

III-I EEE

MODEL QUESTION

PAPERS

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

UG Model question paper-I

Electrical Machines III

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

5*14=70M

1. a) Write and explain the EMF equation of a synchronous generator. [7M]
- b) Derive the equations for pitch and distribution factors [7M]

(OR)

2. a) Explain the constructional details of alternator. [7M]
- b) define integral slot and fractional slot windings. [7M]

SECTION-II

3. Explain the determination of voltage regulation of alternator by synchronous impedance method. [14M]

(OR)

4. O.C and S.C tests were performed on a 3-phase, 0.5MVA, 3.6kV, star- connected alternator. The results are given below. [14M]
O.C: $I_f = 10A$, $V_{oc} = 3000V$
S.C: $I_f = 10A$, $I_{sc} = 150A$
Raph = 1 ohm. Calculate the percentage regulation for full load condition at 0.8pf leading.

SECTION-III

5. A synchronous generator is connected to an infinite bus. Discuss the effect of changing the input at constant excitation with the help of phasor diagrams.. [14M]

(OR)

6. Two alternators running in parallel supply lighting load of 2500 KW and a motor load of 5000 KW at 0.707 P.F. one machine is loaded to 4000 KW at a P.F. of 0.8 lagging. What is the KW output and P.F. of the other machine [14M]

SECTION-IV

7. A three-phase, star-connected synchronous motor has $Z=0.5 + j 5$ and taking an input [14M]
power of 1500 kW when back emf is 4000V. Calculate (i) Line current (ii) power factor
for the above conditions

(OR)

8. Derive an expression for the power developed per phase of a synchronous motor.
[14M]

SECTION-V

9. Give the main difference between AC and DC motors. How are the AC single [14M]
phase motors made self-starting?

(OR)

10. What is the role of damper winding in (i) synchronous generator and (ii) synchronous [14M]
motor

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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UG Model question paper-II

Electrical Machines III

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

5*14=70M

1. Calculate the speed and open-circuit line and phase voltages of a 4-pole, 3-phase, 50hz star-connected alternator with 36 slots and 30 conductors per slot. The flux per pole is 0.05wb. [14M]

(OR)

2. What is an armature reaction? Explain its effect on the terminal voltage of an alternator at unity [14M]

SECTION-II

3. Discuss in brief about the two-reaction analysis of a salient-pole synchronous Machine [14M]

(OR)

4. With relevant waveforms and connection diagram, describe the slip test of synchronous machine [14M]

SECTION-III

5. Describe the factors which affect the sharing of load between two alternators operating in parallel. [14M]

(OR)

6. Two identical 3-phase alternators work in parallel and supply a total load of 1600kw at 11000v at a power factor of 0.92. each machine supplies half the total power. The synchronous reactance of each is 50 ohm per phase and resistance is 2.5 ohm per phase. The field excitation of the first machine is adjusted so that armature current is 50A lagging. Determine the armature current of the second alternator, the power factor at which each is working and generated voltage of the first alternator? [14M]

SECTION-IV

7. A 500v, 6-pole, 3-phase, 50hz, star-connected synchronous motor has a resistance and synchronous reactance of 0.3Ω and 3Ω per phase respectively. The open-circuit voltage is 600v. If the friction and core losses total 1kw, calculate the line current and power factor when the motor output is 100hp. [14M]

(OR)

7. Two single-phase generators operate in parallel on a load impedance of Z ohms. [14M]
Their emfs are E_1 and E_2 and their synchronous impedances Z_1 and Z_2 . Deduce the terminal voltage in terms of these and admittances Y, Y_1 and Y_2 .

SECTION-V

9. A 2.5kW, 120V, 60Hz capacitor-start motor has the following impedances [14M]
for the main and auxiliary windings (at starting): $Z_{\text{main}} = 4.5 + j3.7$, $Z_{\text{aux}} = 4.5 + j3.7$.
Find the value of starting capacitance that will place the main and auxiliary windings currents in quadrature at starting.

(OR)

10. Explain the role of compensating winding in the operation of AC series motor. [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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UG Model question paper-III

Electrical Machines III

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

5*14=70M

1. Derive EMF equation and describe how the induced 'emf' in armature winding is affected by (a) form factor (b) pitch factor and (c) distribution factor. [14M]

(OR)

2. Discuss about the determination of synchronous reactance of an alternator. [14M]

SECTION-II

3. Discuss in brief, how voltage regulation can be computed by ASA method. [14M]

(OR)

4. Discuss in brief, how voltage regulation can be computed by MMF method. [14M]

SECTION-III

5. Describe with relevant diagram, dark lamp method of synchronizing two 3 phase alternators. [14M]

(OR)

6. Derive expressions for synchronizing power and synchronizing torque when two AC generators are connected in parallel? [14M]

SECTION-IV

7. What do you mean by constant power circle for synchronous motor? How it is derived?. [14M]

(OR)

8. Name different methods of starting a synchronous motor, explain any one in detailed. [14M]

SECTION-V

9. What is the principle of operation of universal motor? [14M]

(OR)

10. What type of operating characteristics does an ac series motor give? [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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UG Model question paper-IV

Electrical Machines III

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

5*14=70M

1. A 3-phase, 8-pole, 750rpm star-connected alternator has 72 slots on the armature. Each slot has 12 conductors and winding is short-pitched by 2 slots. Find the induced emf between lines, given the flux per pole is 0.06wb [14M]

(OR)

2. With phasor diagram, discuss about the leakage reactance of synchronous Generator. [14M]

SECTION-II

3. With relevant waveforms and connection diagram, describe the slip test of synchronous machine [14M]

(OR)

4. A 3-phase, star-connected alternator is rated at 1600kva, 13500v. The armature resistance and synchronous reactance are 1.5Ω and 30Ω respectively per phase. Calculate the percentage regulation for a load of 1280kw at 0.8 leading power factor. [14M]

SECTION-III

5. Two identical 2MVA alternators operate in parallel. The governor of first machine is such that the frequency droops uniformly from 50hz on no-load to 47.5 hz on full-load. the corresponding uniform speed droop of the second machine is 50hz to 48hz. How will they share a load of 3MW?. [14M]

(OR)

6. Describe with relevant diagram, bright lamp method of synchronizing two 3-phase alternators [14M]

SECTION-IV

7. Derive the expression for power developed in a synchronous motor, various conditions for Maximum power developed [14M]

(OR)

8. Name different methods of starting a synchronous motor, explain any one in detailed. [14M]

SECTION-V

9. With a neat sketch, discuss about the operation of shaded pole motor with squirrel cage rotor? [14M]

(OR)

10. Write a short notes on double revolving field theory [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper – I

ELECTRICAL POWER GENERATION, TRANSMISSION & DISTRIBUTION - II
III YEAR I SEMESTER
EEE- MODEL PAPER - I

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

1. a) Define string efficiency? Explain the methods of improving string efficiency. (7 M)
- b) Derive the expression for voltage distribution of a suspension insulator. (7 M)

