y,z) = \sum (0, 1, 4, 5, 6, 7, 9, 11, 15) + \sum d(10, 14)$. (10)
13. Design a Binary Multiplexer that multiplies two 4- bit numbers , use AND gates and binary adder. (10)
14. Design a BCD to 7-segment code converter. (10)
15. (a) Write a data flow of VHDL for full subtractor? (5)
 (b) Design a modulo-8 counter using JK (5)
16. What is a symmetric function? Identify the given functions are symmetric or not i) $f(a,b,c) = \sum (0,2,3,4,7)$ ii) $f(x,y,z) = \sum (1,2,5,6)$ (10)
17. Write short notes on
 - a) Parity bit
 - b) Ripple carry Adder
 - c) Priority