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10AL51

Fifth Semester B.E. Degree Examination, June/July 2015
Management and Entrepreneurship

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Define Management. Explain different levels of Management. **(05 Marks)**
b. Explain functional area of Management. **(05 Marks)**
c. What is the profession and administration management? **(10 Marks)**

2 a. Give any four important reasons for the performance of planning functions. **(05 Marks)**
b. Difference between strategic planning and tactical planning. **(05 Marks)**
c. What is decision making? Explain different types of decisions. **(10 Marks)**

3 a. Define an organization and explain principles of organisation. **(05 Marks)**
b. Write a brief note on the following : i) MBO ii) MBE. **(05 Marks)**
c. Discuss any two types of organization structures with highlighting their merits and demerits. **(10 Marks)**

4 a. Briefly explain the purpose of communication. **(05 Marks)**
b. Briefly explain the essentials of a sound control system. **(05 Marks)**
c. Explain Maslow's and Heryburg theories of Human motivation. **(10 Marks)**

PART – B

5 a. Who is an Enterpreneur? Explain the characteristics of an Enterpreneur. **(05 Marks)**
b. Explain the role of an Enterpreneur in economic development of any country. **(05 Marks)**
c. Explain the barrier involved in entrepreneurship. **(10 Marks)**

6 a. What is Small Scale Industry? Briefly explain the need and rationale of SSI's. **(05 Marks)**
b. Explain briefly the Government support for SSI during 5 year plan. **(05 Marks)**
c. Explain the objectives and functions of WTO. **(10 Marks)**

7 a. Write functions of District industries centers / single window concept. **(05 Marks)**
b. Write a short note on NSIC. **(05 Marks)**
c. Explain the objectives and functions provided by TECSOK and KSSIDC. **(10 Marks)**

8 a. Briefly outline the contents of a project. **(05 Marks)**
b. What is Financial and Social feasibility study? **(05 Marks)**
c. What is Project Appraisal? Explain the steps followed in project appraisals. **(10 Marks)**

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10EE52

Fifth Semester B.E. Degree Examination, June/July 2015
Signals and Systems

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Distinguish between the following:
   i) Even and odd signals
   ii) Periodic and non-periodic signals
   iii) Energy and power signals. **(06 Marks)**

b. Determine whether the signal is periodic or non-periodic. If periodic find the fundamental period:

   i) $x(n) = \cos\left(\frac{n\pi}{8}\right).\cos\left(\frac{3n\pi}{7}\right)$

   ii) $x(t) = e^{j\frac{2\pi}{3}t}$

   iii) $x(t) = \sin^2 t$ **(08 Marks)**

c. For given x(t) in Fig.Q.1(c). Sketch the following signals:

   i) $x(4-t)$ ii) $x\left(\frac{2}{3}t-1\right)$ iii) $x(-t+1)$. **(06 Marks)**

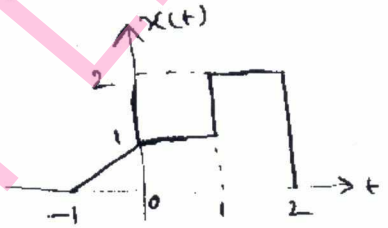

Fig.Q.1(c)

2 a. Find the convolution sum of
$x(n) = \{2\delta(n+1), -\delta(n), \delta(n-2)$
$h(n) = \{u(n) - u(n-3)\}$. **(06 Marks)**

b. Evaluate the step response for the LTI system having following responses:
   i) $h(t) = e^{-2|t|}$ ii) $h(n) = (-a)^n u(n)$. **(08 Marks)**

c. Draw the direct form I and direct form II implementation of the following system:
$2\dot{y}(t) - 3\ddot{y}(t) = 4x(t) - 3\dot{x}(t) + \ddot{x}(t)$. **(06 Marks)**

