



UNIVERSITY OF MYSORE

Postgraduate Entrance Examination June/July 2017

SUBJECT CODE :

47

QUESTION BOOKLET NO.

116751

Entrance Reg. No.

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QUESTION BOOKLET

(Read carefully the instructions given in the Question Booklet)

COURSE :

M.Sc.

SUBJECT :

Electronics

MAXIMUM MARKS : 50

MAXIMUM TIME : ONE HOUR

(Including initial 10 minutes for filling O.M.R. Answer sheet)

INSTRUCTIONS TO THE CANDIDATES

1. The sealed questions booklet containing 50 questions enclosed with O.M.R. Answer Sheet is given to you.
2. Verify whether the given question booklet is of the same subject which you have opted for examination.
3. Open the question paper seal carefully and take out the enclosed O.M.R. Answer Sheet outside the question booklet and fill up the general information in the O.M.R. Answer sheet. If you fail to fill up the details in the form of alphabet and signs as instructed, you will be personally responsible for consequences arising during scoring of your Answer Sheet.
4. During the examination:
 - a) Read each question carefully.
 - b) Determine the Most appropriate/correct answer from the four available choices given under each question.
 - c) Completely darken the relevant circle against the Question in the O.M.R. Answer Sheet. For example, in the question paper if "C" is correct answer for Question No.8, then darken against Sl. No.8 of O.M.R. Answer Sheet using Blue/Black Ball Point Pen as follows:

Question No. 8. (A) (B) (C) (D) (Only example) (Use Ball Pen only)

5. Rough work should be done only on the blank space provided in the Question Booklet. Rough work should not be done on the O.M.R. Answer Sheet.
6. If more than one circle is darkened for a given question, such answer is treated as wrong and no mark will be given. See the example in the O.M.R. Sheet.
7. The candidate and the Room Supervisor should sign in the O.M.R. Sheet at the specified place.
8. Candidate should return the original O.M.R. Answer Sheet and the university copy to the Room Supervisor after the examination.
9. Candidate can carry the question booklet and the candidate copy of the O.M.R. Sheet.
10. The calculator, pager and mobile phone are not allowed inside the examination hall.
11. **If a candidate is found committing malpractice, such a candidate shall not be considered for admission to the course and action against such candidate will be taken as per rules.**

INSTRUCTIONS TO FILL UP THE O.M.R. SHEET

1. There is only one most appropriate/correct answer for each question.
2. For each question, only one circle must be darkened with BLUE or BLACK ball point pen only. Do not try to alter it.
3. Circle should be darkened completely so that the alphabet inside it is not visible.
4. Do not make any stray marks on O.M.R. Sheet.

ಗಮನಿಸಿ : ಸೂಚನೆಗಳ ಕನ್ನಡ ಆವೃತ್ತಿಯು ಈ ಪುಸ್ತಕದ ಹಿಂಭಾಗದಲ್ಲಿ ಮುದ್ರಿಸಲ್ಪಟ್ಟಿದೆ.

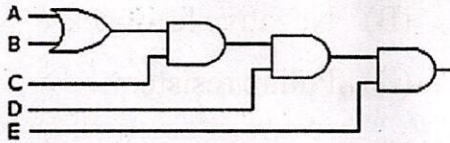
UNIT - I

- 1) An ideal diode acts as anand..... circuit during forward and reverse biasing condition respectively.
(A) Open, short (B) Short, open
(C) Short, short (D) Open, open
- 2) Zener diode is used as
(A) Voltage regulator (B) Rectifier
(C) Oscillator (D) Amplifier
- 3) The β value of a transistor is calculated by the expression
(A) $\frac{1}{1-\alpha}$ (B) $\frac{\alpha}{1+\alpha}$
(C) $\frac{\alpha}{1-\alpha}$ (D) $\frac{\alpha}{\alpha-1}$
- 4) The maximum efficiency of a half-wave rectifier,
(A) 40.6 % (B) 81.2 %
(C) 45.2 % (D) 70.7 %
- 5) In RC phase shift oscillator circuit, the total phase shift due to RC feedback network is,
(A) 360° phase shift (B) 180° phase shift
(C) 90° phase shift (D) 60° phase shift

