

**FACULTY OF ENGINEERING****B.E II-Semester (Suppl.) Examination, November / December 2018****BUSINESS COMMUNICATION AND PRESENTATION SKILLS****TIME: 3 Hours****Max. Marks: 70****Note: (i) Answer all questions from Part-A and any Five questions from Part-B****(i) Answers to the questions of Part-A must be at one place and in the same order as they occur in the question paper****(ii) Missing data, if any, may be suitably assumed.****PART-A (20 Marks)****a. Choose the right option for the sentences given below. (1x2=2)**

1. Which of the following best explains downward communication?
  - a. message sent from the board of directors to the lowest level of employees
  - b. a message from a subordinate to a superior
  - c. a message from a company officer to a company employee
  - d. a message that follows along an organization's chain of command
2. Which of the following is a disadvantage of downward communication?
  - a. Efficiency
  - b. Case a delegation
  - c. Clarity
  - d. Support

**b. Choose the right option for the sentences given below (1x2=2)**

1. To be a successful conversationalist one should be the workplace
  - a. submissive
  - b. assertive
  - c. aggressive
  - d. rude
2. "Tease" or "stress" questions are intended to judge
  - a. the candidate's intelligence quotient
  - b. how the candidate handles them
  - c. the candidate's technical skill
  - d. the candidate's stress level

**c. State whether the following are true or false. (1x2=2)**

- a. The first objective in a group discussion is to act as a self – appointed leader of the group.
- b. The group discussion evaluates the candidate's ability to argue with others.

**d. Choose the right option for the sentences given below (1x2=2)**

1. The best way to apply for a job is to submit a resume that is
  - a. full of personal information
  - b. self-recommending
  - c. specifically written for that particular job
  - d. suitable for any job

2. A summary placed at the beginning of the CV acts as a
  - a. preface
  - b. statement of objectives
  - c. synopsis
  - d. letter of recommendation

e. **Match the following** (1/2x4=2)

- | A                | B                                          |
|------------------|--------------------------------------------|
| 1. Bonding       | a. asking questions to gain information    |
| 2. Experimenting | b. formal announcement of the relationship |
| 3. Intensifying  | c. get into a shared relational identity   |
| 4. Integrating   | d. revealing themselves fully              |

f. **Fill in the blanks with appropriate words** (1x2=2)

- a. Which quadrant of the Johari window reveals information about one's secret dreams and ambitions \_\_\_\_\_
- b. In \_\_\_\_\_ stage team members work according to rules.

g. **Directions:**

1. Use all the phrases/hints given (2x1=2)
2. Minimum words should be 50 otherwise your email cannot be validated
3. Addressing and signing should be done as in the question given.
4. Common grammatical rules, punctuation should be according to standard English.
5. You can use your own phrases along with the phrases given below.

As an intern at ABC consulting Pvt.Ltd, write an email to your internship project Manager.

Mr. Ramesh, informing about the progress that you are making and some difficulties that your are encountering. Sign the email as Sharma.

**Outline:**

Thank – challenging – progress – tight schedule – support – report – analytics – guidance- access – doubt – requirements – design.

**Write short notes on the following:** (2x3=6)

- h. Importance of Time Management
- i. How is Persuasion Technique useful for you as an engineering student? Discuss with an example.
- j. Why is Group Discussion conducted in job selection? What are different traits that are observed during the Group Discussion?

### PART-B (10x5=50 Marks)

- 11 Discuss Johari Window and its various quadrants giving suitable examples.
12. Elucidate different styles of communication? Which communication style do you think is healthy? Why?

13. Explain the differences between Delphi technique and nominal group technique in detail?
14. Write statement of purpose as a student who aspires to pursue MS in Computer Science at the Boston University.
15. Write a job application letter along with suitable resume to Sofsol Solutions, Bangalore applying for the position of a software engineer.
16. What are the ins and outs of a good and well rated group discussion?
17. As the Head, Department of English, RKCT, write a report to the Principal of the college on the feasibility of opening a new multimedia language laboratory in your department.

