DF-2992
Second Year B. Sc. (Sem. III) Examination
March / April - 2016
Electronics : Paper - V
(Linear Power Electronics)

Time : Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.

Name of the Examination : SECOND YEAR B. Sc. (SEM. 3)
Name of the Subject : ELECTRONICS - 5

Subject Code No. : 2 9 9 2 Section No. (1, 2,.....) 1,2,3

Seat No. :

Student's Signature

(2) This exam contains 28 multiple choice questions.
(3) Choose only ONE most appropriate answer per question.
(4) Do not crease or fold the answer sheet.
(5) All symbols and abbreviations have their usual meaning.
(6) Non-programmable calculators are allowed.
(7) Assume data if necessary.

Q. 1 to 12 Multiple choice questions : (1 mark)
Q. 13 to 22 Multiple Choice Questions : (2 marks)
Q. 23 to 28 Multiple Choice Questions : (3 marks)

O.M.R. Sheet भरवा अंश-नी अन्यप्रकार सूचनाओं चाहे O.M.R. Sheet-ली पात्र आहे भरा.

Important instructions to fill up O.M.R. Sheet is given on back side of the provided O.M.R. Sheet.
1. The diode schematic arrow points to the
   (A) positive axial lead
   (B) anode lead
   (C) cathode lead
   (D) trivalent-doped material

2. The form factor for half wave rectified sine wave is
   (A) 1.11
   (B) 1.44
   (C) 1.57
   (D) 1.0

3. The device or circuit used for conversion of A.C. into D.C. is called
   (A) An amplifier
   (B) Filtering circuit
   (C) Converter
   (D) A rectifier

4. The alternating voltage is an example of
   (A) Discrete waveform
   (B) An analogue waveform
   (C) None of all
   (D) A digital waveform
A filtered full-wave rectifier voltage has a smaller ripple than does a half-wave rectifier voltage for the same load resistance and capacitor values because:

(A) there is a longer time between peaks
(B) the larger the ripple, the better the filtering action
(C) none of these
(D) there is a shorter time between peaks

A pn junction allows current flow when

(A) the n-type material is more positive than the p-type material
(B) the p-type material is more positive than the n-type material
(C) there is no potential on the n-type or p-type materials
(D) both the n-type and p-type materials have the same potential

With full-wave rectification, current through the load resistor must be

(A) in the same direction
(B) from the reverse biased diode
(C) to the external load
(D) in opposite directions

DC power should be connected to forward bias a diode as follows:

(A) − cathode, − anode
(B) + cathode, + anode
(C) + anode, − cathode
(D) − anode, + cathode
9 The 7912 voltage regulator produces an output voltage that is

(A) -12 V
(B) 12 V
(C) 9 V
(D) 3V

10 A voltage regulator has a ripple rejection of -60 dB. If the input ripple is 1V, the output ripple is

(A) -60 mV
(B) 10 mV
(C) 1000 V
(D) 1mV

11 A series regulator is more efficient than a shunt regulator because

(A) It can boost the voltage
(B) The pass transistor replaces the series resistor
(C) It switches the pass transistor on and off
(D) It has a series resistor

12 The energy in a cell or battery depends mainly on

(A) The current drawn from it. (Cells and Batteries)
(B) Its voltage
(C) All of these
(D) Its physical size
13 In which of the following places would you most likely choose a lithium battery?
   (A) A microcomputer memory backup
   (B) A portable audio cassette player
   (C) A rechargeable flashlight
   (D) A two-way portable radio

14 A zener diode can be used to provide _____ in a power supply.
   (A) Voltage Regulation
   (B) Voltage Amplification
   (C) Current Amplification
   (D) Current Regulation

15 The small amount of ac signal present on the output of a filtering network for a dc power supply is known as ______.
   (A) ripple
   (B) trickle
   (C) waffle
   (D) pulsating dc

16 Transistor series voltage regulator has _______ and _______ as compared to other regulators with the input variations.
   (A) poor regulation and ripple suppression
   (B) constant regulation and ripple suppression
   (C) None of these
   (D) strong regulation and ripple suppression

17 Special diodes designed to conduct in the reverse direction are called ______ diodes.
   (A) varactor
   (B) LED
   (C) switching
   (D) zener
18 A fixed voltage regulator can be a ________
   (A) Negative voltage regulator
   (B) Positive or negative voltage regulator
   (C) Variable voltage regulator
   (D) Positive voltage regulator

19 Alkaline cells:
   (A) Are generally better in radios than zinc-carbon cells
   (B) Have higher voltages than zinc-carbon cells
   (C) Have shorter shelf lives than zinc-carbon cells
   (D) Are cheaper than zinc-carbon cells

20 Which of the following cell is not rechargeable?
   (A) Silver oxide cell
   (B) Fuel cell
   (C) Ni-Cd cell
   (D) Lead storage battery

21 In full-wave rectification the output D.C. voltage is obtained across the load for
   (A) The positive half cycles
   (B) The complete cycle of A.C.
   (C) Either positive or negative half of A.C.
   (D) The negative half cycle of A.C.

22 A current booster is a transistor in
   (A) Series with the IC regulator
   (B) Either series or parallel
   (C) Shunt with the load
   (D) Parallel with the IC regulator
23 The semiconductor diode can be used as a rectifier because______.

(A) It has low resistance to the current flow when forward biased.

(B) It has high resistance to the current flow when reverse biased.

(C) Its conductivity increases with rise of temperature.

(D) It has low resistance to the current flow when forward biased and high resistance when reverse biased.

24 The output equation for a series regulator is ________.

(A) $V_{out} = V_{zener} + V_{be}$

(B) $V_{out} = I_{zener} - V_{be}$

(C) $V_{out} = I_{zener} + V_{be}$

(D) $V_{out} = V_{zener} - V_{be}$

25 The switching regulators can operate in

(A) Step down

(B) Polarity inverting

(C) All the mentioned

(D) Step up
26 Filter used in switching regulator's are also as called
   (A) AC – DC transformers
   (B) DC transformer
   (C) AC transformer
   (D) DC – AC transformers

27 Which among the following act as a switch in switching regulator?
   (A) Diode
   (B) Transistors
   (C) Relays
   (D) Rectifiers

28 What is the current through the diode?

![Diode Diagram]

   (A) 0.975 mA
   (B) 0.942 mA
   (C) 0.0 mA
   (D) 1 mA