3 a. Evaluate $y(t) = e^{-3t} u(t) * u(t-2)$. **(06 Marks)**

b. Solve the differential equation $y''(t) + 3y'(t) + 2y(t) = 2x(t)$ with initial conditions $y(0) = 0$, $y'(0) = 1$, for the i/p $x(t) = \cos t$ for $t \geq 0$. **(08 Marks)**

c. Check whether the following impulse response are memory less, causal and stable:
   i) $h(t) = e^{-2t} u(t-2)$ ii) $h(n) = e^{3n} u(-n)$. **(06 Marks)**

4 a. State and prove the convolution property of Fourier series. **(06 Marks)**

b. Evaluate the DTFS representation for the signal

$x(n) = \sin\left(\frac{2\pi}{21}n\right) + \cos\left(\frac{10\pi}{21}n\right) + 1$ sketch the magnitude and phase spectra. **(08 Marks)**

c. Determine the Fourier series for the signal $x(t) = \cos 4t + \sin 8t$. **(06 Marks)**

PART – B

5 a. State and explain Parseval's theorem of discrete time Fourier transform. **(06 Marks)**

b. Find the Fourier transform of the signal

i) $x(t) = te^{-2t}\, u(t)$

ii) $x(t) = \begin{cases} 1; & -T < t < T \\ 0; & \text{otherwise} \end{cases}$ **(08 Marks)**

c. Find the Fourier series coefficients for the periodic signal x(t) with period is given by $x(t) = e^{-t}$; $-1 < t < 1$. **(06 Marks)**

6 a. Compute DTFT of the signal $x(n) = 2^n\, u(-n)$. **(06 Marks)**

b. I. A discrete-time LTI system described by $y(n) - \frac{1}{2}y(n-1) = x(n) + \frac{1}{2}x(n-1)$.

i) Determine the frequency response $H(\Omega)$

ii) Find the impulse response h(n) of the system.

II. Find inverse IDFT of $x(\Omega) = 1 + 2\cos\Omega + 3\cos 2\Omega$. **(08 Marks)**

c. Find the differential equation that represents the frequency response:

$H(JW) = \frac{2 + 3(JW) - 3(JW)^2}{1 + 2(JW)}$. **(06 Marks)**

7 a. Determine the Z-transform, ROC and pole zero locating of X(2) for

$x(n) = \left(\frac{2}{3}\right)^2 u(n) + \left(\frac{-1}{2}\right)^n u(n)$. **(06 Marks)**

b. Determine Z-transformation of the following signal

$x(n) = \frac{1}{2}(n^2 + n)\left(\frac{1}{3}\right)^{n-1} u(n)$. **(08 Marks)**

c. State and prove the differentiation in 2-domain. **(06 Marks)**

8 a. Find the inverse of 2-transform of

$x(z) = \frac{\frac{1}{4}z^{-1}}{\left(1 - \frac{1}{2}z^{-1}\right)\left(1 - \frac{1}{4}z^{-1}\right)} \qquad |z| > \frac{1}{2}$. **(06 Marks)**

b. Solve the following difference equation using unilateral z-transform:

$y(n) = \frac{3}{2}y(n-1) + \frac{1}{2}y(n-2) = x(n)$ for $n \geq 0$ with initial conditions $y(-1) = 4$, $y(-2) = 10$ and input $x(n) = \left(\frac{1}{4}\right)^n u(n)$. **(08 Marks)**

c. If $H(z) = \frac{z+1}{z^2 - 2z + 3}$ represents a causal system. Find the differential equation and frequency response of the system. **(06 Marks)**

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10EE53

Fifth Semester B.E. Degree Examination, June/July 2015
Transmission and Distribution

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART - A

1 a. Explain with the help of a neat line diagram a typical transmission and distribution system scheme indicating the standard voltages. **(05 Marks)**

b. What are the advantages of High voltage transmission? Explain. **(05 Marks)**

c. Write a short note on : i) HVDC transmission ii) Feeders iii) Distribution & Service mains along with a neat sketch. **(10 Marks)**

