Code No: 429/CBCS

FACULTY OF ENGINEERING

B.E. II/IV (CBCS) III – Semester (Civil) (Supple.) Examination, May/June 2018

Subject: Building Materials and Construction

Time: 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part A & Part B. Any FIVE questions from Part-B.

PART – A (20 Marks)

1)	What are the characteristics of a good building stone?	2
2)	Differentiate between Clamps and Kilns in Brick burning.	2
3)	What are the advantages of blended cements?	2
4)	What are the characteristics of a good fine aggregate?	2
5)	What are the advantages of using regional materials?	2
6)	What are the objectives of plastering?	2
7)	What are the objectives of pointing?	2
8)	Define formwork.	2
9)	Write about water sprinkler system in five protection.	2
10)	State reasons for cracks in buildings.	2

PART – B (50 Marks)

11	a)	Write about classification of stones.	5
	b)	Why is artificial seasoning of timber preferred and what are the methods?	5
12	a)	Explain the various stages of brick manufacture.	5
	b)	Explain the classification of cement based on the need and purpose of utility.	5
13	a)	Classify the types of sand based on its availability.	5
	b)	Explain the significance and application of coarse and fine aggregates for the production of good quality concrete.	5
14	a)	Write a detailed note on 'Energy conservation in Buildings'.	5
	b)	Write about classification, causes and detection of fire in building.	5
15	a)	Explain the various deflects in plastering.	5
	b)	What are the constituents of paint and their functions?	5
16	a)	Explain the various methods adopted to make a building waterproof.	5
	b)	What is Nominal and Design mix of concrete?	5

17 With help of neat sketch explain: 10

(i) Construction Joints
(ii) Isolation Joints
(iii) Ladder Scaffolding
(iv) Formwork for Columns.

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Code No: 442/CBCS

FACULTY OF ENGINEERING

B.E. (ECE) III Semester (CBCS) (Supple) Examination, May/June 2018
Subject: Network Analysis and Synthesis

Time: 3 Hours **Max. Marks: 70**

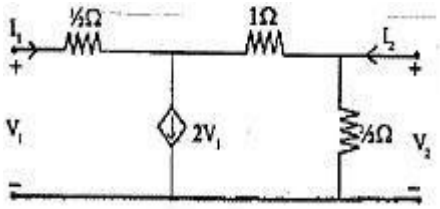
Note: Answer all questions from Part A & any five questions from Part B

PART – A (10x2=20Marks)

1. Why Z-parameters are known as open circuitsparameters and Y-parameters are known as short circuit parameters.
2. For a two port network, Z-parameters are Z_{11}=50Ω, Z_{12}=Z_{21}=25Ω and Z_{22}=30Ω Compute ABCD parameters of network.
3. Mention advantages of K filters?
4. Design a prototype band stop filter section having cut-off frequencies of 2kHz and 5 kHz and design resistance of 600Ω
5. What are the applications of attenuators?
6. Distinguish symmetrical and asymmetrical attenuators and draw the lattice attenuator?
7. Write about Restriction on location of poles and zeros in driving point function?
   The Impulse response of the overall The impulse response of a system is h(t) = s(t-0.6). If two such systems will be cascaded?
8. Write the properties of RC and RL immittances.
9. An admittance function is given by Y(s) =s^2+2s+10/s+10. Test for the positive Realness?

PART – B (5x10=50 Marks)

10. (a) Find Y and Z parameters of the network shown in figure 1



(b) Prove that in a parallel-parallel interconnected two networks[Y_A] and [Y_B] respectively, the overall Y-matrix is given as [Y]=[Y_A]+[Y_B]

12. (a) Explain in detail about m-derived T and ® section filters?

Contd..2…

(b) Design a prototype Band pass filter with a load of 600Ω and to allow frequencies Between $3KH_z$ and $9KH_z$.

13.(a) An ® attenuator has been shown in figure2, find Y parameter and draw the equivalent Y parameter circuit.

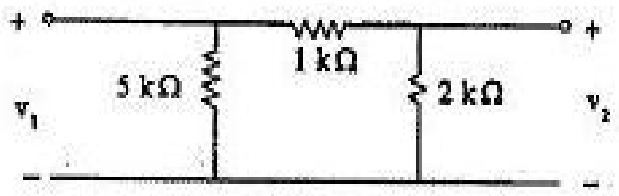


Figure 2

(b) Explain about T-type and lattice attenuator?

