Instructions:

(1) Fill in 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

(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 भरने अंगे-अंग सावधानी सूचनाओ अनुसार
O.M.R. Sheet-ले पात्र भरेख।

Important instructions to fill up O.M.R. Sheet
is given on back side of the provided O.M.R. Sheet.
1. A pn junction allows current flow when
   (A) the p-type material is more positive than the n-type material
   (B) there is no potential on the n-type or p-type materials
   (C) both the n-type and p-type materials have the same potential
   (D) the n-type material is more positive than the p-type material

2. With full-wave rectification, current through the load resistor must be
   (A) from the reverse biased diode
   (B) to the external load
   (C) in opposite directions
   (D) in the same direction

3. DC power should be connected to forward bias a diode as follows:
   (A) + cathode, + anode
   (B) + anode, − cathode
   (C) − anode, + cathode
   (D) − cathode, − anode

4. The 7912 voltage regulator produces an output voltage that is
   (A) 12 V
   (B) 9 V
   (C) 3 V
   (D) −12 V
5 A voltage regulator has a ripple rejection of \(-60\) dB. If the input ripple is 1V, the output ripple is

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

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

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

7 The energy in a cell or battery depends mainly on

(A) Its voltage
(B) All of these
(C) Its physical size
(D) The current drawn from it. (Cells and Batteries)

8 The diode schematic arrow points to the

(A) anode lead
(B) cathode lead
(C) trivalent-doped material
(D) positive axial lead
9 The form factor for half wave rectified sine wave is

(A) 1.44

(B) 1.57

(C) 1.0

(D) 1.11

10 The device or circuit used for conversion of A.C. into D.C. is called

(A) Filtering circuit

(B) Converter

(C) A rectifier

(D) An amplifier

11 The alternating voltage is an example of

(A) An analogue waveform

(B) None of all

(C) A digital waveform

(D) Discrete waveform

12 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) the larger the ripple, the better the filtering action

(B) none of these

(C) there is a shorter time between peaks

(D) there is a longer time between peaks
13 Alkaline cells:
(A) Have higher voltages than zinc-carbon cells
(B) Have shorter shelf lives than zinc-carbon cells
(C) Are cheaper than zinc-carbon cells
(D) Are generally better in radios than zinc-carbon cells

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

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

16 A current booster is a transistor in
(A) Either series or parallel
(B) Shunt with the load
(C) Parallel with the IC regulator
(D) Series with the IC regulator

17 In which of the following places would you most likely choose a
lithium battery?
(A) A portable audio cassette player
(B) A rechargeable flashlight
(C) A two-way portable radio
(D) A microcomputer memory backup
18. A zener diode can be used to provide _____ in a power supply.
   (A) Voltage Amplification  
   (B) Current Amplification  
   (C) Current Regulation  
   (D) Voltage Regulation

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

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

21. Special diodes designed to conduct in the reverse direction are called _______ diodes.
   (A) LED  
   (B) switching  
   (C) zener  
   (D) varactor

22. A fixed voltage regulator can be a ________
   (A) Positive or negative voltage regulator  
   (B) Variable voltage regulator  
   (C) Positive voltage regulator  
   (D) Negative voltage regulator
23 Filter used in switching regulator's are also as called

(A) DC transformer
(B) AC transformer
(C) DC – AC transformers
(D) AC – DC transformers

24 Which among the following act as a switch in switching regulator?

(A) Transistors
(B) Relays
(C) Rectifiers
(D) Diode

25 What is the current through the diode?

![Diode Circuit Diagram]

(A) 0.942 mA
(B) 0.0 mA
(C) 1 mA
(D) 0.975 mA
26 The semiconductor diode can be used as a rectifier because______. 

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

(B) Its conductivity increases with rise of temperature. 

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

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

27 The output equation for a series regulator is ________. 

(A) \( V_{out} = I_{zener} - V_{be} \) 

(B) \( V_{out} = I_{zener} + V_{be} \) 

(C) \( V_{out} = V_{zener} - V_{be} \) 

(D) \( V_{out} = V_{zener} + V_{be} \) 

28 The switching regulators can operate in 

(A) Polarity inverting 

(B) All the mentioned 

(C) Step up 

(D) Step down