

F 7019

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

Fifth Semester

**Branch : Aeronautical Engineering/Computer Science and Engineering/Electrical and
Electronics Engineering**

EN 010 502—PRINCIPLES OF MANAGEMENT (AN, CS, EE)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Define Mission.
2. What is labor turnover ?
3. State the importance of product life cycle.
4. State the selling of a product.
5. What is pricing.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. State the objectives of management.
7. State the importance of selection of manpower.
8. State the advantages of PERT.
9. State the methods of financing.
10. What is market research.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each full question carries 12 marks.

11. Explain about the management concepts in detail.

Or

12. Write in detail about the span of control and state the staffing.

13. Explain the importance of training and development.

Or

14. Explain the method of settling disputes and trade unions in detail.

15. Explain the functions of production management in detail.

Or

16. Explain the project planning with CPM and PERT.

17. Explain in detail about the functions of financial management.

Or

18. Write in detail about the factors affecting working capital.

19. Explain the functions of sales department.

Or

20. Explain the advertising and other sales promotions in detail.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

Fifth Semester

Branch : Electrical and Electronics Engineering

EE 010 503—SIGNALS AND SYSTEMS (EE)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. Write down the classification of systems.
2. Define Fourier transform.
3. Differentiate auto correlation and cross correlation.
4. State sampling theorem.
5. Define filter. What are the different types of filters ?

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Explain Fourier spectrum.
7. Explain periodic signal contribution of Fourier transform.
8. Write down the relationship between convolution and correlation.
9. Explain de-convolution.
10. Write down the applications of T and PI sections.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each full question carries 12 marks.

11. Explain the classification of signals with examples.

Or

12. Explain and derive convergence of Fourier series ?

13. Write a note on :

(i) Inverse Fourier transform.

(ii) Amplitude and phase spectrum.

Or

14. Explain in detail about the bandwidth requirement for signal transmission.

15. Give the properties of convolution integral.

Or

16. Compare ESD and PSD.

17. Find the natural and forced response of an LTI system given by :

$$10 \frac{dy(t)}{dt} + 2y(t) = x(t) ?$$

Or

18. Write a short note on :

(i) Nyquist rate.

(ii) Stability.

(iii) Sampling theorem.

19. Explain the behavior of iterative impedance.

Or

20. Define *two port network*. Explain image and characteristics impedance.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

Fifth Semester

Branch : Electrical and Electronics Engineering

EE 010 504—POWER ELECTRONICS [EE]

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 3 marks.*

1. What are the different methods to turn on the thyristor ?
2. What is the function of freewheeling diodes in controlled rectifier ?
3. What are the advantages of d.c. chopper ?
4. What are the main classifications of inverter ?
5. What are the industrial applications of SMPS ?

(5 × 3 = 15 marks)

Part B

*Answer all questions.
Each question carries 5 marks.*

6. Draw the two transistor model of SCR and derive an expression for anode current.
7. Describe the working of 1 ϕ fully controlled bridge Converter in the Rectifying mode.
8. Describe the principle of step-up chopper.
9. Describe the operation of parallel inverter with aid of diagrams.
10. Explain the basic operation of push-pull converter.

(5 × 5 = 25 marks)

Part C

*Answer all questions.
Each full question carries 12 marks.*

11. Describe the various methods of thyristor turn on.

Or

12. Explain the Operation of MOSFET and IGBT.

Turn over

13. Describe the working of Dual Converter.

Or

14. Derive the expressions for average output voltage and r.m.s. output voltage of 1- ϕ full Converter.

15. Derive an expression for the average output voltage in terms of input d.c. voltage and duty cycle for step-up and step-down chopper.

Or

16. Figure 1 shows a non-isolated buck converter operating at a duty ratio of 0.5 at a switching frequency of 20 kHz. The components may be taken to be ideal.

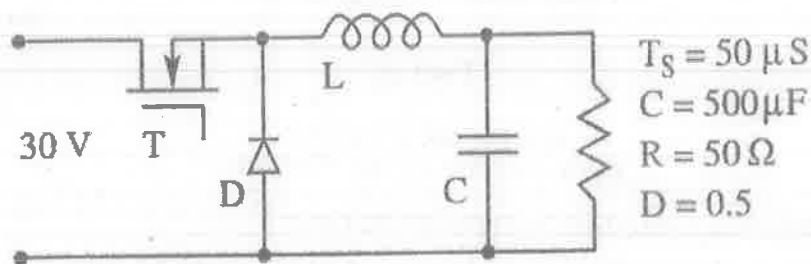


Figure1. A Non-isolated Buck Converter

Evaluate the value of L such that the Converter operates in the discontinuous mode.

17. Explain the Operation of 3 ϕ bridge inverter for 180 degree mode of operation with aid of relevant phase and line voltage waveforms.