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**FACULTY OF ENGINEERING****B.E. 2/4 (Civil) I - Semester (Backlog) Examination, November / December 2018****Subject : Engineering Materials and Construction****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 List the requirements of good stones?
- 2 What are the requirements of good earth for making bricks?
- 3 What are the advantages and disadvantages of concrete block masonry over brick masonry?
- 4 List out the various tests on aggregates.
- 5 How the reinforced steel is stored and handled?
- 6 Write on hydration of cement.
- 8 List out the different types of floors.
- 9 How many types of distempers are there? What are they?
- 10 Distinguish between 'form work' and 'scaffolding'

**PART – B (50 Marks)**

- 11 (a) Discuss various types of brick and stone masonry with neat sketches.  
(b) How are bricks classified? How do they differ in compressive strength?
- 12 (a) Explain the chemical composition of cement?  
(b) Explain different methods of measurement of moisture content of aggregates.
- 13 (a) Explain any two tests conducted to ensure the quality of mortars?  
(b) What is meant by workability of concrete? What are factors affecting workability?
- 14 (a) Explain the method of constructing of concrete and marble flooring.  
(b) What are scaffoldings? Explain the different types of scaffolding with neat sketches.
- 15 What is Varnish ? Discuss in detail the various types of Varnishes and its applications.
- 16 Name any five common stones used in civil engineering works and explain their characteristics and used.
- 17 Write short note on the following:
  - (a) Light weight aggregate
  - (b) Recycled materials
  - (c) White Washing
  - (d) Form work - reuses and maintenance
  - (e) Bleeding

**FACULTY OF ENGINEERING**

**BE 2/4 (EEE) I-Semester (Backlog) Examination, November / December 2018**

**Subject : Electrical Circuits-I**

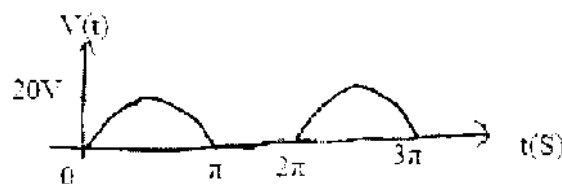
**Time: 3 Hours**

**Max. Marks : 75**

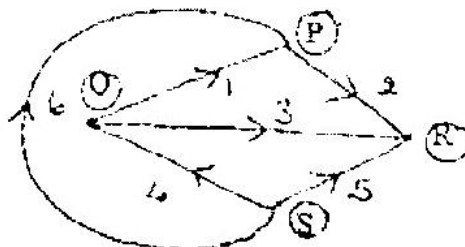
Note: Answer All Questions From Part-A & Any Five Questions From Part-B

**PART-A (25 Marks)**

- |   |                                                              |   |
|---|--------------------------------------------------------------|---|
| 1 | Explain Linear and Active elements with examples.            | 2 |
| 2 | Define Real and Reactive power                               | 2 |
| 3 | Derive the expression for energy stored in capacitor         | 3 |
| 4 | Obtain the RMS and Average values of periodic waveform shown | 3 |



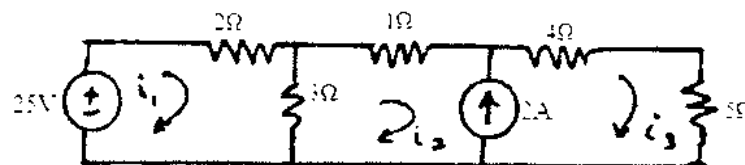
- |   |                                                                                            |   |
|---|--------------------------------------------------------------------------------------------|---|
| 5 | Write the relation between line and phase voltages and Currents in Star and Delta circuits | 2 |
| 6 | What are the advantages of three phase over single phase                                   | 3 |
| 7 | State Milliman's theorem                                                                   | 3 |
| 8 | Obtain the Incidence matrix of the following figure                                        | 2 |