(OR)

2. A transmission line conductor at a river crossing is support from two towers at height of 50 and 80 meters above the water level. the horizontal distance between the towers is 300metres , if the tension in the conductor is 2000kg, find the clearance between the conductor and water at a point midway between the towers .weight of the copper per meter =.844kg, assume that the conductor takes the shape of parabolic curve. (14M)

SECTION-II

3. Describe with the neat sketch, the construction of a 3 core belted type cable. Also explain the grading of cables (14M)

(OR)

4. a) A single core 66kv cable working on 3-phase system has a conductor diameter of 2cm and sheath of inside diameter 5.3cm. If two inner sheaths are introduced in such a way that the stress varies between the same maximum and minimum in the three layers find: a) position of inner sheaths b) voltage on the linear sheaths c) maximum and minimum stress (10M)
- b) Derive the expression for insulator resistance, capacitance and electric stress in a single Core cable. Where is the stress maximum and minimum? (04M)

SECTION-III

5. (a) Compare the Overhead Vs Underground distribution systems (4M)

(b) Derive an expression for the radial D.C distributor fed one end and at the both the ends.

(10M)

(OR)

6. (a) Discuss in detail about the Ring main distributor with suitable sketches. (14M)

SECTION-IV

7. Derive the expression for an A.C distribution system under power factor referred to receiving end voltage. (14M)

(OR)

8. Discuss in detail about the energy losses in distribution system (14M)

SECTION-V

9. With a neat sketch explain double bus with double breaker and double bus with single breaker. State their advantages and disadvantages (14M)

(OR)

10. a) Explain about the various types of substations (14M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
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UG Model question paper – II

ELECTRICAL POWER GENERATION, TRANSMISSION & DISTRIBUTION - 1
II YEAR II SEMESER
EEE- MODEL PAPER - II

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

1. a) What is sag template? Explain the construction of pin type insulator. (7M)
- b) Derive the expression for string efficiency of a string of 3- insulators. (7M)

(OR)

2. a) Explain the various methods used for improving string efficiency. (10M)
- b) An overhead line has a span of 250 m. Find the weight of conductor if the ultimate strength is 5758kg, sag is 1.5 m and factor of safety is 2. (4M)

SECTION-II

3. Discuss the capacitance grading of underground cables. (14M)

(OR)

4. a) Prove that the ratio of voltage gradient with and without intersheath will be $2/(1+\alpha)$, when there is only one layer of intersheath. (Ratio of intersheath radius to core radius = outer sheath radius to intersheath radius = α) (7M)
- b) A single core cable has a conductor of diameter 3 cm and inside diameter of lead sheath is 6 cm. If the cable is designed for operating voltage of 33 kV (line to neutral), find
 - (1) Maximum and minimum values of electric stress
 - (2) Optimal value of conductor radius for the smallest value of the maximum stress. (7M)

SECTION-III

5. Discuss and compare Radial and Ring main distribution system. What are the interconnectors in distribution system? (14M)

(OR)

6. a) Derive the suitable expression, draw current loading diagram and voltage drop diagram for

uniformly loaded distributor for length 'l' fed at one end. How is power loss in the whole distributor computed (7M)

b) A uniform two wire DC distributor 250m long is loaded with 0.4A/m and is fed at one end. If the maximum permissible voltage drop is not exceed 10 V, Find the cross sectional area of the distributor conductor. Take $\rho=1.78 \times 10^{-8}$. (7M)

SECTION-IV

7. Explain the various systems of ac distribution (14M)

(OR)

8. Explain the following:

(i) Neutral grounding

(ii) Resistance grounding.

(14M)

SECTION-V

9. Explain briefly the various types of bus bar arrangements in a substation (14M)

(OR)

10. With neat layout and schematic connection explain the pole mounted sub-station (14M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper – I

ELECTRICAL POWER GENERATION, TRANSMISSION & DISTRIBUTION - II
III YEAR I SEMESTER
EEE- MODEL PAPER - III

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

11. a). Derive the expression for sag of a line supported between two supports of the different levels of height (7 M)
- b) Derive the expression for sag of a line supported between two supports of the same height. (7 M)

(OR)

12. In a 33 kV overhead line, there are three units in the string of insulators. If the capacitance between each insulator pin and earth is 11% of self capacitance of each insulator, find the distribution of voltage over 3 insulators and string efficiency. Draw the equivalent circuit. (14M)

SECTION-II

13. A 66 kV, single core metal sheathed cable is to be graded by means of a metallic inter sheath. Calculate the diameter of the inter sheath and the voltage at which it must be maintained in order to obtain minimum overall diameter. The maximum voltage gradient at which the insulating material can be worked is 60 kV/cm. Derive the formula used. (14M)

(OR)

14. a) Discuss in detail about HV cables. (7M)
- b) Compare power transmission using overhead line and underground cable. (7M)

SECTION-III

15. (a) Compare the Overhead Vs Underground distribution systems (4M)
- (b) Discuss about the design features of distribution systems and list out their requirements (10M)

(OR)

16. (a) A DC ring main distributor is fed at A and the load is tapped at points B,C,D. The distributor length is 400m long and points B, C, D are 150m, 250m, 375m from A. Loads are 150A, 40A, 200A respectively. If resistance per 100m of single conductor is 0.04Ω and $V_A=220V$. Calculate (a) Current in each distributor (b) Voltage at points B,C,D (14M)

SECTION-IV

17. Derive the expression for an A.C distribution system under power factor referred to receiving end voltage with concentrated load. (14M)

(OR)

18. Explain the reasons leading to the general practice of earthing the neutral point of a power system. Discuss the relative merits of earthing it
(1) solidly and (2) through a resistance (14M)

SECTION-V

19. i) Explain the design principles of substation grounding system. (7M)

ii) Explain the equipments in a transformer substation (7M)

(OR)

20. Describe the following substation bus schemes with suitable diagram.

(i) Double bus with single breaker.

(ii) Double bus with double breaker. (14M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
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UG Model question paper – I

ELECTRICAL POWER GENERATION, TRANSMISSION & DISTRIBUTION - II
III YEAR I SEMESTER
EEE- MODEL PAPER - IV

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

21. a) Define string efficiency? Explain the methods of improving string efficiency. (7 M)
b) Derive the expression for voltage distribution of a suspension insulator. (7 M)

(OR)

22. Assuming that the shape of an overhead line can be approximated by a parabola, deduce expressions for calculating sag and conductor length. How can the effect of wind and ice loadings be taken into account? (14M)

SECTION-II

23. a) Describe with Calculate the most economical diameter of a single core cable to be used on 132kV, 3 phase system. Find also the overall diameter of the insulation, if the peak permissible stress does not exceed 60kV/cm. Also derive the formula used. (7M)
b) Briefly explain about various types of cables used in underground system.