Or

18. State different methods of voltage control inverters. Describe about PWM control in inverter.

19. Explain the operation of boost regulator for continuous current mode with aid of relevant waveforms and derive the expression of ripple voltage.

Or

20. Explain the operation of SMPS employing push-pull converter.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

Fifth Semester

Branch : Electrical and Electronics Engineering

EE 010 505—LINEAR INTEGRATED CIRCUITS (EE)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all question.

Each question carries 3 marks.

1. Define Slew rate and its effect in detail.
2. What is the difference between ideal and practical op amp ? Explain.
3. Draw the circuit diagram for Buffer. Obtain its V_o . Mention its potential applications.
4. Draw general op amp oscillator configuration. Explain it in detail.
5. Explain the practical applications of PLL.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Draw the equivalent circuit of Op amp and explain it in detail.
7. Draw op amp zero crossing detector and explain its principle in detail.
8. Explain the characteristics of Notch filter in detail.
9. Explain the applications and limitations of linear mode power supply.
10. Draw the functional block diagram of 555 timer and explain it in detail.

(5 × 5 = 25 marks)

Turn over

Part C

Answer all questions.

Each question carries 12 marks.

- 11 (i) Explain the applications of op amp as inverting, non inverting amplifiers, scalar and summing amplifiers with neat diagrams. Derive their V_o expressions,
(ii) Define and explain CMRR. Mention its significance. Derive an expression for CMRR for a basic differential amplifier.

Or

- 12 (i) Explain the characteristics of an ideal op amp in detail.
(ii) Explain the pin identification, power supply requirement of an op amp.
(iii) Design a op-amp differentiator to differentiate an input signal that varies in frequency from 10 Hz to about 1 KHz.
- 13 (i) Draw op-amp sample and hold circuit and explain it in detail. Bring out its design details.
(ii) Draw op-amp peak detector and explain it detail.

Or

- 14 (i) Draw op-amp log and antilog amplifiers and explain them. Derive their V_o expressions.
(ii) Draw op-amp instrumentation amplifier and explain it.
- 15 (i) Differentiate active filter from passive filter.
(ii) Draw an op-amp second order HPF and explain it. Derive its design equations.

Or

- 16 (i) Give an account on " Higher order filters".
(ii) Draw an op-amp first order LPF and explain it. Bring out its design equations.
17. Draw an op-amp RC phase shift oscillator and explain it in detail. Derive the condition for oscillation.

Or

18. Draw a neat schematic of SMPS Explain its principle of working in detail. Explain its applications.
19. (i) Draw an astable multivibrator using IC 555 and explain it in detail.
(ii) Explain the application of PLL as frequency multiplier with a neat diagram.

Or

20. Write technical notes on :
- (a) IC 565 for FM detection.
 - (b) Capture and lock range of PLL.
 - (c) Applications of monostable multivibrator.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2017

Fifth Semester

Branch : Electrical and Electronics Engineering

EE 010 506--MICROPROCESSORS AND APPLICATIONS (EE)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What is the difference between microprocessor and microcomputer ?
2. What is an ALP ? How does it differ from high level languages ?
3. Define interrupt. Explain the types of interrupt.
4. Differentiate ROM from RAM. Explain the difference.
5. Explain the concept of pipelining.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Discuss the evolution of microprocessors in detail.
7. Explain any *three* addressing modes of intel 8085 in detail.
8. What are vectored and non vectored interrupts ? Explain.
9. What is the need for interfacing ? Explain in detail.
10. Differentiate intel 8086 from intel 8085.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each full question carries 12 marks.

11. (a) Explain the architecture of 8085 with a neat diagram.
(b) Explain the components of a flag register ? Explain them in detail.

Or

Turn over

12. (a) Distinguish RAL from RLC instructions.
(b) Explain the terms T state, Machine cycle and instruction cycle with respect to execution of instructions.
13. (a) Explain the different addressing modes of intel 8085 in detail.
(b) Write an ALP to multiply two 8 bit numbers stores at 2000 H and 2001 H and display the result in the address field of the microprocessor kit.

Or

14. (a) Write an ALP to arrange numbers in a data array in ascending and descending orders.
(b) Explain the significance of look up table with an example.
15. (a) Explain the interrupt structure of 8085 with a neat diagram.
(b) Give an account on "SIM and RIM instructions".

Or

16. (a) Draw a block diagram of DMA controller IC 8257 and explain it in detail.
(b) Draw the block diagram of 8251 and explain it detail.
17. Explain the block diagram of IC 8255 in detail.

Or

18. (a) Explain the need for memory interfacing with an example.
(b) Give an account on "Stack pointer".
19. (a) What is a co processor ? Explain in detail.
(b) Explain the architecture of 8086 in detail, with a neat diagram.

Or

20. (a) Explain the addressing modes of intel 8086 in detail.
(b) Explain the purpose of flag register with an example.

(5 × 12 = 60 marks)