Q.No.  

Questions  

1 (a) Explain, how the values of $X_d$ and $X_q$ of a synchronous machine are measured experimentally by "Slip test". Discuss the precautions used.  

(b) Derive the expression for power developed by a three phase salient pole alternator neglecting armature resistance. Draw the power/load angle characteristics and explain the terms ‘excitation power’ and reluctance power'.  

OR  

1’ (a) Explain and draw the ‘Alternator Load characteristics’.  

(b) The following data refers to 6 pole, 440 V, 50 Hz, three phase star connected alternator. The effective armature resistance is 0.15 ohm/phase. 

<table>
<thead>
<tr>
<th>Field current (amp.)</th>
<th>2</th>
<th>4</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>10</th>
<th>12</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>O.C. terminal voltage (volt.)</td>
<td>156</td>
<td>288</td>
<td>396</td>
<td>440</td>
<td>474</td>
<td>530</td>
<td>568</td>
<td>592</td>
</tr>
<tr>
<td>Short circuit current (Amp.)</td>
<td>11</td>
<td>22</td>
<td>34</td>
<td>40</td>
<td>46</td>
<td>57</td>
<td>69</td>
<td>80</td>
</tr>
</tbody>
</table>

Calculate the voltage regulation by M.M.F. method for full load output of 40 A at rated voltage and 0.8 p.f. lagging.  

2 (a) What are the conditions which should be satisfied in order that an incoming alternator may be connected in parallel with infinite bus bar. Describe ‘One Dark’ Two Bright Lamp’ method of synchronizing a three phase alternator with bus bar.  

(b) A three phase alternator has rated voltage of 6.6 kV and a synchronous reactance of 5 ohm/phase and supplies 300 A at 0.8 p.f. lagging to infinite bus bar. Calculate the current and its power factor supplied by alternator if the excitation is increased by 25% keeping steam input unchanged.  

OR  

2’ (a) Why a three phase synchronous motor is not self starting? Explain how it can be started as a squirrel cage induction motor using damper windings.  

(b) Explain effect of change of excitation of a synchronous motor at constant load and hence explain the V-curves.
3 (a) Explain the ‘transient and ‘sub-transient’ reactances of a synchronous machine and draw the relevant equivalent circuits.

(b) Explain the construction and principle of operation of ’Stepper motor’.

4 (a) Explain ‘commutation’ in d.c. machines. Also, discuss the function of interpole windings.

(b) Explain the characteristics of a d. c. shunt generator and discuss the causes of failure of ‘voltage build up.

OR

4' (a) Define and explain ‘armature reaction’ in d.c. machine. Derive the expression for ‘demagnetizing’ and ‘cross magnetizing’ ampere turns.

(b) A shunt generator delivers 50kW at 250V and 400 rpm. The armature and field resistance are 0.02 ohms and 50 ohms respectively. Calculate the speed of the same machine running as a shunt motor and taking 50kW input at 250 V. Allow 1 volt per brush for contact drop.

5 (a) Draw and explain the characteristics of a d. c. compound motor? Discuss the merits and demerits of compound motors compared to shunt and series motors.

(b) Why a d.c. motor draws a large current at starting. Explain the function of a d. c. shunt motor starter with ‘No volt’ and ‘over load’ coils with the help of a neat diagram of the starter.
Question

1(a) Draw and explain the output characteristics of a MOSFET.

1(b) An npn power transistor is operated as a switch with switching frequency of 10 kHz and duty ratio of 50%. Determine the switching power loss in the collector circuit.

Given:
- \( V_{CC} = 250V \)
- \( V_{BB} = 10V \)
- \( V_{BE(SAT)} = 3V \)
- \( I_R = 8A \)
- \( V_{CE(SAT)} = 2V \)
- On-state collector current \( I_C = 100A \)
- Off-state collector current \( I_{CO} = 3mA \)
- Delay time = 0.5 \( \mu \)s
- Rise time = 1 \( \mu \)s
- Storage time = 5 \( \mu \)s
- Fall time = 3 \( \mu \)s

2(a) With the help of relevant circuit diagram, explain the working of an SMPS. What are the advantages of SMPS over a linear power supply?

2(b) A buck-boost converter with inductance \( L = 100\mu H \) is operated at 10kHz on the boundary of continuous conduction to supply power to a 500V dc source from a 100V dc source. Calculate the power supplied to the load and peak value of the source current.