2 a. Explain Sag. What are the factors affecting Sag? Derive the expression for the sag when the supports are at unequal heights. **(10 Marks)**

b. A transmission line conductor at a river crossing is supported from two towers of heights 50 mts & 80mts above water level. The horizontal distance between the towers is 500 mts. If the tension in the conductor is 3000 kgs. Find the minimum clearance between the conductor and water. Weight of the conductor per meter is 0.844 kg. **(06 Marks)**

c. Write a short note on Vibrations of Conductors. **(04 Marks)**

3 a. Define String Efficiency. Derive an expression for the string efficiency of 4 disc string. **(08 Marks)**

b. Explain the methods of improving the string efficiency. **(06 Marks)**

c. In a 33kV overhead line, there are three units in the string of insulators. If capacitance between each insulator pin and earth is 11% of self capacitance of each insulator, find i) The distribution of voltage over 3 insulators and ii) String efficiency. **(06 Marks)**

4 a. Explain i) Corona ii) Critical disruptive voltage iii) Method of Reducing corona effect. **(06 Marks)**

b. Compare underground cable system with overhead system. Mention atleast eight comparisons. **(04 Marks)**

c. A single core cable is used on a 66KV, 3 phase system. The core diameter is 1cm while the insulation thickness is 1.5cm. if PVC of relative permittivity 4.8 is used as dielectric, calculate the capacitance of cable and its charging current. The supply frequency is 50Hz. Assume cable length to be 1.5km. **(06 Marks)**

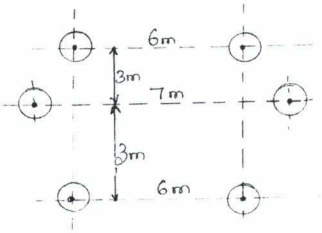
d. Briefly explain i) Murray Loop test ii) Laying of underground cable. **(04 Marks)**

PART - B

5 a. What is Transposition of transmission line? Calculate the inductance of 3 phase line with unsymmetrical spacing but transposed. **(10 Marks)**

b. Find the inductance / Ph / km of Double circuit 3 phase line shown in fig. Q5(b). The line is completely transposed. Use GMD method. The radius of the conductor is 9mm. **(10 Marks)**

Fig.Q5(b)

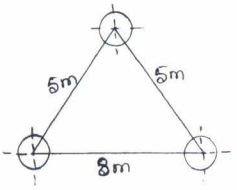


6 a. Explain the terms self QMD and Mutual QMD. **(06 Marks)**

b. Derive an expression for the capacitance of a single phase overhead transmission line. **(06 Marks)**

c. A single circuit three phase 50Hz transmission line consists of three conductors, arranged as shown in fig. Q6(c). If the conductors have diameter equal to 0.8cm, find the inductive reactance of 25km long line / km / phase. Also, calculate the capacitance and capacitive reactance of the transmission line. **(08 Marks)**

Fig.Q6(c)



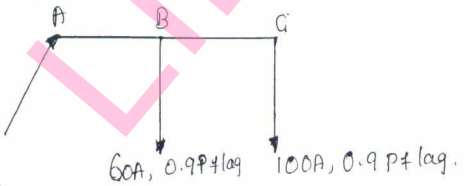
7 a. Write a short note on Ferranti effect. **(05 Marks)**

b. Derive an expression for ABCD constants of a long transmission lines using Rigorous method of analysis. **(10 Marks)**

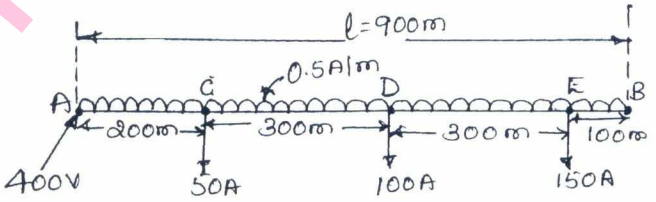
c. A 3 phase line delivers 5000 kW at 22kv and at a p.f of 0.8 lagging to a load. Determine i) Sending end voltage ii) % Regulation iii) Transmission efficiency. The resistance and reactance of each conductor is 4Ω and 6Ω respectively. **(05 Marks)**

8 a. A two wire distributor 1200m long is loaded as shown in fig. Q8(a), B is the mid point. The power factors at the two load points refer to the voltage at C. The impedance of each line is (0.15 + j 0.2)ohm. Calculate the sending end voltage current and power factor. The voltage at point C is 220V. **(10 Marks)**