(7M)

(OR)

24. a) A cable is graded with three dielectrics of permittivity's 4,3 and 2. The maximum permissible potential gradient for all dielectrics is same and equal to 30 kV/cm. The core diameter is 1.5cm and sheath diameter is 5.5cm.

(7M)

- b) Explain the constructional features of one LT and HT cable.

(7M)

SECTION-III

25. (a) A two wire DC ring distributor ABCDEA is fed at point A with 230V supply. The

resistance of go and return conductors of each section AB,BC,CD,DE,AE are 0.1Ω . The main supplies the loads of 10A at B, 20A at C, 10A at D, 30A at E. Find the voltage at each load point (7M)

(b) Derive an expression for the radial D.C distributor fed one end and at the both the ends. (7M)

(OR)

26. a) A 2wire distributor 200 meters long is uniformly loaded with 2A/meter. Resistance of single wire is $0.3\Omega/\text{km}$. If the distributor is fed at one end calculate (i) The voltage drop up to distance of 150m from the feeding point (ii) The maximum voltage drop (7M)

b) Write short notes on the following

(i) Ring main distributor

(ii) Current distribution in a 3 wire D.C system (7M)

SECTION-IV

27. Derive the expression for an A.C distribution system under power factor referred to receiving end voltage. (14M)

(OR)

28. Consider a distributor loaded with loading of i ampere per meter run and are fed from two end feeding points at different voltages. Find the point of minimum potential occurrence in the distributor (14M)

SECTION-V

(ii) a) Dissect the operation of Indoor and outdoor substation (7M)

b) Write a short note on sub—station equipment's (7M)

(OR)

(i) Draw and explain the single line diagram, showing the location of substation equipment's for the following bus bar arrangements: (i) Single bus scheme (ii) Single bus-bar with sectionalizing scheme. State the merits and demerits of each scheme (14M)

Code No.R17A0408**MALLAREDDY COLLEGE OF ENGINEERING AND TECHNOLOGY, HYDERABAD****(Autonomous Institution – UGC, Govt. of India)****B.Tech. - III Year I Semester Examinations, Model Paper I-2019****IC APPLICATIONS****(EEE)****Time: 3 hours****Max. Marks: 70**

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

- 1 a) Explain various DC and AC characteristics of an op.amp. Distinguish between ideal and practical characteristics.
b) Explain the following terms in an OP-AMP. 1. Input Bias current 2. Input offset voltage 3. Input offset current.

(OR)

- 2 a) Explain the operation of a Schmitt trigger circuit using IC 741.
b) Explain practical integrator circuit using IC 741.

SECTION II

- 3 a) Draw the circuit of a 1st order low pass filter and derive its transfer function.
b) Design a second order low pass filter.

(OR)

- 4 Draw the block diagram of monostable multivibrator using 555timer and derive an expression for its frequency of oscillation.

SECTION III

- 5 a) Explain the working of a Weighted resistor D/A converter.
b) Explain the working of a dual slope A/D converter.

(OR)

- 6 a) Explain successive approximation A/D converter.
b) Explain the working of a counter type A/D converter and state its important feature.

SECTION IV

- 7 a) Explain the classification of Integrated circuits.
b) Design a Binary to Gray code converter.

(OR)

- 8 a) Explain 4 bit parallel adder
b) Explain 4-bit magnitude comparator

SECTION V

- 9 a) Explain the 2-bit synchronous binary counter
b) What is the shift register? Explain different kinds of shift register

(OR)

- 10 a) Explain the types of RAM.
b) What is a flip-flop? Explain SR, D and JK flip-flops

Code No.R17A0408**MALLAREDDY COLLEGE OF ENGINEERING AND TECHNOLOGY, HYDERABAD****(Autonomous Institution – UGC, Govt. of India)****B.Tech. - III Year I Semester Examinations, Model Paper II-2019****IC APPLICATIONS****(EEE)****Time: 3 hours****Max. Marks: 70**

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

- 1 a) Draw and explain the waveforms of inverting and non-inverting Comparator.
b) Explain the working of an ideal & practical differentiator
(OR)
- 2 a) What is instrumentation amplifier? What are the required parameters of an instrumentation amplifier? Explain the working of instrumentation amplifier with neat circuit diagram.

SECTION II

- 3 a) Draw the circuit of a 1st order band pass filter and derive its transfer function.
b) Draw the circuit of a all pass filter and derive its transfer function.
(OR)
- 4 a) Derive the expression for i) capture range in PLL ii) Lock in range in PLL.
b) Draw the block diagram of an Astable multivibrator using 555timer and derive an expression for its frequency of oscillation.

SECTION III

- 5 a) Find the voltage at all nodes 0, 1, 2,.. And at the output of a 5-bit R-2R ladder DAC. The least Significant bit is 1 and all other bits are equal to 0. Assume $V_R = -10V$ and $R=10K\Omega$
b) Explain the operation of parallel comparator type ADC.
(OR)
- 6 a) Write the specifications of DAC
b) Calculate basic step of 9 bit DAC is 10.3 mV. If 00000000 represents 0V, what output produced if the input is 10110111.

SECTION IV

- 7 a) Explain an 8-input Data Selector / Multiplexer.
b) Explain the operation of priority Encoder.
(OR)
- 8 a) Explain the Gray to binary code converter.
b) Explain 4 line to 16 line demultiplexer.

SECTION V

- 9 a) Explain asynchronous Decade counters.
b) Explain various kinds of shift registers.
(OR)
- 10 a) Explain the types of ROMs and its applications.
b) How many ROM bits are required to build a 16-bit adder/subtractor with mode control, carry input, carry output and two's complement overflow output. Show the block schematic with all inputs and outputs.

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Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

- 1 a) With circuit and waveforms explain the application of OPAMP as differentiator and write the advantages of practical differentiator.
b) Design a Schmitt trigger for $UTP = 0.5V$ and $LTP = -0.5V$. assume necessary data

(OR)

- 2 a) Design an op-amp differentiator that will differentiate an Input signal with $f_{max} = 100Hz$
b) Write a technical note on frequency response characteristics of differential amplifier. State the importance of frequency compensation.

SECTION II

- 3 a) Design an Astable Multivibrator using 555 Timer to produce 1Khz square wave form for duty cycle=0.50
b) Explain the functional block diagram of 555timer.

(OR)

- 4 a) Explain triangular waveform generator using IC 741
b) Derive the frequency of oscillations in VCO.

SECTION III

- 5 With neat diagram, explain the working principle of R-2R ladder type DAC

(OR)

- 6 a) An ADC converter has a binary input of 0010 and an analog output of 20mv. What is the resolution.
b) Explain the working of a dual slope A/D converter.