- |    |                                                                                                       |   |
|----|-------------------------------------------------------------------------------------------------------|---|
| 9  | Define coupling coefficient and write the relation between mutual inductance and coupling coefficient | 2 |
| 10 | List the formulae of resonant frequency, Quality factor and Bandwidth of a series RLC circuit         | 3 |

**PART-B (50 Marks)**

- |    |                                                                |    |
|----|----------------------------------------------------------------|----|
| 11 | Explain Determine the mesh currents in the circuit shown below | 10 |
|----|----------------------------------------------------------------|----|

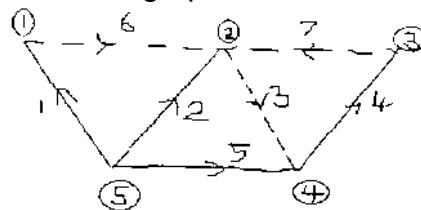


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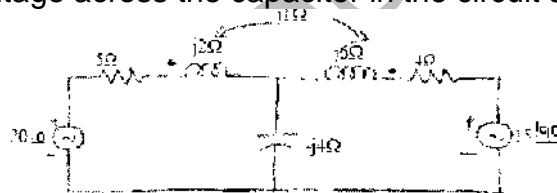
12 A series combination of  $12\Omega$ ,  $600\ \mu\text{F}$  and  $100\ \text{mH}$  are connected to a  $220\ \text{V}$ ,  $50\ \text{Hz}$  supply. Estimate the current, active power, reactive power and apparent power and also draw the phasor diagram 10

13 a) A 3- 400V load has a power factor of 0.4 lag. Two wattmeters are connected to measure the power. If the input power is 10KW, find the reading of the each instrument. 7  
 b) Differentiate Balanced and Unbalanced loads. 3

14 a) State and explain thevenins theorem with example 6  
 b) Obtain the Cut-set matrix of the graph shown 4



15 a) What is resonance? Derive the expression for resonant frequency in parallel RLC circuit 3  
 b) Determine the voltage across the capacitor in the circuit shown below. 7



16 a) What is Locus diagram? Sketch the Locus diagram of series RC circuit with variable capacitance 5  
 b) State and explain Tellegen's theorem with an example 5

17 Write short notes on  
 a) Tie-set matrix 3  
 b) Star –Delta transformation 3  
 c) Self and Mutual Inductance 4

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## FACULTY OF ENGINEERING

B.E. 2/4 (EIE) I-Semester (Backlog) Examination, November / December 2018

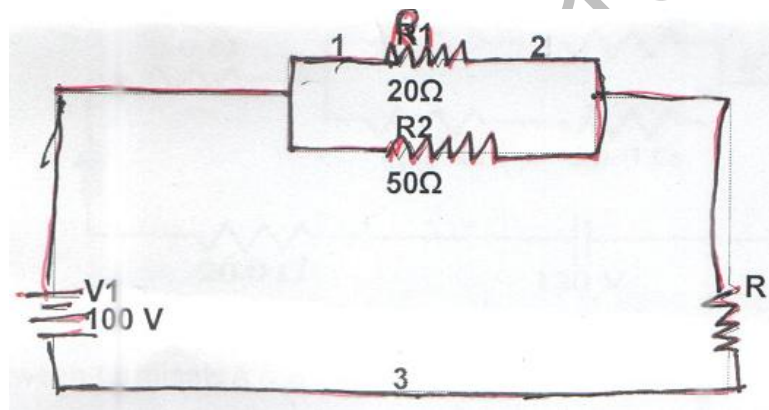
Subject : Network Theory

Time : 3 Hours

Max. Marks: 75

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

- 1 State and explain superposition theorems. (2)
- 2 Draw dual of a series RL circuits. (2)
- 3 Explain response to arbitrary inputs by convolution. (3)
- 4 Draw power triangle for AC circuit and explain each one of it. (3)
- 5 Write two port equation for ABCD parameters in terms of Z-parameters. (3)
- 6 Explain impedance curve for series RLC circuits. (3)
- 7 Determine the value of IR if the potential drop across it is 25V. (2)