OR

2' With the help of relevant circuit diagrams and waveforms explain the working of a Cuk converter. Show that the ratio of output and input voltages is given by:

\[
\frac{V_o}{V_s} = \frac{D}{1-D}
\]

where \( D \) is the duty ratio of the converter. What is the advantage of this converter
over a buck-boost converter?

Three pairs of anti-parallel thyristors are connected in series with the resistances of a three-phase delta connected load. Draw the waveforms of the phase currents \( i_{ab}, i_{bc} \) & \( i_{ca} \) and current drawn from any one of the lines for \( \alpha = 60^\circ \). What will be the power consumed by the load of \( R=10 \, \Omega \) if the source voltage is 400V?

OR

3'(a) A single-phase ac voltage regulator is supplying power to an RL load. Draw and explain the waveform of output voltage and current for \( \alpha = 90^\circ \). Obtain the expression of rms value of output voltage. Assume discontinuous conduction.

3'(b) A single-phase ac voltage regulator supplies power to purely resistive load of 10 \( \Omega \).

The input is a 230 V, 50 Hz, ac power supply. For \( \alpha = 120^\circ \) determine:

(i) The rms value of source current.

(ii) The output power.

(iii) The input power factor.

(iv) The peak value of load current.

4(a) With the help of neat sketch and relevant waveforms, explain the working of a parallel inverter. Why this inverter is not preferred in low frequency applications?

4'(b) A single-phase, 50 Hz, half-bridge inverter feeds a resistive load of 24 \( \Omega \). If the source voltage is 48 V, determine

i) The output power

ii) The rms value of seventh harmonic component of the output voltage

iii) The average value of current through each semiconductor switch.

5 What are the different pulse width modulation techniques used for voltage control of an inverter? With the help of relevant waveforms, explain the single pulse width modulation technique. Obtain the expression for the rms output voltage in terms of source voltage, \( V_s \) and pulse width, \( \delta \). What should be the width of output pulses if the 5\(^{th}\) harmonic component is to be eliminated from the output voltage? Explain why this technique is not preferred in applications requiring wide range of voltage control.

OR

5' Draw the circuit of a three-phase full-bridge inverter. The inverter is operating in 120\(^{\circ}\) conduction mode and is supplying a three-phase star connected purely resistive load. Divide the cycle in different modes and obtain the instantaneous values of line and phase voltages in each mode. Draw the waveforms of the three-phase voltages and any one line voltage of the load. Obtain the rms values of line and phase voltages in terms of the source voltage.
Answer all the questions.
Assume suitable data if missing.
Notations used have their usual meaning.

Q.No. | Questions                                                                 | M.M. |
------|---------------------------------------------------------------------------|------|
1(a)  | Classify the energy sources and give the examples of each. Discuss the waste energy sources. | [06] |
1(b)  | What are the causes of Oil crisis of 1973 and what was OPEC’s point?       | [06] |

OR

1'(a) | Define and explain the terms energy conservation and energy audit. Give brief principles of energy conservation. | [06] |
1'(b) | Discuss the cogeneration and trigeneration. Give the salient features of these. | [06] |
2(a)  | Explain the I-V characteristics of a solar cell and define fill factor. What is the significance of fill factor? Also explain how the variation of insolation and temperature affects the I-V characteristics of a solar cell. | [06] |
2(b)  | A photovoltaic system is installed for supplying water for minor irrigation needs at a remote place in a developing country. The water is pumped through a borewell from a depth of 25 m. The PV array consists of 24 modules. Each module has 36 multicrystalline silicon solar cells arranged in $9 \times 4$ matrix. The cell size is $125 \text{ mm} \times 125 \text{ mm}$ and the cell efficiency is 12$. The combined motor and pump efficiency is 50$. Calculate the water discharge rate (litres/second) at noon when global radiation incident normally to the panel is $800 \text{ Wm}^{-2}$. Assume density of fresh water as $996 \text{ Kg m}^{-3}$. | [06] |

OR

2'(a) | How are electron-hole pairs generated when solar radiation is directed on a semiconductor material? Draw and explain an equivalent circuit of a practical solar PV cell. | [06] |
2'(b) | Draw a schematic diagram of solar pond based electric-power plant with cooling | [06] |
tower and explain its working.

3(a) Classify the biomass conversion technologies and explain the Anaerobic fermentation process.

3(b) Compare the relative performance of a floating drum and fixed dome type biogas plant.

3(c) Calculate the volume of a cow dung based biogas plant required for cooking needs a family of three adults and two children and house light need with two 100 CP lamps for two hours daily. Also calculate the required number of cows to feed the plant.