SECTION IV

- 7 a) Explain parity generators/checkers.
b) Use 74HC85 comparators to compare magnitudes of two 16 bit numbers. Show the comparators with proper interconnections

(OR)

- 8 a) Explain the synchronous BCD decade counter.
b) Design BCD to gray code converter.

SECTION V

- 9 a) Draw the basic cell structure of Dynamic RAM. What is the necessity of refresh cycle? Explain the timing requirements of refresh operation
b) Discuss in detail ROM access mechanism with the help of timing waveforms.

(OR)

- 10 a) How many flip-flops are required to build a binary counter that counts from 0 to 1023. And draw binary counter.
b) Explain the internal structure of $64K \times 1$ DRAM with the help of timing diagrams.

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Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

- 1 a) Derive the gain for non inverting op-amp.
b) Determine the output voltage of the differential amplifier having input voltages $V_1=1\text{mV}$ and $V_2=2\text{ mV}$. The amplifier has a differential gain of 5000 and CMRR 1000.

(OR)

- 2 a) Draw and explain the operation of an op-amp as an integrator.
b) Explain the modes of operation of an op-amp

SECTION II

- 3 a) Draw the circuit of a 1st order high pass filter and derive its transfer function.
b) Explain any two applications of Astable multivibrator using 555IC..

(OR)

- 4 a) Draw the circuit of a 1st order band pass filter and derive its transfer function.
b) How a symmetrical wave form generator can be constructed using 555 timer?

SECTION III

- 5 a) Calculate what is the conversion time of a 10 bit successive approximation A/D converter if its 6.85V.
b) How many levels are possible in a two bit DAC what is its resolution if the output range is 0 to 3V.

(OR)

- 6 a) With neat diagram, explain the working principle of R-2R ladder type DAC.
b) Explain the DAC & ADC specifications

SECTION IV

- 7 a) Explain the decimal-to-BCD priority encoder.
b) Explain the BCD to XS 3 code converter.

(OR)

- 8 a) Explain the 3 bit parity generator/Checker.
b) Explain the specifications & applications of TTL 74XX series.

SECTION V

- 9 a) Design excess-3 decimal counter using 74X163.
b) Draw the logic diagram of 74×163 binary counter and explain its operation.

(OR)

- 10 a) Design negative edge triggered SR flip-flop.
b) Design an 8 bit parallel –in and parallel-out shift register and explain the operation

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper-I
INTRODUCTION TO JAVA PROGRAMMING
III YEAR I SEMESER
EEE

Time: 3 hours

Max. Marks: 70

Note:

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain briefly about Object Oriented Programming concepts? [14M]

(OR)

2. a) Explain briefly about type conversion and type casting with example program? [7M]

b) Write a java program for finding the factorial of a given number using recursion? [7M]

SECTION-II

3. a) Explain different types of inheritances with example program? [7M]

b) What is a package? Explain User defined package with program? [7M]

(OR)

4. a) Explain method overriding with example program? [7M]

b) Explain super keyword with program? [7M]

SECTION-III

5. a) What is an Exception? Explain different types of Exceptions? [7M]

b) Explain about try and catch with example program? [7M]

(OR)

6 a) Explain how to create a Thread with example program? [7M]

b) Explain about Thread Synchronization with program? [7M]

SECTION- IV

7). What is an Applet? Explain Applet life Cycle with neat diagram [14M]

(OR)

8. a) Explain FileInputStream and FileOutputStream with program? [7M]

b) Write a program for Handling Mouse Events? [7M]

SECTION- V

9.a) Explain about AWT class hierarchy? [7M]

b) Explain about AWT and Swing? [7M]

(OR)

10) Explain different types of Layouts with example program? [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper-II
INTRODUCTION TO JAVA PROGRAMMING
III YEAR I SEMESER
EEE

Time: 3 hours

Max. Marks: 70

Note:

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1) Explain Procedure oriented programming and Object Oriented programming? [14M]

(OR)

2. a) Explain different loop control statements with example program? [7M]

b) Explain parameter passing Mechanism with example program? [7M]

SECTION-II

3. a) Explain Method overriding and Abstract class with example program? [7M]

b) What is an Interface? Explain how to extend one interface with another [7M]

(OR)

4. a) Difference between Interface and Abstract class? [7M]

b) Explain final keyword with method and class? [7M]

SECTION-III

5. a) Explain about checked and unchecked Exceptions in java? [7M]

b) Explain finally block with example program? [7M]

(OR)

6 a) What is a Thread? Explain Thread Life cycle with neat diagram? [7M]

b) Explain Inter-Thread Communication with Producer and Consumer problem? [7M]

SECTION- IV

7) Explain differences between Applet and Application? [14M]

(OR)

8. a) Explain Event classes and Event Listeners with example? [7M]

b) Write a program for handling Key Events? [7M]

SECTION- V

9.a) Explain about Graphic class methods? [7M]

b) Explain about Border, Grid, and Flow Layouts in java? [7M]

(OR)

10) Explain about AWT controls with program? [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper-III
INTRODUCTION TO JAVA PROGRAMMING
III YEAR I SEMESER
EEE

Time: 3 hours

Max. Marks: 70

Note:

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain Constructor Overloading and Method Overloading with example program? [14M]

(OR)

2. a) Explain different Operators in Java with examples [7M]

b) Explain about Scanner and StringTokenizer class? [7M]

SECTION-II

3. a) Explain Dynamic binding with example program? [7M]

b) What is an interface? Explain how to extend an interface with program? [7M]

(OR)

4. a) Explain different Access Specifiers in java? [7M]

b) Explain about this keyword and built in packages? [7M]

SECTION-III

5. a) Explain throw and throws keyword with example program? [7M]

b) Explain nested try block with example program? [7M]

(OR)

6 a) Explain Thread Synchronization with example program? [7M]

b) Explain about Creating a Thread with program ? [7M]

SECTION- IV

7). Explain FileInputStream with program? [14M]

(OR)

8. a) Write a program for handling Mouse Events? [7M]

b) Explain Adapter class with example program? [7M]

SECTION- V

9.a) Differences between AWT and Swings? [7M]

b) Difference between Applets and Applications? [7M]

(OR)

10) Explain about Layout Managers with program [14M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper-IV
INTRODUCTION TO JAVA PROGRAMMING
III YEAR I SEMESER
EEE

Time: 3 hours

Max. Marks: 70

Note:

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain about Java Buzz words or Features and History of java [14M]

(OR)

2. a) Explain about Garbage Collector in java ? [7M]

b) Explain this keyword with example program? [7M]

SECTION-II

3. a) Explain different types of inheritances in java? [7M]

b) Explain difference between Abstract class and Interface? [7M]

(OR)

4. a) Explain about super keyword with example program? [7M]

b) Explain how multiple inheritance is supported in java? Justify [7M]