UNIT - II

- 6) The NAND or NOR gates are referred to as "Universal gates" because either,
(A) Can be found in almost all digital circuits
(B) Can be used to build all the other types of gates
(C) Are used in all countries of the world
(D) Were the first gates to be integrated

7) Derive the Boolean expression for the logic circuit shown below



- (A) $C(A + B)DE$ (B) $[C(A + B)D + \bar{E}]$
 (C) $[[C(A + B)D]\bar{E}]$ (D) $ABCDE$

8) Applying De-Morgan's theorem to the expression \overline{ABC} , we get _____.

- (A) $\bar{A} + \bar{B} + \bar{C}$ (B) $\overline{A + B + C}$
 (C) $A + \bar{B} + C\bar{C}$ (D) $A(B + C)$

9) A half-adder can be constructed using 2-input logic gates. One of them is an AND-gate, the other is

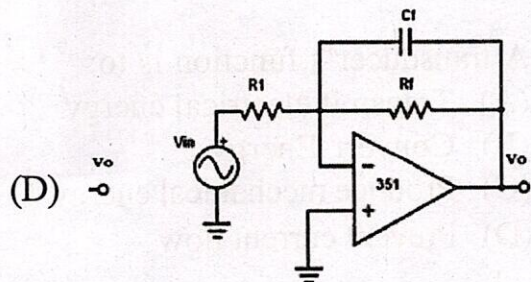
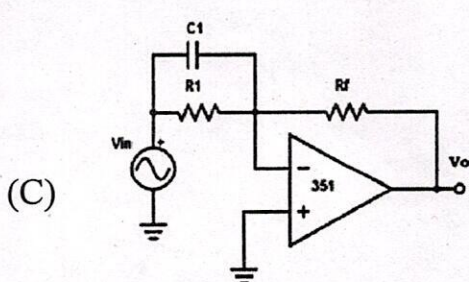
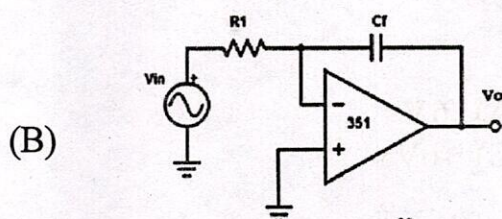
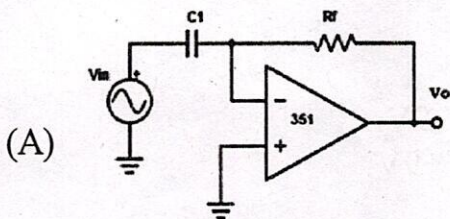
- (A) OR-gate (B) NAND-gate
 (C) XOR-gate (D) XNOR-gate

10) How many select lines used in 1:16 de-multiplexer

- (A) 5 (B) 4
 (C) 2 (D) 8

UNIT - III

11) Find out the Differentiator circuit from the following circuits

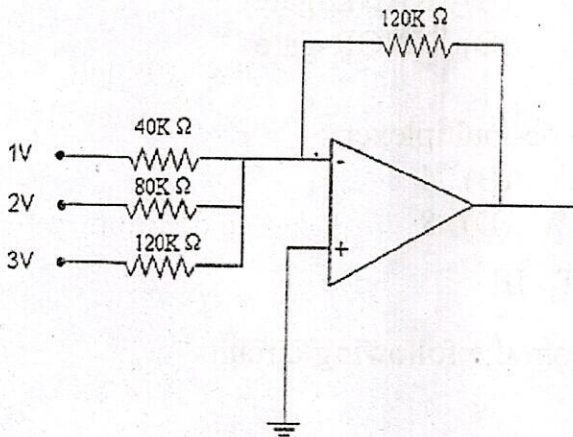


- 12) A Schmitt trigger uses
- (A) Positive feedback
 - (B) Negative feedback
 - (C) Compensating capacitors
 - (D) Pullup resistors