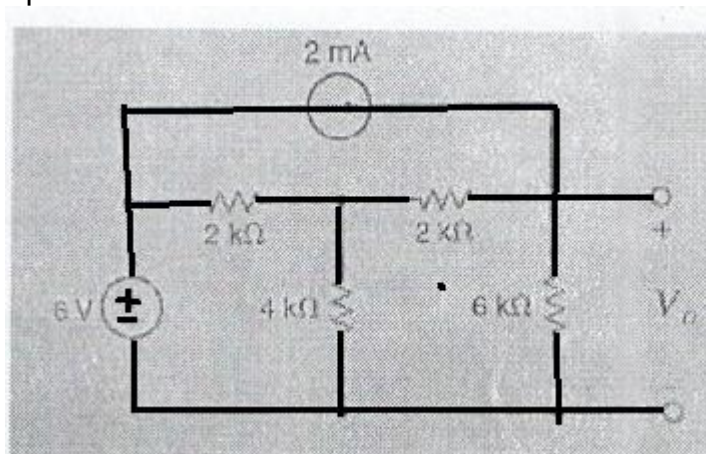


Figure

- 8 The power in 3- $\phi$  circuit is measured using 2-Wattmeters. If the total power is 100KW and power factor is 0.66 leading, what will be the reading of each wattmeter. (2)
- 9 The Z-parameters of circuit are given by  $Z_{11}=4\Omega$ ,  $Z_{12}=Z_{21}=10\Omega$  &  $Z_{22}=6\Omega$ , obtain transmission parameters. (2)
- 10 Derive impedance of series RL circuits also draw vector diagram for the same. (3)

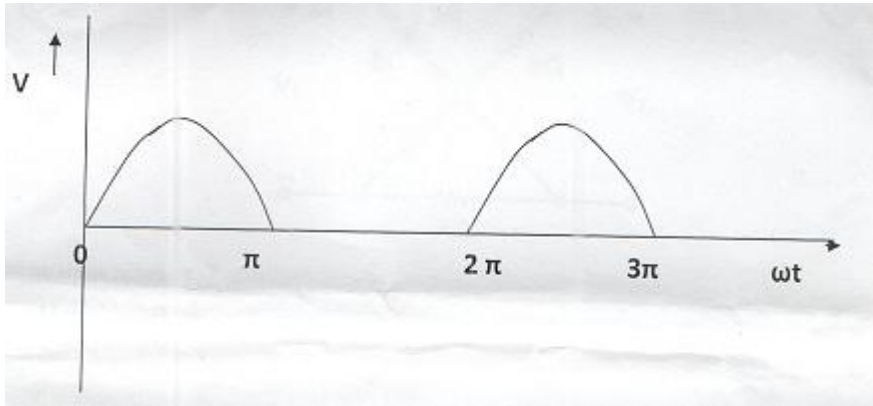
**PART – B (50 Marks)**

- 11 Find Thevenin's equivalent for the circuit shown. (10)