SECTION-III

5. a) What is Exception? Explain Built in Exceptions in java [7M]

b) What is Built in Exceptions in java [7M]

(OR)

6 a) Explain about Thread Synchronization with program? [7M]

b) Explain Inter Thread Communication with program? [7M]

SECTION- IV

7). Explain FileOutputStream with program? [14M]

(OR)

8. a) Explain different types of applets in java [7M]

b) Explain how to pass parameters to an applet with program? [7M]

SECTION- V

9.a) Explain about Delegation Event Model? [7M]

b) Difference between AWT and Swing [7M]

(OR)

10) Explain AWT components [14M]

i) Label ii) Button iii) Text Field iv) Checkbox

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SYSTEMS AND SIGNAL PROCESSING
III YEAR I SEMESER

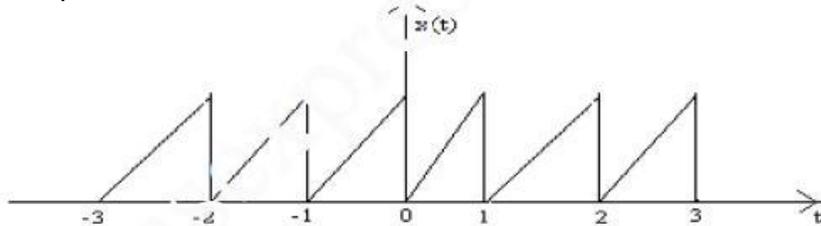
Time: 3 hours

Max Marks: 70

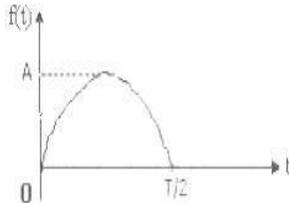
1. Define various elementary Continuous Time signals. Indicate them graphically

(or)

2. Find the exponential Fourier series for the saw tooth waveform shown in figure. Plot the magnitude and phase spectrum.



(3) Determine the Fourier transform of the sinusoidal pulse shown below:



(b) Determine the Fourier transform of $f(t) = e^{-a|t|} \text{sgn}(t)$.

(or)

4. Determine the linear convolution of the following sequences using Overlap add method.

$$x(n) = \{1, -1, 2, 1, 3, 1, 2, -1, 2\}, h(n) = \{1, 2, 1\}$$

5. Compute the 8-point DFT of the sequence $x(n) = \{1, 2, 3, 4, 4, 3, 2, 1\}$ by using DITFFT

(or)

6. Compute the 8-point DFT of the sequence $x(n) = \{1, 1, 1, 1, 1, 1, 1, 0\}$ by using DIFFFT

7. Consider a stable LTI System characterized by the differential equation

$$dy(t)/dt + 2y(t) = x(t). \text{ Find its impulse response}$$

(or)

8. Describe the Digital Signal Processing System and write the applications?

9. (a) Using the Power Series expansion technique, find the inverse Z-transform of The following X(Z)

$$\text{i. } X(Z) = \frac{Z}{2Z^2 - 3Z + 1} \quad |Z| < \frac{1}{2}$$

$$\text{ii. } X(Z) = \frac{Z}{2Z^2 - 3Z + 1} \quad |Z| > 1$$

(b) Find the inverse Z transform of

$$X(Z) = \frac{Z}{Z(Z-1)(Z-2)^2} \quad |Z| > 2$$

10. A linear shift invariant system is described by the difference equation

$$y(n) - \frac{3}{4}y(n-1] + \frac{1}{8}y(n-2) = x(n) + x(n-1) \quad \text{with } y(-1)=0 \text{ and } y(-2)=-1.$$

Find natural response and forced response of the system for step input.

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SYSTEMS AND SIGNAL PROCESSING
III YEAR I SEMESER

Time: 3 hours

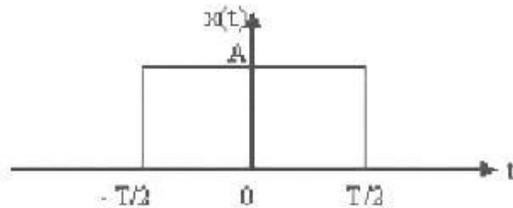
Max Marks: 70

1. What are basic operations on signals ? Illustrate with an example
(or)

2. Explain the Dirichlet's condition for Fourier series.

3. (a) Find the Fourier Transform of $f(t) = e^{-0.5t}$.

(b) Obtain the Fourier transform of Rectangular pulse of duration T and amplitude A as Shown in figure



(or)

4. Determine the linear convolution of the following sequences using Overlap add method.
 $X(n) = \{1, 1, 2, 3, 1, 2, 1, 0, -1, 2\}$, $h(n) = \{1, 1, 2\}$

(or)

5. Find the IDFT of the sequence $X(k) = \{4, 1-j2.414, 0, 1-j0.414, 0, 1+j0.414, 0, 1+j2.414\}$ using DIF algorithm.

(or)

6. Find the IDFT of the sequence $X(k) = \{7, -0.707-j0.707, -j, 0.707-j0.707, 1, 0.707+j0.707, j, -0.707+j0.707\}$ using DIT algorithm.

7. What is an LTI system? Explain its properties. Derive an expression for the transfer function of an LTI system.

(or)

8. Check whether the following systems are Linear or non-linear and linear and also verify time Invariant or time variant.

i) $y(n) = n^2x(n)$ ii) $y(n) = 2x(n) + 4$

9. Explain the properties of the region of convergence of $X(z)$.

(or)

10. Solve the following difference equation $y(n] + 2y(n-1) = x(n)$ with $x(n) = (1/3)^n u(n)$ and the initial condition $y(-1) = 1$

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SYSTEMS AND SIGNAL PROCESSING
III YEAR I SEMESER

Time: 3 hours

Max Marks: 70

1. How the Signal are classified ? Differentiate between them

(or)

2. Obtain the Fourier series representation of an impulse train given by

$$x(t) = \sum_{n=-\infty}^{\infty} \delta(t - n\tau_0).$$

3. Explain the Fourier transform of a) Impulse function b) Signum function.

(or)

4. State and prove any four properties of DFT

(i) Periodicity (ii) Linearity

5. Compute the 8-point DFT of $x(n) = \{2, 2, 2, 2, 1, 1, 1, 1\}$ by using Radix-2 DIT FFT algorithm.

(or)

6. Find the IDFT of the sequence

$X(k) = \{7, -0.707 - j0.707, -j, 0.707 - j0.707, 1, 0.707 + j0.707, j, -0.707 + j0.707\}$ using DIT algorithm.