14. (a) What do you draw the poles and zeros of the network function. Draw the pole-zero plot of the given network function and obtain V(t) with the help of pole-zero plot.

$$V(s)=(s^2+4s+3)/(s^2+2s)$$

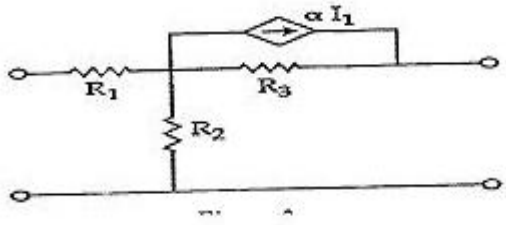
(b) Explain about Transient response of low pass filters?

15. (a) What are Hurwitz polynomials? Write their properties. What are positive real functions? Derive the necessary conditions for a function to be positive real. Test whether the following polynomial is Hurwitz:

$$G(s)=s^3+2s^2+3s+3)$$

(b) Synthesize the Foster I and II forms of realization of the following driving point function.

16. (a) Find the h-parameters of the network shown below in figure 3



(b) Explain about Magnitude and phase normalization in filter design?

17. (a) Write about Restriction on location of poles and zeros in driving point function?

(b) What do we mean by Network synthesis? How is it different from network analysis?

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Code No: 450/CBCS

FACULTY OF ENGINEERING

B.E. III Semester (CBCS)(AE)(Supple.) Examination, May/June 2018

Subject: Fluid Mechanics & Machinery

Time: 3 Hours **Max. Marks: 70**

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

PART – A (10x2=20Marks)

1. What is the difference between dynamic viscosity and kinematic viscosity.
2. What is a nanometer? How they are classified.
3. Distinguish between i) steady flow and unsteady flow, ii) laminar and Turbulent flow.
4. What is a pitot tube? How will you determine velocity at any point with the help of pilot tube.
5. A fluid of viscosity 0.5 poise and specific gravity 1.20 is flowing through a circular pipe of diameter 100mm, calculate. Reynolds number. Tale Q=0.018 m^3/s.
6. What do you understand by total Energy line(T.E.L) and hydraulic gradient line(H.G.L)
7. Differentiate between the Impulse Turbine and Reaction Turbine.
8. A pelton wheel working under head of 80m and speed 300r.p.m., develops power 103 kw s.p. determine specific speed of the turbine.
9. What is priming? Why is it necessary.
10. How will you classify the reciprocating pumps.

PART – B (5x10=50 Marks)

10. (a) State and derive the Newton's law of viscosity.
    (b) Determine the intensity of shear of an oil having viscosity 1.2 poise, is used for lubricating the clearance between a shaft of diameter 10 cm and its journal bearing. The clearance is 1,0mm and shaft rotate at 200 r.p.m.

11. (a) Differentiate between
    i)Stream line and streak line ii) Rotational and irrotational How?

    (b) Derive Euler's equation. How well you obtain Bernoulli's equation from it by istating their assumptions.

12. (a) Obtain expression for a head lost due to friction for a given lemgth of pipe. Darey Weibach equation.

    (b) A viscous flow is taking place in a pipe of 100mm. The maximum velocity is 2m/s. Find the mean velocity and the radius at which this occurs. Also calculate at 30mm from the wall of the pipe.

Contd..2..

13. A pelton wheel is having a mean bucket diameter of 0.8 m and is running at 1000rpm. The net heat on the Pelton wheel is 400 rpm if the side clearance angle is 15 and discharge through the nozzle is 150 lt/s, find i) Power available at the nozzle, ii) Hydraulic efficiency of the turbine.

15. a) Explain working principles of gear pumps for given quantity of liquid.

(b) Explain the velocity triangles of centrifugal pump.

16. (a) A 30cm diameter pipe carries oil of sp.gr.0.8 at a velocity of 2m/s. At another section the diameter is 20cm. Find the velocity at this section and also mass low rate of oil.

(b) The discharge through the pipe is 200lt/s. Find loss of head when the pipe is suddenly enlarged from 150 mm to 300 mm diameter.

17. Write a short notes on
(a) Double acting Reciprocating pump
(b) Gear pump
(c) Efficiencies of centrifugal pump.

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Code No.457/CBCS

FACULTY OF INFORMATICS

B.E. III Semeser (CBCS) (I.T.) (Suppl.) Examination, May / June 2018

Subject : Digital Electronics & Logic Design.