Fig.Q8(a)



b. A 2 wire d.c. distributor AB, 900m long is fed at A at 400V and loads of 50A, 100A, 150A are tapped off from C, D and E which are at a distance of 200m, 500m and 800m from point 'A' respectively. The distributor is also loaded uniformly at the rate of 0.5A/m. If the resistance of distributor per meter is 0.00001Ω, calculate the voltage at i) point B and ii) at point D. **(10 Marks)**



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10EE54

Fifth Semester B.E. Degree Examination, June/July 2015
D.C. Machines and Synchronous Machines

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. With neat diagrams, explain the O.C.C. and load characteristics of a d.c. shunt generator. **(06 Marks)**

b. Indicate the main applications of d.c. shunt generator, d.c. series generator and dc compound generators. **(06 Marks)**

c. The O.C.C. of a separately excited d.c. generator is as follows:

I_{field}, amps	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6
Emf gen. volts	30	55	75	90	100	110	115	120

If the machine is run as a shunt generator with a field resistance of 100Ω, find the open circuit voltage, field current and critical resistance. What should be the field resistance to have an open circuit emf of 120 volts? **(08 Marks)**

2 a. With a suitable diagram, explain the characteristics of d.c. series motor (performance curves). **(06 Marks)**

b. With a neat diagram, explain the construction and working of a 3-point starter for a d.c. shunt motor. **(06 Marks)**

c. A 4-pole d.c. series motor has 944 wave connected armature conductors. When it is developing 4kW of power, flux per pole is 34.6 mwb. Calculate the current taken by the motor and its speed. The supply voltage is 600 volts and the total motor resistance is 3.8 ohms. **(08 Marks)**

3 a. List the various losses in a d.c. machine. Also indicate the ways in which these losses can be reduced. **(06 Marks)**

b. For the simple d.c. separately excited power shown in Fig.Q.3(b), prove that torque (T) produced is proportional to the product of flux per pole (ϕ) and armature current (I_a). **(06 Marks)**

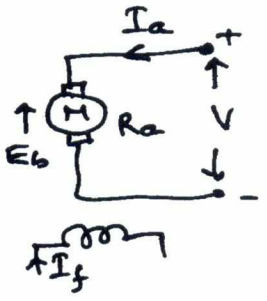

Fig.Q.3(b)

c. A 600V, 6-pole, wave connected dc shunt motor has 1200 armature conductors with 20 mwb flux per pole. The armature and field resistances are 0.5Ω and 250Ω respectively. Calculate its speed and torque while drawing 15A from the supply. **(08 Marks)**

4 a. Explain with a suitable diagram Swinburne's test for a d.c. shunt machine. Give the expressions a d.c. shunt machine. Give the expression for the efficiency i) When the machine runs as a motor; ii) When the machine runs as a generator. What are the limitations of this test? **(10 Marks)**

b. Two identical dc shunt machines gave the following results on a Hopkinson's test.
Line voltage – 230 volts.
Line current (excluding both field currents) – 30A.
Motor armature current – 230A.
Field current (motor) – 4A.
Field current (generator) – 5A.
If the armature resistance of each machine is 0.025Ω, calculate the efficiency of the motor. **(10 Marks)**

PART – B

5 a. Derive the emf equation of a synchronous generator. **(06 Marks)**

b. Explain clearly the armature reaction in synchronous generator. Indicate how it is different from the armature reaction in case of a d.c. generator. **(08 Marks)**

c. Draw the phasor diagram of a non-salient synchronous generator for a leading, lagging and unity power factors. Indicate clearly the various quantities in the diagrams. **(06 Marks)**

6 a. Explain mmf method of finding the voltage regulation of a synchronous generator. **(06 Marks)**

b. Explain how slip test is conducted to find out the X_d and X_q of a salient pole alternator. **(06 Marks)**

c. A 3.5MVA, 3ϕ, 4160 volts, 50Hz, Y-connected synchronous generator has negligible armature resistance and 5.64Ω of synchronous impedance at a particular operating point. A field current of 200A is found necessary to circulate rated current on short circuit. A filed current of 150A is needed to induce rated voltage on open circuit.
For the above machine calculate the regulation by i) emf method and ii) by mmf method at unity power factor. The OC test data is given below.