- 13) IC 555 can be used as
- (A) Rectifier
 - (B) Filter
 - (C) Amplifier
 - (D) Multivibrator

- 14) Output impedance and CMRR of an ideal op-amp is
- (A) ∞ and 0
 - (B) Both are infinite
 - (C) Both are zero
 - (D) 0 and ∞

- 15) The value of output V_0 for the given circuit is



- (A) 6V
- (B) -9V
- (C) -6V
- (D) +9V

UNIT - IV

- 16) A transducer's function is to:
- (A) Transmit electrical energy
 - (B) Convert Energy
 - (C) Produce mechanical energy
 - (D) Prevent current flow

- 17) The transducers that convert input signal into discrete output signal as a function of time is called
- (A) Active transducer (B) Digital transducer
(C) Analog transducer (D) Pulse transducer
- 18) Strain gauge is a
- (A) Active device and converts mechanical displacement into a change of resistance
(B) Passive device and converts electrical displacement into a change of resistance
(C) Passive device and converts mechanical displacement into a change of resistance
(D) Active device and converts electrical displacement into a change of resistance
- 19) The materials which generates an electrostatic charge or voltage when mechanical force applied on them are called
- (A) Photo electric materials (B) Piezo electric materials
(C) Thermo electric materials (D) Photo resistive materials
- 20) The rate at which fluid flows through a closed pipe can be determined by
- (A) Determining the mass and volume flow rate
(B) Determining temperature
(C) Determining Pressure
(D) Determining Velocity

UNIT V

- 21) Which is not true about RISC processors
- (A) Most of the instructions are of fixed length
(B) Most of the instructions execute in one machine cycle
(C) Have a large register bank
(D) Have a large complex instruction set

- 22) How many timers in 8051?
(A) 2 (B) 4
(C) 1 (D) 3
- 23) The meaning of the instruction MOV A,05H used in 8051 microcontrollers is,
(A) Data 05H is stored in the accumulator
(B) Fifth bit of accumulator is set to one
(C) Address 05H is stored in the accumulator
(D) None of the mentioned
- 24) The devices specifically used for converting serial to parallel and from parallel to serial respectively are,
(A) Timers (B) Counters
(C) Registers (D) Serial communication
- 25) Which instruction is used to check the status of a single bit?
(A) MOV A,P0 (B) ADD A,#05H
(C) JNB P0.0, label (D) CLR P0.05H

UNIT - VI

- 26) The reflection arises in the transmission lines when
(A) The generator voltage is greater than the load impedance
(B) The load impedance is matched with the characteristic impedance of the transmission line
(C) The load impedance is mismatched with the characteristic impedance of the transmission line
(D) None of these
- 27) The quarter wavelength transmission lines are used as
(A) Impedance matching device
(B) Current matching device
(C) Voltage matching device
(D) None of these

- 28) The angular distance between two points on each side of major lobe especially when the radiation drops to zero is known as
- (A) Half power beam width (HPBW)
 - (B) First null beam width (FNBW)
 - (C) Side lobe level (SLL)
 - (D) Front to back ratio (FBR)
- 29) General expression for the propagation constant of the transmission line is
- (A) $\gamma = \sqrt{(R + j\omega L)(G + j\omega C)}$
 - (B) $\gamma = \frac{\sqrt{(R + j\omega L)}}{\sqrt{(G + j\omega C)}}$
 - (C) $\gamma = \sqrt{(R + j\omega L)}$
 - (D) $\gamma = \sqrt{(G + j\omega C)}$
- 30) VSWR of a loss less transmission line is
- (A) Greater than Zero and less than 1
 - (B) Greater than 1
 - (C) Less than 1
 - (D) Infinite