Time : 3 Hours **Max. Marks: 75**

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

PART – A (25 Marks)

1. Minimise $f(x_1, x_2, x_3) = \pi M(0,1,2,3,4,5,6)$ using k maps.
2. What are CAD tools.
3. Draw truth table for a decoder.
4. Distinguish between PLA and PAL.
5. Draw block diagram for Johnson Counter.
6. Write excitation table for SP flip flop.
7. Draw ASM chart for detecting two consecutive one's using mealy model.
8. Define equivalent states.
9. What is good state assignment. Give an example.
10. What are static and dynamic hazards.

PART-'B'(50 Marks)

11. a) Implement the following function. (6M)
$f(x_1,x_2,x_3)=\Sigma(2, 3, 4, 6)$using
(i) only NAND gates
(ii) only NOR gates

b) (i) What are CAD tools. (2M)
(ii) Prove $m_1 = \overline{M}_1$ (2M)

12. a) Implement the following functions using PLA (5M)
$f_1(x_1, x_2, x_3) = x_1x_2\overline{x}_3 + \overline{x}_1\,\overline{x}_2x_3$
$f_2(x_1, x_2, x_3) = x_1x_2 + \overline{x}_1\overline{x}_2x_3 + x_1\,x_2$

b) Write VHDL code for arithmetic comparison circuit. (5M)

13. a) Explain Master slave edge triggered D Flip flop using timing diagram. (5M)
b) Write VHDL code for up-counter. (5M)

14. a) Design synchronous sequential circuit for detecting three consecutive One's using more model, using D-flip flops. (7M)
b) Draw ASM chart for above. (3M)

15. a) Design synchronous sequential circuit for serial parity generator. (7M)
A serial parity generator is the one which produces output Z is equal to 0, if the number of previously applied pulses is even and Z is equal to 1 if the number of previously applied pulses is odd. Pulses are 3 applied to input 'W'.

Contd….2

b) Distinguish between synchronous sequential circuits and aynchnous sequential circuit. (3M)

16. a) Remove hazard from the following function and draw hazard free circuit. (5M)

$$f(x_1, x_2, x_3) = x_1\bar{x}_3 + x_3x_4$$

b) Minimize the following state table using partition procedure. (5M)

Present State	Next state		Out put
	W=0	W=1	Z
A	B	C	1
B	D	F	1
C	F	E	O
D	B	G	1
E	F	C	0
F	E	D	0
G	F	G	O

17. a) Draw the block diagram for asynchronous up counter using T flip flops and Explain using timing diagram. (5M)

b) Write VHDL code for 8:1 multiplexer. (5M)

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Code No.88

FACULTY OF ENGINEERING

B.E. 2/4 (A/E) II Sem. (Backlog) Examination, May / June 2018

Subject : Automotive Petrol Engines.

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Time : 3 Hours **Max. Marks: 75**

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

PART – A (25 Marks)

1. Define mean effective pressure and indicated power.
2. Define stochio metric Air fuel mixture.
3. What are the drawbacks of carburetor ?
4. Draw a neat sketch of port timing diagram and indicate all process.
5. What is the requirement of spark plug ?
6. Define Battery efficiency and Battery rating.
7. Define flame front propagation. What is its importance.
8. What is octane number of petrol ? How it is determined ?
9. What are the primary and secondary objectives of lubrication system ?
10. On what parameters heat transfer depends in Air Cooling System ?

PART-'B'(50 Marks)

11. a) What are time loss factors, heat loss factors and Exhaust blow down factors, explain with suitable sketch. 5
    b) With a neat sketch explain working principle of 2 stroke engine. 5

12. a) With a suitable sketch explain starting, idling, acceleration and normal Circuits of carburetors. 5
    b) Explain the function of mechanical fuel feed pump. 5

13. a) List the differences between centrifugal and Vaccum Spark advancement Mechanisms. 5
    b) With a neat sketch explain the construction and operating principle of Spark Plug. 5

14. a) Define rate of pressure rise and explain how this parameters can be controlled. 5
    b) The output of an engine depends on what parameters ? Explain detail. 5

15. a) With a neat sketch explain the working principle of forced circulation system. 5
    b) With a neat sketch explain the wet sump lubrication system? 5

16. a) What is petrol injection system ? How it differs from carburetor Petrol injection. 5
    b) What are the factors to be considered while designing a combustions chamber for an I.C. Engine. 5

17. Write a short notes on :-
    a) Mist Lubrication System.
    b) Knocking in S.I. Engines.
    c) Comparison of Petrol and Diesel Cycles.