I_f, amps	50	100	150	200	250	300	350	400	450
EMF volts	1620	3150	4160	4750	5130	5370	5550	5650	5750

(08 Marks)

7 a. What are the necessary conditions for two alternators to run in parallel? Briefly explain. **(04 Marks)**

b. Explain the process of synchronizing the given alternator to infinite bus by a suitable method. **(08 Marks)**

c. A 3MVA, 6600V, 8-pole, 50Hz alternator has a synchronous reactance of 2.9Ω. It is running in parallel with infinite bus. Calculate synchronizing power and synchronizing torque per mechanical degree of phase displacement when running at no load. **(08 Marks)**

8 a. Explain briefly the principle of operation of a 3-phase synchronous motor. **(04 Marks)**

b. What are V-curves and inverted V-curves? Explain their significance briefly. **(08 Marks)**

c. A 2200V, 50Hz, 3ϕ, 8-pole, star connected synchronous motor has $Z_s = (0.3 + j5)\Omega$. While running at noload, its excitation is adjusted such that the induced emf becomes equal to the supply voltage. Calculate the armature current, power factor and power input when the motor is loaded to have load angle of 12° (electrical). **(08 Marks)**

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10EE55

Fifth Semester B.E. Degree Examination, June/July 2015
Modern Control Theory

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Explain the following terms :
i) State variables
ii) State space. **(04 Marks)**

b. Obtain the state model in physical variable form for the circuit shown in Fig. Q1(b). **(08 Marks)**

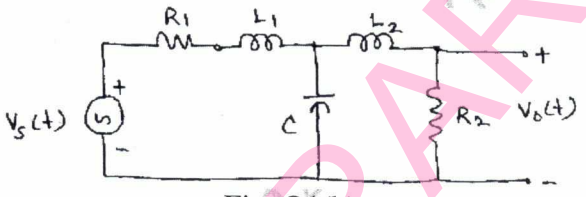

Fig. Q1(b)

c. The transfer function of a linear time invariant system is given by $\frac{Y(b)}{R(b)} = \frac{3s^2+2s+6}{s^3+7s^2+14s+8}$.

Obtain the state space representation in diagonal form. **(08 Marks)**

2 a. Represent the following systems in state space :

i) Phase variable form : $\frac{Y(s)}{u(s)} = \frac{4s^3+3s^2+2s+5}{6s^4+11s^3+5s^2+6x+5}$

ii) Jordan canonical form : $G(s) = \frac{(s+2)}{(s+5)^2(s+7)^2}$ and obtain their state diagram for both forms. **(14 Marks)**

b. List out least one advantages and one disadvantages of selecting :
i) Physical variable
ii) Phase variable
iii) Canonical variables for state – space formulation of control systems. **(06 Marks)**

3 a. Determine the eigen values and eigen vectors of the matrix A given :

$A = \begin{bmatrix} 3 & 4 \\ 2 & 1 \end{bmatrix}$. **(08 Marks)**

b. Determine the transfer function for the system given below :

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \end{bmatrix} = \begin{bmatrix} 1 & -2 \\ 4 & -5 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 2 \\ 1 \end{bmatrix} u \quad y = [1,1] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}.$$ **(08 Marks)**

c. What are the advantages of diagonalisation of a matrix? **(04 Marks)**

4 a. A system is represented by a state model :

$$\dot{x} = \begin{bmatrix} -2 & -1 & -3 \\ 0 & -2 & 1 \\ -7 & -8 & -9 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 2 \\ 1 \\ 2 \end{bmatrix} \qquad y = [4,6,8] \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

i) Check whether the system is
ii)Completely controllable
Complexly observable use Kalman's test. **(08 Marks)**

b. A system is described by the following differential equation. Represent the system in state space : $\frac{d^3x}{dt^3} + 3\frac{d^2x}{dt^2} + 4\frac{dx}{dt} + 4x = u_1(t) + 3u_2(t) + 4u_3(t)$ the outputs are :