7. Find whether the following systems are stable or not

a) $h(t) = (2 + e^{-3t})u(t)$ b) $h(t) = e^{-2t}u(t)$

(or)

8. Explain Stability and Causality of Discrete time systems

9. Find the Z-transform of $x(n) = \cos(n\omega)u(n)$ and $\sin(n\omega)u(n)$

(or)

10. Realize the system described by the following difference equation in Direct form – I

$$y(n] = \frac{3}{4} y(n-1) - \frac{1}{8} y(n-2) + x(n) + \frac{1}{3} x(n-1)$$

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SYSTEMS AND SIGNAL PROCESSING
III YEAR I SEMESER

Time: 3 hours

Max Marks: 70

1. Define various elementary discrete time signals. Indicate them graphically
(or)
2. Derive polar Fourier series from the exponential Fourier series representation and hence prove that $D_n = 2 |C_n|$
3. Find the Fourier transform of the Rectangular Pulse and plot its amplitude and phase
(or)
4. a) Find the 4-point DFT of $x(n) = \{1, -1, 2, -2\}$
b) Find the IDFT of $X(k) = \{0, -1-j, 6, -1+j\}$
5. Compute the 8-point DFT of $x(n) = \{1, 2, 1, 2, 1, 2, 1, 2\}$ by using Radix-2 DIF FFT algorithm.
(or)
6. Find the IDFT of the sequence
 $X(k) = \{7, -0.707-j0.707, -j, 0.707-j0.707, 1, 0.707+j0.707, j, -0.707+j0.707\}$ using DIT algorithm.
7. Find whether the following systems are stable or not
a) $h(t) = (2+e^{-3t})u(t)$ b) $h(t) = e^{-2t}u(t)$
(or)
8. Explain Linear Shift Invariant Systems
9. Solve the following difference equation $y(n] + 2y(n-1) = x(n)$ with $x(n) = (1/3)^n u(n)$ and the initial condition $y(-1) = 1$
(or)
10. Realize the system described by the following difference equation in Direct form – II
$$y(n) = -\frac{13}{12}y(n-1) - \frac{9}{24}y(n-2) - \frac{1}{24}y(n-3) + x(n) + 4x(n-1) + 3x(n-2)$$

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Model question paper-I
Power Electronics
III YEAR I SEMESER
EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks. **5*14=70M**

SECTION-I

1.a) Explain in detail about the series connection of SCRs? [7M]

b) An UJT circuit has the following parameters: [7M]

$$\eta = 0.67, V_D = 0.6V, I_v = mA, V_v = 1V, I_p = 10 \mu A, V_{BB} = 20V$$

Find the values of V_{EE} so as to turn on UJT if R_E is (i) 1 k Ω (ii) 1500 Ω ?

OR

2.a) Following are the specifications of a Thyristor operating from a peak supply of 400V: [7M]

Repetitive peak current $I_P = 200A$, $\left[\frac{di}{dt}\right]_{max} = 50 A/\mu s$, $\left[\frac{dv_a}{dt}\right]_{max} = 180 V/\mu s$ Design a Snubber circuit if the minimum load resistance is 15 Ω . Take damping ratio as 0.7 and the factor of safety as 2?

b) What are the main specifications and ratings of SCR to be considered while designing?

Explain. [7M]

SECTION-II

3.a) Derive the expression for the average load voltage of single phase half controlled converter with RLE load? [7M]

b) A three phase half wave SCR converter delivers constant load current of 20A over the firing angle range of 0° to 60° . At these two firing angles, compute the power delivered to load for an ac input voltage of 300V from a delta star transformer.?

OR

4.a) Derive the expression for the RMS load voltage of six pulse converter with R load. [7M]

b) Explain the operation of single phase semi controlled bridge converter with RL load. Derive the output voltage and current expressions? [7M]

SECTION-III

5.a) Explain in detail about the time ratio control. [7M]

b) A step down chopper is fed from 200V DC and its duty cycle is 0.6. Calculate the RMS value of output voltages for fundamental and third harmonic components. [7M]

OR

6. a) Derive the expression for the output voltage of step up chopper. [7M]

b) A chopper fed from a 200V DC source, is working at a frequency of 50 Hz [7M]

and is connected to an RL load of $R = 4\Omega$ and $L = 30 \text{ mH}$. Determine the value of duty cycle at which the minimum load current will be (i) 5 A (ii) 10 A

SECTION-IV

- 7.a) Discuss the methods of voltage control employed in ac voltage controllers with necessary waveforms? [7M]
- b) A single phase voltage controller with resistive load has the following data: supply mains: 230V, 50 Hz, $R = 5\Omega$. Calculate the firing angle at which the greatest forward or reverse voltage is applied to either of the thyristors and the magnitude of these voltages? [7M]

OR

- 8.a) Explain the operation of a single phase bridge type step down cyclo converter with the help of circuit diagram and waveforms? [7M]
- b) A single phase voltage controller with RL load has the following data: Supply mains: 230V, 50 Hz, $Z = (3+j4) \Omega$. Calculate the control range of firing angles and the maximum value of RMS load current? [7M]

SECTION-IV

- 9.a) Draw the circuit diagram of a single phase half bridge inverter and explain its operation.? [7M]
- b) A three phase bridge inverter delivers power to a resistive load from a 400V DC source. For a star connected load of 8Ω per phase, determine RMS value of load current and RMS value of thyristor current for 120 degree conduction mode of operation. [7M]

OR

- 10) Explain the 180 Degree conduction mode of operation of three phase inverters with necessary circuit diagram and waveforms. [14M]

---ooOoo---

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Model question paper-II

Power Electronics

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

- 1.a) Discuss the need for parallel connections of SCRs with necessary diagrams. [7M]
b) With neat circuit diagram explain how UJT firing circuit will generate pulse for an SCR. [7M]

OR

- 2.a) Give the constructional details of SCR with the help of schematic diagram and circuit symbol. [7M]
b) Explain in detail the two transistor analogy of SCR. [7M]

SECTION-II

- 3.a) Describe with neat circuit diagram and associated waveforms, operation of a 1- Φ half wave controlled converter with R load. [7M]
b) A 1- phase full bridge converter using four SCRs feeds power to RLE load with $R=10\ \Omega$, $L = 100\text{mH}$, and $E = 100\text{V}$. The ac source voltage is 230 V at 50Hz. [7M]

OR

- 4.a) Explain the operation of 3- phase half-wave converter for resistive load with necessary waveform and circuit diagram. [7M]
b) A 1- phase semi-converter delivers power to RL load with $R= 5\ \Omega$, $L = 10\ \text{mH}$. The a.c. supply voltage is 230 V, 50 Hz. For the continuous conduction, find the average value of output voltage and current for the firing angle of 45° . [7M]

SECTION-III

- 5.a) A step-up chopper has input voltage of 220V and output voltage of 660V. If the conducting time of thyristor-chopper is $100\mu\text{s}$, compute the pulse width of output voltage. In case the output-voltage pulse width is halved for constant frequency operation, find the average value of new output voltage? [7M]
b) What is time ratio control in dc choppers? Explain the use of TRC for controlling the output voltage in choppers. [7M]