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Code No.94

FACULTY OF INFORMATICS

B.E. 2/4 (I.T.) II Sem. (Backlog) Examination, May / June 2018

Subject : Signals & Systems.

Time : 3 Hours **Max. Marks: 75**

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

PART – A (25 Marks)

1. What are the basic operations on signals? 2M

2. Define unit impulse, & compute $\int_0^2 \cos(\pi t).\delta(t-1)dt$.. 3M

3. Explain the effect of Symmetry on coefficients of Fourier series. 2M

4. Examine whether the signal x(t) = 2cos(4π t) – 3sin(3πt) is periodic or not. If periodic, find the fundamental time period. 3M

5. State the Dirichlet conditions for existence of Fourier Transform of a signal x(t). 3M

6. Find the Laplace Transform of u(t). 2M

7. Sketch the following 3M

   a. u(n)
   b. u(n+2) - u(n-3)

8. Define a band limited signal. 2M

9. Find DTFT of $3^{-n}.u(n)$. 2M

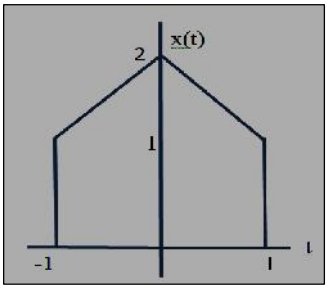
10. Determine the initial & final values of the signal x(n) if 3M

$$X(Z) = \frac{1}{(Z-1)}$$

PART-B (50 Marks)

11 a. For the signal x(t) shown in the figure. Sketch the following 6M

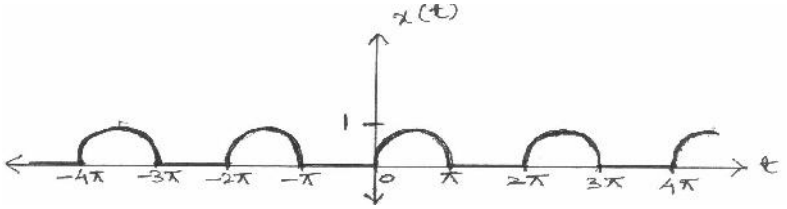
   i. x(t–3)
   ii. x(t/2–1)
   iii. x(1 – t)
   iv. x(–2t)



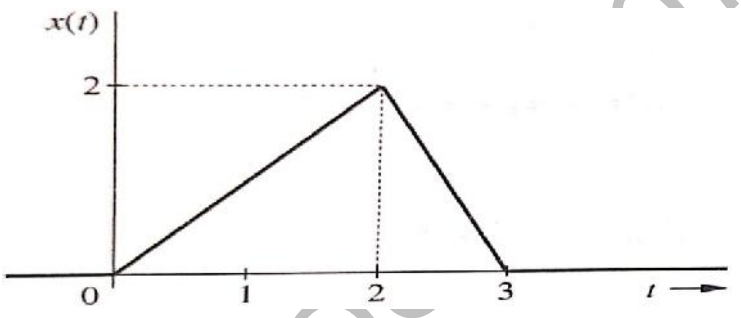
   b. Check whether 2sin(10πt) is an energy signal or power signal. 4M

Contd…..2

12..Find the cosine & trigonometric Fourier series for the signal x(t) shown in figure and sketch magnitude, phase spectra. 10M



13 (a) For the signal x(t) shown in the Figure. Find the Fourier Transform. 6M



(b) Explain any three properties of Laplace Transform with suitable examples. 4M

14 (a) Find the Inverse Laplace Transform of $S) = \frac{6(S+34)}{S(S2+10S+34)}$ 5M

(b) Find the Z - Transform of $1) = n^2.u(n)$ 5M

15 (a) Determine whether the following discrete time signals are energy signals or power signals. 6M

(i) x(n) =n. u(n)
(ii) $x(n) = 3^{-n}. u(n)$

(b) Find the DTFS of $x(n) = \sin\left(\frac{®}{4}n\right)$ 4M

16 (a) Find the Inverse Z- Transform of $x(z) = \frac{1}{(z-1)(4z-1)}$ 6M

(b) If Z[x(n)] = X(Z), Prove that $Z[a^n. x(n)] = X(z/a)$ 4M

17 Write Short notes on
(a) BIBO stability criteria. 3M
(b) Exponential Fourier series. 4M
(c) Nyquist rate of sampling. 3M