UNIT - VII

- 31) Modulation is needed to
- (A) Amplify the information signals
 - (B) Transmit the information signals for longer distances
 - (C) Increase the frequency of the information signals
 - (D) Decrease the frequency of the information signal
- 32) Vestigial Side band modulation is most commonly used in.
- (A) Radio Transmission
 - (B) Television Transmission
 - (C) Telephony
 - (D) All of these

- 40) In Satellite communication, the word Apogee and Perigee means
- (A) the farthest point from the earth and is the closest point to the earth respectively
 - (B) the closest point to the earth and is the farthest point from the earth respectively
 - (C) the closest distance between earth to sun and farthest point from earth to moon respectively
 - (D) the farthest distance between earth to moon and nearest point from earth to sun respectively

UNIT - IX

- 41) A system is stable if ROC
- (A) include the unit circle
 - (B) exclude the unit circle
 - (C) lies on circle
 - (D) entire plane
- 42) The Laplace transform of impulse $\delta(t)$ is
- (A) 1
 - (B) $1/s$
 - (C) S
 - (D) $1/s^2$
- 43) A discrete-time signal $x[n]$ is shown in Figure 1, then the expression of figure 2 is :

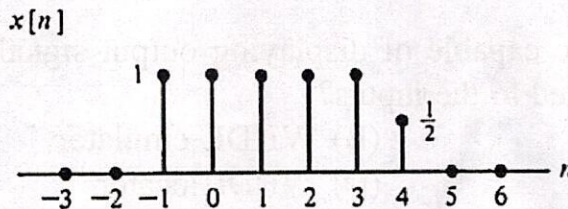


Figure 1

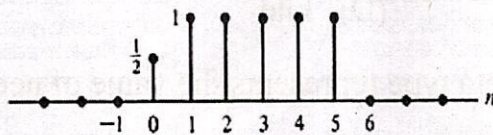


Figure 2

- (A) $x(4-n)$
- (B) $x(n-2)$
- (C) $x(2n+1)$
- (D) $x(2n)$

- 44) The z-transform $X(z)$ of $x[n] = 2^n u[n]$ is:
- (A) $\frac{1}{1-2z^{-1}}$ (B) $\frac{2}{1-z^{-1}}$
 (C) $\frac{1}{1+2z^{-1}}$ (D) $\frac{2}{1+2z^{-1}}$
- 45) Two systems with impulse response $h_1(t)$ and $h_2(t)$ are connected in cascade. Then the overall impulse response is given by,
- (A) Product of $h_1(t)$ and $h_2(t)$
 (B) Sum of $h_1(t)$ and $h_2(t)$
 (C) Convolution of $h_1(t)$ and $h_2(t)$
 (D) Subtraction of $h_2(t)$ and $h_1(t)$

UNIT - X

- 46) Among the VHDL features, which language statements are executed at the same time in parallel flow?
- (A) Concurrent (B) Sequential
 (C) Net-list (D) Test-bench
- 47) EPROM stands for
- (A) Electrical Programmable Read Only Memory
 (B) Electronic Programmable Read Only Memory
 (C) Erasable Programmable Read Only Memory
 (D) Electromagnetic Programmable Read Only Memory
- 48) Which of the following are capable of displaying output signal waveforms resulting from stimuli applied to the inputs?
- (A) VHDL Simulator (B) VHDL emulator
 (C) VHDL debugger (D) VHDL locator
- 49) The data type in VHDL is non-synthesizable & allows the designer to model the objects of dynamic nature is,
- (A) Scalar (B) Access
 (C) Composite (D) File
- 50) In VHDL, which class of scalar data type represents the value of necessary for a specific operation?
- (A) Integer types (B) Real types
 (C) Physical types (D) Enumerated types