$y_1 = 4\frac{dx}{dt} + 3u_1$; $y_2 = \frac{d^2x}{dt^2} + 4u_2 + u_3$. **(06 Marks)**

c. What is state transition matrix? List the properties of state transition matrix. **(06 Marks)**

PART – B

5 a. A single input system is given by the following state equation :

$$\begin{bmatrix} \dot{x}_1 \\ \dot{x}_2 \\ \dot{x}_3 \end{bmatrix} = \begin{bmatrix} -1 & 0 & 0 \\ 1 & -2 & 0 \\ 2 & 1 & -3 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} + \begin{bmatrix} 10 \\ 1 \\ 0 \end{bmatrix} u$$

Design a state feedback controller which will give closed-loop poles at $-1 \pm j2$, -6. Determine the state feedback gain matrix by any one method. **(12 Marks)**

b. What is a state observer? With a block diagram, explain a linear system with full-over state observer. **(08 Marks)**

6 a. What are the characteristics of non –linear systems? **(05 Marks)**

b. Explain the following types of non –linearities :
i) Back lash ii) dead zone iii) saturation. **(09 Marks)**

c. What is a controller? What are the various types of controllers? Explain briefly. **(06 Marks)**

7 a. What is a singular point? Explain the classification of singular points depending on the location of Eigen values. **(08 Marks)**

b. Explain briefly any one method of constructing a phase trajectory. **(08 Marks)**

c. Explain the limit cycle behaviour of non – linear systems. **(04 Marks)**

8 a. Check for sign definiteness of the following quadratic forms :

i) $v(x) = -2x_1^2 - 2x_2^2 - 4x_3^2 - 2x_1x_2 + 4x_2x_3 + 4x_1x_3$

ii) $v(x) = -2x_1^2 - x_2^2 - 4x_3^2 - 2x_1x_2 + 2x_2x_3 + 4x_3x_1$. **(06 Marks)**

b. Explain Krasovskii's method of construction of Liapunov function for non-linear systems. **(06 Marks)**

c. Explain Liapunov's theorems on :
i) Stability
ii) Asymptotic stability
iii) Instability. **(08 Marks)**

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10EE56

Fifth Semester B.E. Degree Examination, June/July 2015
Linear IC's & Applications

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Sketch the circuit of a capacitor coupled non inverting amplifier. Briefly explain the circuit operating and design procedure. **(06 Marks)**

b. Design a capacitor coupled voltage follower using 741 operational amplifier as shown in Fig. Q1 (b). The lower cut off frequency for the circuit is to be 120 Hz and load resistance is $R_L = 8.2\ K\Omega$. **(08 Marks)**

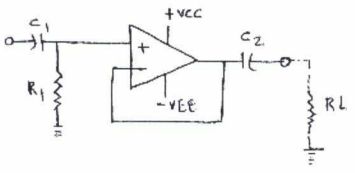

Fig. Q1 (b)

c. Sketch the circuit of a capacitor coupled inverting amplifier using single polarity power supply. Briefly explain its operation. **(06 Marks)**

2 a. Explain how the upper cut off frequency of an op-amp circuit may be determined from the open loop gain / or frequency response graph. **(08 Marks)**

b. Define : i) Loop gain ii) Loop phase shift iii) Unity gain bandwidth **(06 Marks)**

c. List the precautions that should be observed for op-amp circuit stability. **(06 Marks)**

3 a. Show how a halfwave precision rectifier can be combined with a summing circuit to provide a fullwave precision rectifier. Also discuss the design procedure. **(08 Marks)**

b. Using a BIFET op-amp, design a dead zone circuit as shown in Fig.Q3 (b) to pass only the upper 1 V portion of the positive half cycle of a sinewave input with peak value of 4 V. **(06 Marks)**