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Code No. 80

FACULTY OF ENGINEERING

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

Subject: Switching Theory & 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. Convert $(66.38)_{10}$ in to Binary and Octal (2)
2. State & Prove Demorgans theorem (3)
3. Realize an EX-OR gate using minimum number of NOR gates only (3)
4. Define Essential Prime Implicant (2)
5. List out the applications of Demultiplexer (2)
6. What is the significance of priority encoder (3)
7. Convert D-FF to T-FF (3)
8. Define setup time and hold time of a FF (2)
9. What is lock out condition in counter (3)
10. Define State diagram and state table. (2)

PART – B (50 Marks)

11 a) Simplify the following three variable Boolean expressions using Boolean Algebra and implement using basic logic gates
$F(a,b,c)=\sum m(0,1,2,3,5,7)$ (5)

b) Using K-map obtain the minimal SOP expression for the given switching function $F(A,B,C,D,E)= \sum m(0,1,2,3,16,17,18,19)$. (5)

12 Simplify the given expression using Quine Mc Cluskey Method
$F(v,w,x,y,z)= \sum m(0,7,8,9,12,13,15,16,22,23,30,31)$. (10)

13 Design a BCD to Gray code converter. (10)

14 a) With a neat diagram explain operation of SR FF and derive its truth table, excitation table and characteristic equation. (5)

b) Design and implement 2-bit comparator circuit. (5)

15 Explain Ripple carry adder and carry look ahead adder. (10)

16 Design a 3-bit synchronous up counter using JK FF. (10)

17 Write short notes on any two of the following: (10)
a) Shift Registers
b) Contact Networks
c) Combinational Vs Sequential Circuits

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Code No. 82

FACULTY OF ENGINEERING

B.E.2/4(M/P/CSE) II-Semester (Backlog) Examination, May / June 2018

SUBJECT: Electrical Circuits Machines

Time: 3 Hours **Max. Marks : 75**

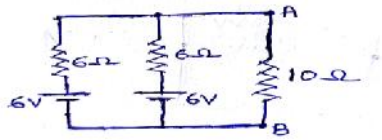
Note: Answer all questions from part-A & any five questions from part-B.

PART-A (25 Marks)

1. Write expression for active and reactive power. 2
2. State and explain Kirchhoff's voltage law. 2
3. Write the relationship of line and phase voltage and current in star and delta connected system. 2
4. Why transformer has much higher efficiency compare to an induction motor. 3
5. Illustrate the various methods of excitation of dc machines. 3
6. What is the function of back EMF in a dc motor? 2
7. Why three phase induction motor is a self starting motor. 3
8. A 12 pole, three phase, induction motor runs at a speed of 485 rpm on a 50Hz supply. Find the slip of the motor. 2
9. Mention the applications of single phase capacitor start motor. 3
10. What is the stepper motor and mention its Applications? 3

PART-B (50 Marks)

11.a) determine thevenin's equivalent circuit to the left of AB for the circuit shown below. 7



b) Derive the expression for energy stored in inductance. 3

12 a) Explain two wattmeter method of 3 phase power measurement. 7

b) a balanced 3 phase load takes 10kw at a power factor of 0.9 lagging. Calculate the readings on each of the two wattmeters connected to read the input power. 3

13. Describe the constructional details of a d.c generator with neat sketches. 10

14 a) Explain how production of rotating magnetic field is produced in 3 phase induction motor. 6

b) an 8-pole, 3-phase, 50Hz induction motor is taking 50Kw and running at 725 r.p.m. stator losses are 1.2Kw and frictional losses 1.8Kw.find (i) rotor copper loss (ii) efficiency of the motor. 4

15 a) explain principle operation of brush less dc motor with neat schematic diagram. 5

b) List out various types of single phase motors and explain principle of operation of a split phase motor with neat schematic diagram. 5

16 a) Describe how open circuit and short circuit tests are performed on a single phase transformer. Discuss the significance of the tests. 6

b) a 2200/200v single phase transformer takes a no load current of 0.6A and absorb 400 watts. Find (i) the magnetizing current and (ii) iron loss current. 4