OR

6. a) Derive the expression for the output voltage of step down chopper. [7M]
b) The step-down dc chopper has a resistive load, $R=20\Omega$ and input voltage, $V=220\text{v}$. When the chopper remains on, its voltage drop, $V_{ch} = 1.5\text{V}$ and chopping frequency, $f=10\text{kHz}$. If the duty cycle is 80 %, Estimate the: (i) average output voltage (ii) rms output voltage, and (iii) Chopper efficiency. [7M]

SECTION-IV

- 7.a) Describe the operation of a single phase AC voltage controller with a neat circuit diagram and output wave forms with respect to source voltage waveforms at $\alpha = 60^\circ$ for R-load. [7M]
- b) A single phase voltage controller has input voltage of 230 V, 50 Hz and a load of $R = 15 \Omega$. For 6 cycles on and 4 cycles off, determine. (i) rms output voltage (ii) input pF and (iii) average and rms thyristor currents. [7M]

OR

- 8) Describe the operating principle of single-phase to single-phase step-up cycloconverter with the help of mid-point and bridge type configuration. Illustrate your answer with appropriate circuit and waveforms. [14M]

SECTION-IV

- 9.a) Discuss the following: [7M]
a) Single pulse Modulation b) SPWM Technique
- b) A three phase bridge inverter delivers power to a resistive load from a 300V DC source. For a star connected load of 6Ω per phase, determine RMS value of load current and RMS value of thyristor current for 120 degree conduction mode of operation. [7M]

OR

10. Explain the 120 Degree conduction mode of operation of three phase inverters with necessary circuit diagram and waveforms. [14M]

---ooOoo---

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Model question paper-III

Power Electronics

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

- 1.a) Draw and explain the simultaneous triggering circuit of series connected SCRs. [7M]
b) Discuss the switching characteristics of SCR by mentioning its salient features. [7M]

OR

- 2.a) Describe the different modes of operation of a thyristor with the help of its V-I characteristics. [7M]
b) Two thyristors having a difference of 4mA in latching current are connected in series in the circuit. Voltages across the devices are 450V and 300V. Calculate the required equalizing resistance and capacitance, if the permissible difference in blocking voltage is 10V and the difference in the recovery charge is $5\mu\text{C}$.. [7M]

SECTION-II

- 3.a) Explain the operation of single phase fully controlled converter with RL load. Derive the output voltage and current expressions for firing angle of 45 degrees. [7M]
b) A single phase fully rectifier is used to supply power to load having impedance 200 ohms and 150 mH, from 230V, 50Hz, ac supply at a firing angle of 90 degrees. Calculate [7M]
i) Average values of output voltage and current
ii) RMS values of output voltage and current.

OR

- 4.a) Explain the operation of 3 phase bridge type full converter with RL load with neat waveforms. [7M]
b) A1- phase full bridge converter using four SCRs feeds power to RLE load with $R=10\ \Omega$, $L = 100\text{mH}$, and $E = 100\text{V}$. The ac source voltage is 230 V at 50Hz. Assuming continuous conduction; determine the average value of load current for firing delay angle 45 degree. [7M]

SECTION-III

- 5.a) Explain the operation of a step down chopper with RL load. Derive the necessary output voltage and current expressions. [7M]
b) A step-down chopper is fed from a 220 V DC source to deliver a load voltage of 100V. If the non-conduction time of transistor is $100\mu\text{s}$. The required pulse width would be? [7M]

OR

6. a) Explain in detail about the class C chopper.? [7M]
b) A dc chopper is connected to an inductive load with a resistance of 5Ω and an input voltage of 300 V. The on time and off time of the chopper are 20 ms and 10 ms respectively. Estimate the duty ratio, chopping frequency, average load voltage and average load current. [7M]

SECTION-IV

- 7.a) Describe the operation of a single phase AC voltage controller with RL load.? [7M]
b) A single phase half wave AC voltage controller has a resistive load of $R = 40 \text{ ohms}$ and the input voltage is $V_s = 230\text{V}$, 50Hz. The Delay angle of thyristor is 50 degrees. Determine [7M]
i)The rms value of output voltage V_0 ,
ii)The input power factor,
iii)The average input current.

OR

- 8)Describe the operating principle of single-phase to single-phase step-up cycloconverter [14M]
With R and RL loads?

SECTION-V

- 9.a) Draw the circuit diagram of a basic series inverter and explain its operation.? [7M]
operation.?
b)A three phase bridge inverter delivers power to a resistive load from a 500V DC source. For a star connected load of 12Ω per phase, determine RMS value of load current and RMS value of thyristor current for 180 degree conduction mode of operation. [7M]

OR

- 10.a) Explain voltage control techniques for inverters? [7M]
b)A single phase bridge inverter is fed from a 200 DC. In the output voltage wave, only fundamental component of voltage is considered. Determine the RMS current ratings of an SCR and a diode of the bridge for a resistive load of $R = 5\Omega$. [7M]

---ooOoo---

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Model question paper-IV

Power Electronics

III YEAR I SEMESER

EEE

Time: 3 hours

Max Marks: 70

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

5*14=70M

SECTION-I

- 1.a) Mention the importance of snubber circuit which is connected across SCRs. [7M]
b) Draw and explain the transfer and output characteristics of n-channel enhancement type MOSFET's. [7M]

OR

- 2.Explain indetail about the TURN-ON and TURN-OFF methods of SCR .? [14M]

SECTION-II

- 3.a) Explain the operation of single phase fully controlled bridge converter with R load. [7M]
Derive the output voltage and current expressions?
b) The dc voltage from a 1- phase fully controlled bridge converter with RL load is 110 V.[7M]
The ac source voltage is 220 V rms. The load resistance, $R = 0.5 \Omega$, and load inductance L is large enough to cause the load current to be essentially constant. Determine the delay angle α ii) Estimate the power delivered to the load.

OR

- 4.a) Explain the operation of 3 phase bridge type full converter with RL load [7M]
with neat waveforms.
b) Explain indetail about the single phase Dual converter ? [7M]

SECTION-III

- 5.a) a) Explain indeatail about the class D chopper. ? [7M]
b) A step-down chopper is fed from a 330 V DC source to deliver a load voltage of 110V. If the non-conduction time of transistor is $150\mu s$. The required pulse width would be? [7M]

OR

6. a) Explain indeatail about the class E chopper.? [7M]
b) A dc step up chopper is connected to a resistance of 5Ω and an input voltage of 300 V and an input voltage of 300 V. The on time and off time of the chopper are 20 ms and 10 ms respectively. Estimate the duty ratio, chopping frequency, average load voltage and average load current. [7M]

SECTION-IV

- 7.a) Explain indeatail about single phase two SCR's connected in anti parallel with R load.? [7M]
b) A single phase bidirectional controller supplies a resistance load of $R = 10 \Omega$. [7M]
Determine the output voltage and power consumed by the load for following cases:
(i) $\alpha = 300$ (ii) $\alpha = 750$ (iii) $\alpha = 1200$.