Note:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Raw material</th>
<th>Production rate</th>
<th>Gas Yield (m³ per kg of dry matter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cow Dung</td>
<td>10-15 kg/day/head</td>
<td>0.34</td>
</tr>
<tr>
<td>2</td>
<td>The density of slurry is about 1090 Kg/m³.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4(a) Using Betz model of a wind turbine, derive the expression for power extracted from wind. What is the maximum theoretical power that can be extracted and under what conditions?

4(b) Evaluate the suitability of various types of generators for wind-power generation.

OR

4'(a) Sketch the diagram of a VAWT and explain the functions of its main components.

4'(b) With the help of block diagram, explain the functions of various blocks of a WECS.

5(a) Give the classification of fuel cells. Describe Vapour-Dominated (Dry-steam) Hydro-Thermal system.

5(b) Derive the expressions for maximum power generation per unit volume of a generator. Calculate the open-circuit voltage and maximum power output for an MHD generator having following data:
- Plate area = 0.25 m²
- Distance between the electrodes = 0.50 m
- Flux density = 2 wb/m²
- Average gas velocity = 1000 m/s
- Gaseous conductivity = 10 mho/m
1(a) (i) What do you understand by term “zone of protection”, illustrate various protective zone of a typical power system. [3x2] (ii) Explain what do you understand by primary and back-up protection?

1(b) What is static relay? Explain with suitable diagram, any two of the following elements of static relay:
   (a) Square wave generator
   (b) Level detector
   (c) Sampling circuit
   [06]

2(a) What is magnetizing inrush current? Describe the protective scheme which protects the transformer against fault but does not operate in case of magnetizing inrush current. [06]

2(b) An 11 kV, 100 MVA alternator is grounded through a resistance of 5 Ω. The C.T.s have a ratio of 1000/5. The relay is set to operate when there is an out of balance current of 1A. What percentage of the generator winding will be protected by the percentage differential scheme of protection?

OR

2'(a) Why restricted earth fault protection is provided to alternators or transformers though it does not provide protection against earth fault to the complete winding. With suitable diagram derive the relation for the percentage of winding that remains unprotected by restricted earth fault protection. [06]

2'(b) An 11 kV, 100 MVA alternator is provided with differential protection. The percentage of the winding to be protected against phase to ground fault is 85%. The relay is set to operate when there is 20% out of balance current. Determine the value of the resistance to be placed in the neutral to ground connection. [06]
3(a) Define the terms: restriking voltage and recovery voltage. Obtain an expression for restriking voltage in terms of circuit parameter.

3(b) Name two methods used for arc interruption. Discuss High resistance interruption method with all its classifications in detail.

OR

3′(a) Explain resistance switching. Derive the expression for critical resistance in terms of system inductance and capacitance which gives no transient oscillations.

3′(b) In a 220 kV system, the resistance and capacitance up to the location of circuit breaker is 8 Ω and 0.025 μF respectively. A resistance of 600 Ω is connected across the contacts of the circuit breaker. Determine the following:
   (a) Natural frequency of oscillations.
   (b) Damped frequency of oscillations.
   (c) Critical value of resistance which will give no transient oscillations.
   (d) The value of resistance which will give damped frequency of oscillation, one-fourth the natural frequency of oscillations.

4(a) What are the materials used for contact of vacuum circuit breaker? Justify the use of composite materials for them.

4(b) What is the arc extinguishing medium used in air break circuit breaker? With a neat sketch describe the construction and working principle of an air break circuit breaker.

5(a) With neat sketch describe phenomenon of lightning. Explain the terms dart leader, cold lightning stroke and hot lightning stroke.

5(b) A 3-phase transmission line has conductors 1.5 cms in diameter spaced 1 m apart in equilateral formation. The resistance and reactance are negligible. Calculate:
   (i) The natural impedance of line.
   (ii) The line current if the voltage wave of 11 kV travels along the line.
   (iii) The rate of energy absorption, the rate of reflection if the line is terminated through a star connected load of 1000 Ω per phase.

OR

5′(a) A surge of 15 kV magnitude travels along a cable towards its junction with an overhead line. The inductance and capacitance of the cable and overhead line are respectively 0.3 mH, 0.4 μF and 1.5 mH, 0.012 μF per km. Find the voltage rise at the junction due to surge.

5′(b) What are the characteristics those an ideal surge diverter should posses? With a neat sketch describe valve type surge diverter.
Q1(a)  
   i. State the laws of illumination.
   ii. Define plane angle and solid angle; also establish a relation between them.