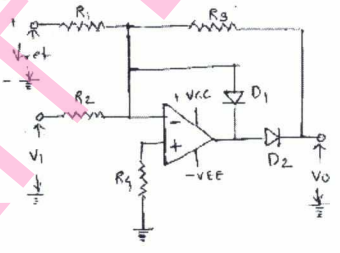

Fig. Q3 (b)

c. Draw and explain in detail an op-amp sample and hold circuit. Also sketch the signal, control and output waveforms. **(06 Marks)**

4 a. Draw and explain an op-amp inverting Schmitt trigger circuit. Sketch the typical input and output waveforms. **(06 Marks)**

b. Design a non inverting Schmitt trigger circuit as shown in Fig. Q4 (b) to have UTP = +2V and LTP = – 4 V, using 741 op-amp and $V_{CC} = \pm 15V$ **(08 Marks)**

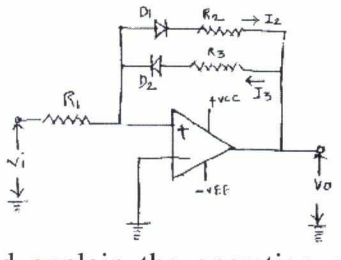

Fig. Q4 (b)

c. Sketch and explain the operation of an Astable Multivibrator circuit. Show the voltage waveforms at various points. **(06 Marks)**

PART – B

5 a. Draw and explain the circuit of a Triangular / Rectangular waveform generator, which has frequency and dutycycle controls. **(08 Marks)**

b. Design a phase shift oscillator with amplitude stabilization as shown in Fig. Q5 (b) to giva a maximum output of $\pm 4V$ with oscillation frequency of 6 kHz. Include distortion minimization adjustment. **(06 Marks)**

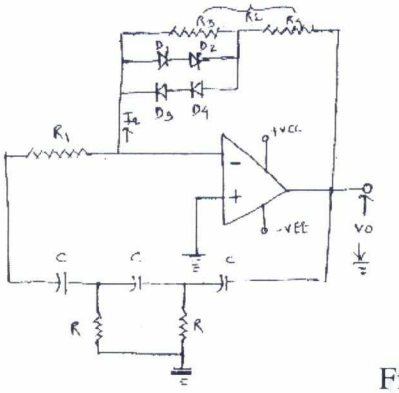

Fig. Q5 (b)

c. Draw the circuit of a Wein bridge oscillator and explain the circuit operation. **(06 Marks)**

6 a. Sketch and explain the typical frequency response of Butterworth and Chebyshev second order active low pass filter. Write the equations involved in the design of the butterworth circuit. **(08 Marks)**

b. Design a first order high pass active filter circuit to have cut off frequency 5 kHz. Using LM108 op-amp and estimate the highest frequency that can be passed (as shown in Fig. Q6 (b)). **(06 Marks)**

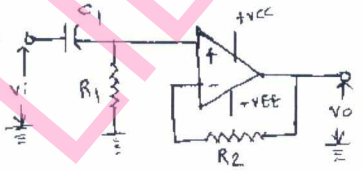

Fig. Q6 (b)

c. Show how band stop filter circuit can be constructed by the use of low pass and highpass filters. Sketch the expected frequency response and briefly explain. **(06 Marks)**

7 a. Write short note on the following:i) Switched capacitor filter. ii) Power amplifier. **(10 Marks)**

b. With the help of block diagram, explain the PLL operation in detail. **(10 Marks)**

8 a. With the help of a circuit diagram, explain the operation and design procedure of a voltage follower regulator. **(08 Marks)**

b. Calculate the resistance of R_1 and R_2 for LM217 voltage regulator as shown in Fig. Q8 (b) to produce an output voltage of 8 V. (V_{ref} = 1.25 V) **(06 Marks)**

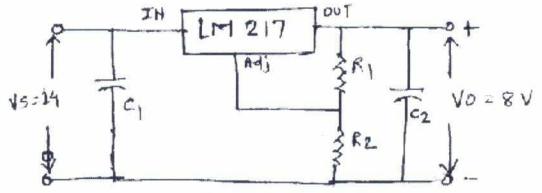

Fig. Q8 (b)

c. Briefly discuss the design procedure of flot foldback current limiting circuit. **(06 Marks)**

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