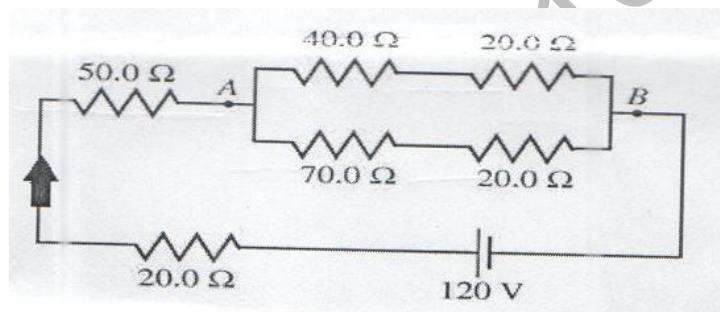


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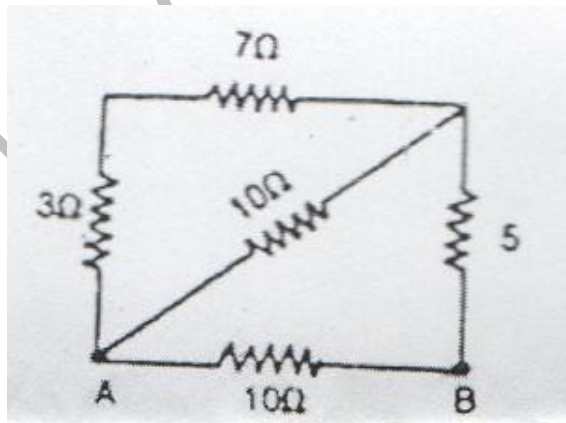
12 Find R.M.S. value, Average value, Peak factor & Form Factor for the given waveform. (10)



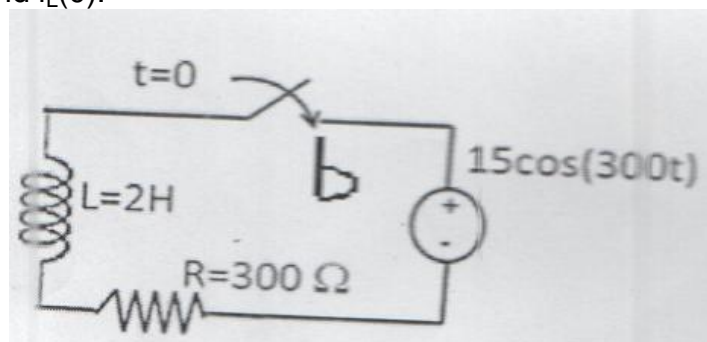
13 (a) Find total current in the circuit shown also find voltage across terminals A & B. (6)



(b) Find Req between terminals A & B. (4)



14 In the circuit shown, the switch is moved to position b at  $t = 0$ , determine the current  $i(t)$  also find  $i_L(0)$ . (10)

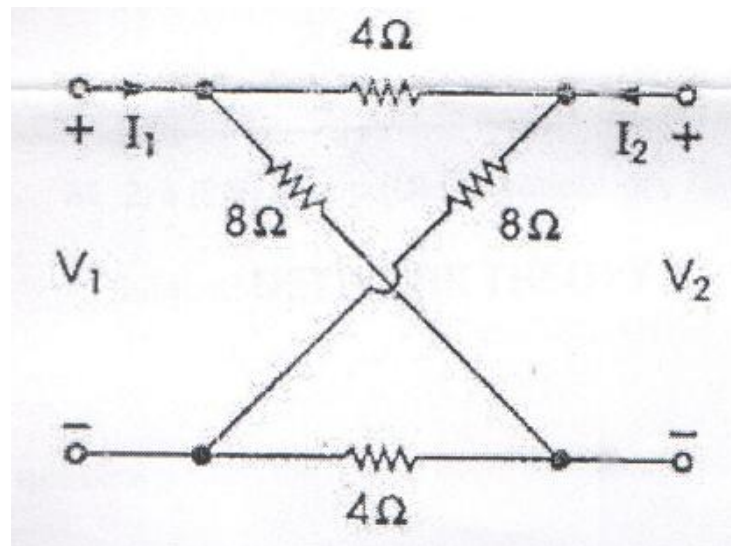




..3..