Q1(a') With the help of a neat diagram explain the working of fluorescent tube. What is the need of choke and starter in the circuit?

Q2(a) What is dielectric heating? Explain the factors on which the dielectric loss in a dielectric material depends.

Q2(a') What is the fundamental difference between electric arc welding and resistance welding? Explain with neat sketch how the spot welding is carried out by spot welding machine.

Q3(a) What do you understand by term "Electroplating". Describe the processes of copper plating on a piece of job. Also mention the composition of both types of baths.
OR

(a) Explain clearly what do you understand by terms “Sulfation” and “Stratification” used with reference to a battery. Discuss a suitable method for charging of a battery. What are the other methods for it?

(b) A copper refining plant using 450 electrolytic cells carries a current of 5500 A, voltage per cell being 0.25 V. If the plant were to work 45 hours/week, calculate the energy consumption per tonne. Assume E.C.F. of copper as 32.8*10^-8 Kg/C.

Q4(a) Draw and explain speed-time curve of a train running on main line. Define “Crest speed” “Average speed” and “Schedule speed”. Also discuss factors which affect the schedule speed of a train.

OR

(a) Define and derive an expression for specific energy output on level track using a simplified speed-time curve.

(b) A schedule speed of 45 Km/hr is required between two stops 1.5 Km apart. Find the maximum speed over the run if the stop is of 20 sec duration. The values of acceleration and retardation are 2.4 Km/hr/sec and 3.2 Km/hr/sec respectively. Assume a simplified trapezoidal speed time-curve.

Q5(a) What are the different systems of railway electrification? Which one is being commonly adopted in our country and why? Under what conditions is diesel-electric traction preferred to track electrification?

OR

(a) Explain with relevant diagram the necessity of using positive and negative boosters in d. c. Electric traction.

(b) Write short notes on:
   i. Pantograph collector
   ii. Third rail system of current collection.
Maximum Marks: 60
Credits: 04
Duration: Three Hours

Answer all the questions.
Assume suitable data if missing.
Notations used have their usual meaning.

Q.No. | Questions | M.M.
--- | --- | ---
1(a) | Find the transfer function, \( G(s) = \frac{\theta_2(s)}{T(s)} \), for the rotational mechanical system as shown in fig. 1. | [04]

![Fig. 1.](image)

1(b) | Convert the following differential equation into phase variable form | [04]
\[
\ddot{y} + 5\dot{y} + 6y + y = 4u(t)
\]

1(c) | Find the output of the system if the input is unit step and the impulse response is \( 3e^{-5t} \). | [04]

2(a) | The block diagram of a feedback control system is shown in Fig. 2. The output \( Y(s) = M(s)R(s) + M_w(s)W(s) \). Find the transfer function \( M(s) \) and \( M_w(s) \) using block diagram reduction rules. | [06]

![Fig. 2.](image)
2(b) Derive an expression for the transfer function of an armature controlled DC-servomotor. State clearly the assumptions made.

OR

2' (a) Draw a state diagram for the following state equations:

\[
\begin{bmatrix}
x_1(t) \\
x_2(t)
\end{bmatrix} = \begin{bmatrix}
-2 & 3 \\
-5 & -5
\end{bmatrix} \begin{bmatrix}
x_1(t) \\
x_2(t)
\end{bmatrix} + \begin{bmatrix}
0 \\
1
\end{bmatrix} r(t)
\]

And hence find the transfer functions \( X_1(s)/R(s) \) and \( X_2(s)/R(s) \).

2' (b) Construct a signal flow graph from the following set of algebraic equations and find the transfer function \( y_2/y_1 \) by using Mason Gain Formula

\[
y_2 = G_1 y_1 - H_1 y_3 \\
y_3 = G_2 y_2 - H_2 y_4 \\
y_4 = G_3 y_3 + G_5 y_2 - H_3 y_4 \\
y_5 = G_4 y_4 + G_6 y_2 - H_4 y_5 \\
y_6 = y_5
\]

3(a) The following facts are known about the linear system

\[
x(t) = A x(t)
\]

If \( x(0) = \begin{bmatrix} 1 \\ -2 \end{bmatrix} \); then \( x(t) = \begin{bmatrix} e^{-2t} \\ -2e^{-2t} \end{bmatrix} \)

If \( x(0) = \begin{bmatrix} 1 \\ -1 \end{bmatrix} \); then \( x(t) = \begin{bmatrix} e^{-t} \\ -e^{-t} \end{bmatrix} \)

Find \( e^{At} \) and hence \( A \).