OR

8) Describe the operating principle of single-phase to single-phase step-up cycloconverter [14M]
With R and RL loads?

SECTION-IV

9) Describe in detail about PWM techniques .? [14M]

OR

10) Explain the 180 Degree conduction mode of operation of three phase inverters with [14M]
necessary circuit diagram and waveforms and derive the expression for line voltage,
phase voltage

---ooOoo---

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper- I
TECHNICAL COMMUNICATION AND SOFT SKILLS
Max Marks: 50

Every question carries 10 Marks. Answer any 5 of the following questions:

1. What is Netiquette? What are online ethics?
2. Write a report on the recent technical workshop that you attended.
3. Write down the major skills a fresher is expected to have in order to get hired for a job.
4. What are the steps involved for making an effective presentation?
5. What are the suggestions you would offer a shy friend to get rid of stage fear.
6. How should one speak during a group discussion?
7. Fill in the blanks with correct verbs:
 1. I (learn) _____ English for seven years now.
 2. But last year I (not / work) _____ hard enough for English, that's why my marks (not / be) _____ really that good then.
 3. As I (pass / want) my English exam successfully next year, I (study) _____ harder this term.
 4. During my last summer holidays, my parents (send) _____ me on a language course to London.
 5. It (be) _____ great and I (think) _____ I (learn) _____ a lot.
 6. Before I (go) _____ to London, I (not / enjoy) _____ learning English.
 7. But while I (do) _____ the language course, I (meet) _____ lots of young people from all over the world.
 8. There I (notice) _____ how important it (be) _____ to speak foreign languages nowadays.
 9. Now I (have) _____ much more fun learning English than I (have) _____ before the course.
 10. At the moment I (revise) _____ English grammar.
8. What are the rules to be followed while writing an email?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
UG Model question paper- II
TECHNICAL COMMUNICATION AND SOFT SKILLS
Max Marks: 50

Every question carries 10 Marks. Answer any 5 of the following questions:

1. Write down ten major Do's and Don'ts of a group discussion?
2. On behalf of KLEAN Company, write an email to AMOEBA placing an order for the new software introduced by the latter.
3. Write down ten major tips to be followed at the time of an interview.
4. Fill in the blanks with the correct verb:
 - i. The student or the committee members _____ every day.
 - ii. A lot of money _____ donated to the charity every year.
 - iii. Her shorts _____ very comfortable.
 - iv. The committee _____ in various volunteer activities in their private lives.
 - v. Strategies that the teacher _____ to encourage classroom participation include using small groups and clarifying expectations.
 - vi. Neither the plates nor the serving bowl _____ on that shelf.
 - vii. She, my friends, and I _____ not going to the festival.
 - viii. Always wait until *every student* _____ attentive. (are/is)
 - ix. Oranges or banana _____ rich in vitamin C. (are/is)
 - x. The car with many riders _____ speeding round the curve. (are/is)
5. Assume that you have received an appointment letter from the General Manager of AXISON, Human Resource Department, for the post of a Management Trainee. Write a joining letter to the General Manager. [a. State the date of joining b. received the appointment letter]
6. Write a detailed report on the fire accident that took place at the metro station.
7. Write down ten major Do's and Don'ts of an Oral presentation
8. You are the Tour Incharge of Grant Public School, Agra During the summer break, you are planning to organize a tour to a place of historical importance. Write a letter to The National Travel Agency, Agra enquiring about the charges facilities and all the other necessary details.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
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UG Model question paper- III
TECHNICAL COMMUNICATION AND SOFT SKILLS
Max Marks: 50

Every question carries 10 Marks. Answer any 5 of the following questions:

1. Write down ten major Do's and Don'ts of a group discussion?
2. On behalf of MRCET, write an email to Global Reference placing an order for the new software introduced to develop Aptitude skills for Pre-Final and Final year students.
3. Write down ten major tips to be followed at the time of an interview, pre interview and post interview.
4. Assume that you are applying for the post of Management Trainee in AXISON, Steel manufacturing unit. Write a job application letter enclosed with a Resume to the Manager in Human Resource Department. (Credentials: A post graduate, 2 years experienced with good communication skills and work well on current software platforms and MS Office.)
5. You are the Tour Incharge of your college, during the summer break you are planning to organize a tour to a place of historical importance. Write a letter to The National Travel Agency, Hyderabad enquiring about the charges, facilities and all the other necessary details.
6. Listed below are 5 interview questions. Answer them
 - a. Tell me about yourself.
 - b. What is your greatest strength?
 - c. Why should we hire you?
 - d. Why do you want this job?
 - e. What are your goals for the future?
7. "If you don't know what you want to achieve in your presentation your audience never will." Elucidate.
8. Write a report on the recent technical workshop that you attended.

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UG Model question paper- IV
TECHNICAL COMMUNICATION AND SOFT SKILLS
Max Marks: 50

Every question carries 10 Marks. Answer any 5 of the following questions:

1. As your company is doing good business and expanding, your company is relocating its office to a new address. Write an email with a minimum of 70 words and a maximum of 100 words to your customer informing the change in address.
2. Demonetization was an initiative announced by Prime Minister Narendra Modi on November. While some have been encouraging, others highlight the flip side of the historic step taken by the Centre. Write a report on demonetization emphasizing its impact.
3. a) Change the voice of the sentences:
 - i. Advertise the post.
 - ii. Ram gave flowers to Vaishnavi
 - ii. The courier has been sent by him.
 - iv. Somebody cooks meal every day.
 - v. The master punished the servant.b) What is group discussion? Explain its relevance in the placement arena.
4. Write a resume for the post of Technical Analyst at ABC Technologies.
5. Listed below are 5 interview questions. Pick any 3 and answer them
 - f. Tell me about yourself.
 - g. What is your greatest strength?
 - h. Why should we hire you?
 - i. Why do you want this job?
 - j. What are your goals for the future?
6. “If you don’t know what you want to achieve in your presentation your audience never will.”
Elucidate.
7. Correct the following sentences:
 - i. It is raining when I got home last night.
 - ii. My sister is annoying today, but usually she is nice.
 - iii. I have not ate anything today.
 - iv. If I am a child, I would play outside.
 - v. Everyone have seen that movie.
 - vi. If we will be late, they will be angry.
 - vii. My father is thinking that UI should stop smoking.
 - viii. Look, it is snow.
 - ix. I fell asleep while I watched TV
 - x. I have lived in Canada since 10 months.
8. Discuss the importance of Time management in 300 words.