15 Prove that power factor of a 3- $\phi$  star connected load is  $\tan^{-1}[\sqrt{3}(W_2 - W_1) / (W_1 + W_2)]$  with the help of neat circuit and phasor diagram. (10)

16 Find Y-Parameters for the circuit shown. (10)



17 Write short notes on the following: (3)  
 (a) Mutual Induction (4)  
 (b) Dot Convention (3)  
 (c) Resonance (3)

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## FACULTY OF ENGINEERING

B.E 2/4 (ECE) I semester (Backlog) Examination, November/ December 2018

Subject : Basic Circuit Analysis

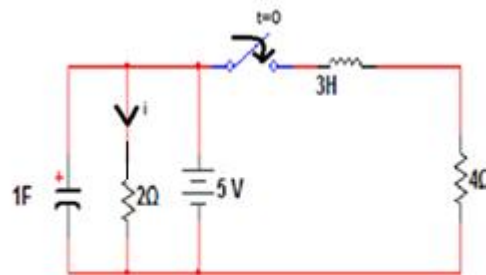
Time : 3 Hours

Max. Marks :75

Note : Answer all Questions From Part-A, & Any Five Questions From Part-B.

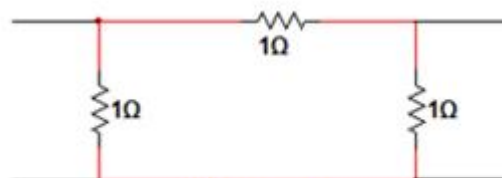
### Part – A ( 25 Marks)

1. A DC voltage of 8V exists across a  $10\ \Omega$  resistor from  $t=0$  onwards. Calculate the current through the resistor & Power dissipated by it. 2M
2. Define the following terms and give one example for each. 3M
  - A. Tree of a graph T
  - B. Fundamental Tie-Set.
3. Explain the three types of damping in RLC CRts & give conditions. 3M
4. In the circuit of figure (1) find the current  $I$  in the steady state. 2M



**Figure-1**

5. Explain Dot convention used for the analysis of magnetically coupled circuits. 2M
6. The current in a series circuit of  $10\ \Omega$  and  $1\ \text{mH}$  is  $5 \cos(100t + 30^\circ)$ ; Amp. Find the value of power factor. 3M
7. For the given  $\Pi$ -net work of figure 2 find the equivalent T-network. 2M



**Figure-2**

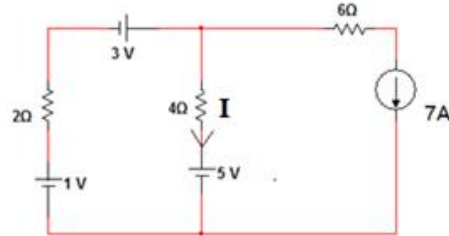
8. Draw the equivalent circuit and a z parameter network.
9. Identify all the complex frequencies of the current signal  $i(t) = 10 + e^{-3t} + \cos 20t$ . 3M

Contd...2

10. Define resonance in a series RLC circuit

**PART – B (50 Marks)**

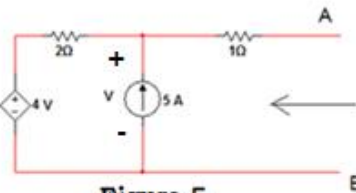
11 a. In the circuit of figure (4) find the current  $I$  using Nodal analysis. 6M



**Figure-4**

b. Draw the incidence matrix for the circuit of figure (4) 4M

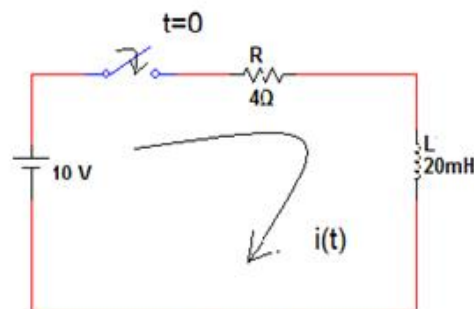
12 a. Find the Thevenin's equivalent circuit between the terminals A and B in the circuit of fig (5) 6M



**Figure-5**

b. Derive an expression for the energy stored in a capacitor. 4M

13.a) In the circuit of figure (6) Find the current  $i(t)$  at  $t = 1.5$  where  $\tau$  is the time constant 6M