3(b) Use Routh Stability Criterion to determine the stability of the characteristic equation \( S^4 + 2S^3 + 8S^2 + 4S + 3 = 0 \).

OR

3' (a) Assume that the control of one of the axes of a Robot can be represented by block diagram as shown in Fig. 3.

\[\text{Fig. 3.}\]

i. Determine the amplifier gain \( K_A \) so that the Robot reaches steady state in this axis in the minimum time with no overshoot.
ii. Determine the steady state error for an input command signal of
\[ \theta_R = (5 + t)u(t), \]
with the value of \( K_A \) obtained above.

3(b) Find the breakaway point and \( j\omega \) crossover of the characteristic equation
\[ s(s + 3)(s^2 + 2s + 2) + K = 0. \]

4(a) Find the transfer function and gain crossover frequency from the asymptotic
magnitude plot (Fig. 4), systems of which are known to have minimum phase
characteristics. Note that \( \pm 6 \, dB/\text{octave} = \pm 20 \, dB/\text{decade}. \)

![Graph showing dB vs. \( \omega \) with labels for 6 dB/octave, 0 dB/octave, -30 dB/decade, and -40 dB/decade]

Fig 4.

4(b) Give examples of Nyquist Plot with

i. Poor Phase Margin, Infinite Gain Margin

ii. Poor Gain Margin, Infinite Phase Margin

OR

4' By use of Nyquist Criterion determine whether the closed loop systems having the
following open loop transfer function is stable or not. If not, how many close loop
poles lie in the right half \( s \)-plane?

\[ G(s)H(s) = \frac{s + 2}{s^2} \]

Also find phase margin and gain margin.

5(a) Sketch op-Amp circuits capable of realizing

i. PD control action

ii. PI control action

iii. PID control action

Determine transfer function model of each circuit.

5(b) Discuss the cascade lead compensation and show that
\[ \alpha = \frac{1 - \sin \phi_m}{1 + \sin \phi_m}. \]
2013-2014
B.TECH WINTER (VI SEMESTER) EXAMINATION
(ELECTRICAL ENGINEERING)
MICROPROCESSOR SYSTEMS AND APPLICATIONS
(EE-386N)
Credit: 04

Maximum Marks: 60 Duration: Three hours

Answer all questions.
Assume suitable data if missing.
Notations used have their usual meaning.

Q.No. QUESTION M.M.
1. (a) Explain the functions of following pins in 8085: (4)
   (i) HOLD (ii) HLDA (iii) TRAP (iv) INTR

   (b) Indicate the size and functions of each of the registers given below (4)
       (i) Accumulator (ii) HL pair (iii) Stack pointer (iv) PC

   (c) Explain the following instructions of 8085 (4)
       (i) XRA (ii) RIM (iii) RET (iv) RAR

OR

1' (a) Identify the number of bytes and addressing modes of the following (4)
     instructions.
        (i) LDA 2050
        (ii) LDAX B
        (iii) MOV A,B
        (iv) LXH 2050

   (b) What instructions can be used to clear accumulator? List all (4)

   (c) What are tri-state devices and why are they essential in a bus oriented system? (4)

2 (a) How many interrupt are available in 8085 microprocessor? List them and differentiate the vectored and non vectored interrupts. How many of them are maskable? (6)

   (b) Explain the functions of the following instructions of 8085 MPU (6)
       a) RIM b) SIM

OR

2' (a) Draw the timing diagram for OP- Code fetch machine cycle for ADD A,B instructions (6)
(b) Write instructions in 8085 assembly language to perform the following jobs

(i) Assume memory location 2070H contains 02H and 2071H contains 0BH. Write an instruction to transfer memory contents to register HL.

(ii) Assume register B contains 0AH and register C contains 19H. Write an instruction to transfer the contents of register C to register B.

(iii) Assume H and L register contains 02H and A0H respectively. Write an instruction to store the contents at memory location 3050H and 3051H

3 (a) List the operating modes of 8255A programmable peripheral interface. (6)

(b) Describe the main features of 8257DMA controller (6)

4 (a) Describe the significance of segment registers in 8086. Also explain how address is generated in 8086. (6)

(b) Identify the addressing modes in the following instructions
   ADD AX, 0400H
   ADD AX, [0400H]
   ADD AX, [SI]

(c) Suppose that DS=1000H, SS=2000H, BP=1000H, DI=0100H, Determine the memory address accessed by the following instructions
   (i) MOV AL, [1234H]
   (ii) MOV AL, [DI]
   (iii) PUSH AX

5 (a) Describe the various types of interrupts available in 8086 (6)

(b) Name the different control flags of 8086. Explain their functions. (6)
2013-14
B.TECH. (WINTER END SEMESTER) EXAMINATION
ECONOMICS AND MANAGEMENT
ME 340/240

Maximum Marks: 60
Credits: 04
Duration: Three Hour

Answer all the questions.
Notations used have their usual meaning.
Assume suitable data if missing

Q No.  Question  M.M.