17. Write short notes on the following: 10

a) 3-point starter b) Split phase motor c) Coupled circuits

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Code No: 70

FACULTY OF ENGINEERING

BE 2/4 (EE/Inst.) II - Semester (Backlog) Examination, MAY /June 2018

Subject : Electronic Engineering - II

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 the characteristics of an ideal differential amplifier 2
2. Explain the feedback concept with a block diagram 3
3. Draw an equivalent circuit of a crystal oscillator 2
4. Explain cross over distortion in complimentary Symmetry Push – Pull power amplifiers 3
5. State the Clamping Theorem 2
6. State the advantages of negative feedback amplifiers 2
7. Draw High pass RC circuit and derive its output expression? 3
8. Draw the circuit of basic transconductance amplifier and mention its ideal input & output impedance values 3
9. Find the operating frequency of a Colpitt's oscillator if C1 = 50 pF, C2=30 pF and L = 50 mH. 3
10. Discuss about Efficiency, Distortion and Power dissipation in Power amplifiers? 2

PART – B (50 Marks)

11. a) Explain the working of differential amplifier in differential mode & in common mode connection 6

    b) Determine the output voltage of a differential amplifier for input voltages V_1=150 μV and V_2 = 140 μV. The amplifier has differential gain of 4000 and the value of CMRR is 100. 4

12. a) Draw the voltage series feedback amplifier block diagram and derive voltage gain A_{vf}, Input impedance R_{if} and output impedance R_{of}. 5

    b) In a voltage series negative feedback amplifier, the internal amplifier has a gain A = -100, input resistance R in = 20kΩ. Output resistance Ro=10^3Ω. When a feedback of β=-0.09 is introduced into the amplifier, determine voltage gain A_{vf}, Input impedance R_{if} and output impedance R_{of} 5

..2

13. Draw the Hartley oscillator circuit and explain its principle of operation and derive its operating frequency 10

14. a) Draw the different configurations of differential amplifier and explain? 4
    b) Draw and explain RC coupled BJT amplifier stages in cascade. 6

15. a) Draw a series fed class A power amplifier and derive its theoretical efficiency 5

    b) In a class A power amplifier $V_{CE\ Max}$ = 20 V and $V_{CE\ Min}$ = 1 V. Find overall efficiency for (i) Series fed load (ii) Transformer coupled load 5

16. a) How a RC low pass circuit acts as an Integrator? 5
    b) Explain the output voltage response of a RC low pass circuit with a square wave input 5

17. Write short notes on the following 10
    a) Frequency Stability in Oscillators
    b) Cascode amplifier
    c) Heat sinks in power amplifiers

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Code No. 435 / CBCS

FACULTY OF ENGINEERING

B.E. 4/4 (EEE/Inst.) II-Semester (Supplementary) Examination, May / June 2018

Subject : Digital Electronics & Logic Design

Time : 3 hours **Max. Marks : 70**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (20 Marks)

1 Obtain dual of the following Expression.
$\overline{\overline{A}\overline{B} + \overline{A} + AB} = 0$
2 What are the advantages of SOP and POS forms of realization?
3 Define Multiplexer.
4 What is propagation delay of the gate?
5 What is carry propagation delay of a full adder?
6 What are arithmetic circuits?
7 Distinguish between combinational and sequential circuits.
8 What are the applications of flip flops?
9 Determine the resolution of 6 bit DAC in terms of percentage.
10 What is tracking converter?

PART – B (50 Marks)

11 a) Reduce the expression Σm(1,5,6,12,13,14)+d(2,4) and implement it in universal logic. 8
b) Expand $\overline{A} + \overline{B}$ to min terms. 2

12 a) Using the tabular method obtain the minimal expression for
F = Σm(6,7,8,9) = d(10,11,12,13,14,15) 8
b) Differentiate decoder and encoder. 2

13 What is carry look-ahead adder? Realize 4-bit carry look ahead adder. 10

14 a) Discuss about JK flip-flop. 5
b) Explain the working of shift registers. 5

15 With the help of neat diagram explain the working of 10
a) Weighted-Resistor type DAC
b) Successive-approximation type ADC

16 a) Reduce the expression f=Σm(0,2,3,4,5,6) Using mapping and implement it in NAND logic. 5
b) Discuss about wired AND operation. 5

17 Write short notes on the following : 10
a) Synchronous counters
b) Full Subtractor
c) Parameters of DAC

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