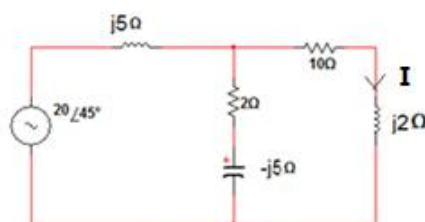


**Figure-6**

$$i_L(0^-) = 5A$$

b) In the circuit of figure 6 find  $di/dt(0^+)$  and  $d^2i/dt^2(0^+)$  4M

14. Find the phasor current  $I$  using Thevenin's theorem in the circuit of figure (7) 10M



**Figure-7**

- 15 a) The Two port network of figure (8) is connected in series with an exactly similar two-port network. Find the overall Z-parameters of this overall Two-port network. 5M

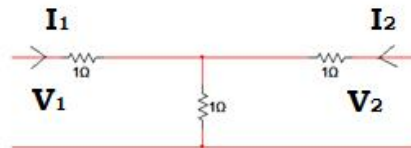


Figure-8

- b) Express the hybrid parameters  $h_{11}$  and  $h_{21}$  in terms of Z-parameters. 5M
16. a) Derive an expression for the resonant frequency of the circuit of figure (9). 4M

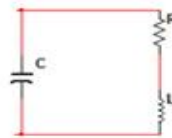


Figure-9

- b) The voltage function of a circuit is given by  $V(s) = 10(s+10) / (s^2 + 5s)$ . Find the time domain expression for the current  $i(t)$ , using Pole-Zero plot. 6M
17. Write technical notes on the following:
- Quality factor of a series resonant circuit. 4M
  - Reciprocity Theorem. 3M
  - Maximum Power Transfer Theorem. 3M

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**FACULTY OF ENGINEERING**  
**B.E 2 /4 (M / P /A.E) I-Semester (Backlog) Examination,**  
**November/December 2018**

**Subject: Metallurgy and Material Science**

**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. List various types of defects in crystals.
2. Differentiate ductile fracture with brittle fracture.
3. Define Fatigue? List the factors that affect the fatigue of metals.
4. State and explain Fick's 1<sup>st</sup> law of diffusion.
5. Write the three invariant reactions that occur in Iron-Iron carbon alloy system.
6. Explain the classification of plain carbon steels.
7. What is full annealing?
8. Explain the need of a tempering a hardened steel.
9. Draw a neat sketch of Puddling furnace.
10. What are the various composite materials?

**PART-B (5 x 10= 50 Marks)**

11. a) What is critical shear stress? Derive the equation relating tensile stress and critical resolved shear stress  
b) Distinguish between cold working and hot working. What are the advantages of cold working compare to hot working.
12. a) Explain the experimental determination of fatigue strength with the help of a sketch.  
b) Discuss the applications of diffusion in mechanical engineering field.
13. a) Explain the construction of phase diagram of lead (Pb) and Tin (Sn) alloy system with a neat sketch.  
b) What are the different types of cast irons? List the characteristics of Cast Iron.
14. a) Discuss Normalizing as heat treatment process and mention its applications.  
b) Explain Austenite to Martensite transformation of eutectoid steel with the help of TTT diagram.
15. Explain with neat diagram the production of cast iron in cupola furnace.
16. a) What is surface hardening? Explain the flame hardening process.  
b) Explain the method of production of steel by Electric arc furnace.
17. Write short notes on the following
  - a) Bauschinger effect
  - b) Stress rupture curve.
  - c) High speed steels.