1(a) A new piece of materials handling equipment costs Rs. 20,000 and is expected to save Rs. 7500 the first year of operation. Maintenance and operating cost increases are expected to reduce the net saving by Rs. 500 per year for each additional year of operation until the equipment is worn out at the end of 8 years. Determine the net present worth of the equipment at an interest rate of 12 percent.  [5]

1(b) A 50-kilowatt gas turbine has an investment cost of $40,000. It costs another $14,000 for shipping, insurance, site preparation, fuel lines and fuel storage tanks. The operation and maintenance expense for this turbine is $450 per year. Additionally, the hourly fuel expense for running the turbine is $7.50 per hour, and the turbine is expected to operate 3,000 hours each year. The cost of dismantling and disposing of the turbine at the end of 8 year life is $8000. If the interest rate is 15% per year, what is the annual equivalent life cycle cost of the gas turbine?  [5]

1(c) State the law of supply and demand?  [2]

OR

1'(a) Assets A1 and A2 have the capability of satisfactorily performing a required function. Asset A2 has an initial cost of $3200 and an expected salvage value of $400 at the end of its 5 year service life. Asset A1 costs $900 less initially, with an economic life of 10 years, has no salvage value, and its annual operating cost exceed those of A2 by $250. When the required rate of return is 15%, state which alternative is preferred when comparison is by present worth method  [7]

1'(b) Differentiate between GDP and GNP.  [2]

1'(c) Explain Elasticity of demand, by giving suitable examples.  [3]

2(a) At the end of one-half of its expected economic life, a 4-year old machine has a book value of $5800 from its original cost of $9200. Estimated operating costs for next year will amount to $6000. An equipment dealer will allow $3600 if the machine is traded in now and $2800 if it is traded in 1 year later. The dealer proposes the purchase of a new machine to perform the same function; it will cost...  [6]
$14,000 installed. This machine will have an estimated operating cost of $4,500 per year and a salvage value of $3,000 at the end of 4 years. Is it profitable to replace the existing machine now if the minimum return on investments is 15% before taxes?

2(b) A materials testing machine was purchased for $20,000 and was to be used for 8 years with an expected salvage value of $2,000. Calculate depreciation charge for year 4 and book value at end of year 3 by using double declining balance method.

2(c) What are the causes and consequences of inflation?

3(a) Is there any difference between managerial roles and managerial skills? Giving suitable examples, explain various managerial skills.

OR

3(a') What are the four basic activities of management? Explain using suitable examples.

3(b) What are the three areas of ethics which may be of special concern for managers?

OR

3(b') What are the arguments for and against social responsibility?

3(c) Discuss the role of information in a manager's job. What are the various characteristics of useful information?

OR

3(c') Explain the differences between three common methods of group decision making: Interacting groups, Delphi groups and Nominal groups.

4(a) What do you understand by organizational planning? Differentiate among strategic, tactical and operational plans.

4(b) What is the difference between chain of command and span of control?

4(c) How is the leadership different from management? Does an organization need both managers and leaders?

OR

4'(a) What are the various levels of control system in an organization? Explain the four fundamental steps for any control process.

4'(b) What is the importance of employee motivation? Explain the difference between human relation approach and human resource approach.
What is the concept of job specialization? Compare the benefits and limitations of job specialization.

5(a) Explain exponential smoothing method of demand forecasting.
A company has experienced irregular and usually increasing demand for disposable kits. The demand for September was 300 units and for October were 350 units. Using 200 units as September forecast and a smoothing coefficient of 0.7 calculate the forecast for the months of October and November.

5(b) A television manufacturer requires 24,000 two-centimetre-long pieces of wire every month for assembly. Ordering costs are estimated at $42, and cost of carrying is 25 percent of unit price, which is $0.08. Assuming delivery is instantaneous; find the reorder point and economic order quantity.

5(c) Explain the difference between macroeconomics and microeconomics in the context of financial management.