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## FACULTY OF ENGINEERING

B.E. 2/4 (CSE) I - Semester (Backlog) Examination, November / December 2018

Subject : Discrete Structures

Time : 3 Hours

Max. Marks: 75

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

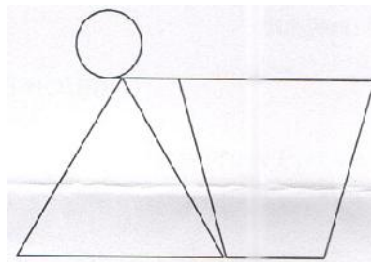
- 1 Show the implication  $(P \wedge Q) \Rightarrow (P \rightarrow Q)$ . (2)
- 2 Obtain contra positive and inverse for the statement:  
If you have exam then you must work hard (3)
- 3 Let  $f$  be the function from  $\{a, b, c, d\}$  to  $\{1, 2, 3, 4\}$  with  $f(a) = 4, f(b) = 2, f(c) = 1$   
and  $f(d) = 3$ . Is  $f$  bijective function? How? (3)
- 4 What is Asymmetric relation ? Give example. (2)
- 5 Obtain Recurrence relation for the closed form  
 $A(K) = K^2 - K$  (2)
- 6 Find the coefficient of  $x^5$  in  $(1 - 2x)^{-7}$ ? (3)
- 7 Obtain a multiplication table for a monoid using binary operation  
\* on set  $A = \{a, b\}$ . (3)
- 8 What is Automorphism? (2)
- 9 Find the chromatic number of a wheel graph. (3)
- 10 Draw the complement graph for  $K_3$ . (2)

**PART – B (50 Marks)**

- 11 Prove the validity of the argument (10)
 
$$\forall x[p(x) \vee q(x)]$$

$$\forall x[(\sim p(x) \wedge q(x)) \rightarrow r(x)]$$
 .....  

$$\therefore \forall x[\sim r(x) \rightarrow p(x)]$$
- 12 Find the no. of integers between 1 and 1000 inclusive that are non divisible  
by 2, 3 and 5? (10)
- 13 Solve  $D(k) - 8D(k-1) + 16D(k-2) = 0$  where  $D(2) = 16, D(3) = 80$ ? (10)
- 14 Define the binary operation  $\circ$  on  $Z$  by  $x \circ y = x + y + 1$ . Verify that  $\langle Z, \circ \rangle$  is an  
abelian group. (10)
- 15 State and prove Lagrange's theorem with an example. (10)
- 16 Use Grinberg's theorem show that there are no planar Hamiltonian graphs with  
region of degree 5, 8, and 9 with exactly one region of degree 9? (10)
- 17 (a) Find the dual of the graph shown below: (6)



- (b) Prove that intersection of two sub-monoids is a monoid. (4)

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**FACULTY OF ENGINEERING****B.E. 2/4 (I.T) I-Semester (Backlog) Examination, November/December 2018****Subject : Digital Electronics and Logic Design****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. State Demorgan's Laws. (2)
2. Neatly draw the general structure of PAL. (3)
3. What are universal gates? Explain. (2)
4. Design a Full Adder circuit. (3)
5. What is a state table. Give an example. (2)
6. Give the functionality of SR-Latch. (3)
7. List the elements of ASM Charts. (2)
8. Write the VHDL Code for 4x1 multiplexer. (3)
9. Define setup and hold time of a Flip-Flop. (2)
10. Explain about dynamic hazard with example. (3)

**PART-B (50 Marks)**

11. a). Simplify the four- variable function using K-Map and implement using AOI gates.  $f(x_1, x_2, x_3, x_4) = \sum m(1, 4, 5, 6, 7, 10, 11, 14)$ . (7)  
 b). Draw the logic circuit of a 2x4 decoder using logic gates. (3)
12. a) Explain the structure of CPLD in detail. (5)  
 b) Neatly draw the 3-input LUT (5)
13. a) Explain the edge-triggered D Flip-Flop. (5)  
 b) Design a 3-bit Down Counter. (5)
14. a) Explain in detail about JK-Flip-Flop and T-Flip-Flop. (5)  
 b) Explain the operation of parallel access shift register with a neat diagram. (5)
15. a) Explain about state assignment problem in detail. (5)  
 b) Explain about the ASM charts. (5)
16. Explain in detail about Analysis, Synthesis, State reduction of Asynchronous sequential circuits. (10)
17. Write Short notes on the following. (10)  
 a) Clock Synchronization.  
 b) Asynchronous Sequential Circuits.

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