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# 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)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
**Fillup 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 Choise Questions : (2 marks)**

**Q. 23 to 28 Multiple Choice Questions : (3 marks)**

***O.M.R. Sheet* ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ *O.M.R. Sheet*ની પાછળ છાપેલ છે.**

***Important instructions to fillup O.M.R. Sheet is given on back side of the provided O.M.R. Sheet.***

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

(A) A rectifier

(B) An amplifier

(C) Filtering circuit

(D) Converter

2 The alternating voltage is an example of

(A) A digital waveform

(B) Discrete waveform

(C) An analogue waveform

(D) None of all

3 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 shorter time between peaks

(B) there is a longer time between peaks

(C) the larger the ripple, the better the filtering action

(D) none of these

4 A pn junction allows current flow when

(A) both the n-type and p-type materials have the same potential

(B) the n-type material is more positive than the p-type material

(C) the p-type material is more positive than the n-type material

(D) there is no potential on the n-type or p-type materials

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

(A) in opposite directions

(B) in the same direction

(C) from the reverse biased diode

(D) to the external load

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

(A) –anode, + cathode

(B) – cathode, – anode

(C) + cathode, + anode

(D) + anode, – cathode

7 The 7912 voltage regulator produces an output voltage that is

(A) 3V

(B) –12 V

(C) 12 V

(D) 9 V

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

(A) 1mV

(B) –60 mV

(C) 10 mV

(D) 1000 V

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

(A) It has a series resistor

(B) It can boost the voltage

(C) The pass transistor replaces the series resistor

(D) It switches the pass transistor on and off

10 The energy in a cell or battery depends mainly on

(A) Its physical size

(B) The current drawn from it. (Cells and Batteries)

(C) Its voltage

(D) All of these

11 The diode schematic arrow points to the

(A) trivalent-doped material

(B) positive axial lead

(C) anode lead

(D) cathode lead

12 The form factor for half wave rectified sine wave is

(A) 1.0

(B) 1.11

(C) 1.44

(D) 1.57

13 In full-wave rectification the output D.C. voltage is obtained across the load for

(A) The negative half cycle of A.C.

(B) The positive half cycles

(C) The complete cycle of A.C.

(D) Either positive or negative half of A.C.

14 A current booster is a transistor in

(A) Parallel with the IC regulator

(B) Series with the IC regulator

(C) Either series or parallel

(D) Shunt with the load

15 In which of the following places would you most likely choose a lithium battery ?

(A) A two-way portable radio

(B) A microcomputer memory backup

(C) A portable audio cassette player

(D) A rechargeable flashlight

16 A zener diode can be used to provide _____ in a power supply.

(A) Current Regulation

(B) Voltage Regulation

(C) Voltage Amplification

(D) Current Amplification

17 The small amount of ac signal present on the output of a filtering network for a dc power supply is known as _____.

(A) pulsating dc

(B) ripple

(C) trickle

(D) waffle

18 Transistor series voltage regulator has _____ and _____ as compared to other regulators with the input variations.

(A) strong regulation and ripple suppression

(B) poor regulation and ripple suppression

(C) constant regulation and ripple suppression

(D) None of these

19 Special diodes designed to conduct in the reverse direction are called _____ diodes.

(A) zener

(B) varactor

(C) LED

(D) switching

20 A fixed voltage regulator can be a _____

(A) Positive voltage regulator

(B) Negative voltage regulator

(C) Positive or negative voltage regulator

(D) Variable voltage regulator

21 Alkaline cells :

(A) Are cheaper than zinc-carbon cells

(B) Are generally better in radios than zinc-carbon cells

(C) Have higher voltages than zinc-carbon cells

(D) Have shorter shelf lives than zinc-carbon cells

22 Which of the following cell is not rechargeable ?

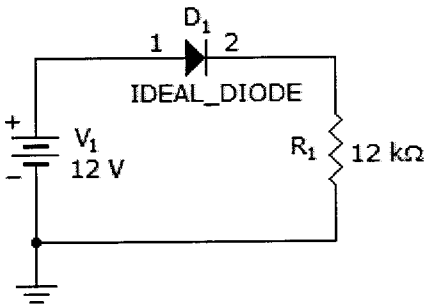
(A) Lead storage battery

(B) Silver oxide ceol

(C) Fuel cell

(D) Ni-Cd cell

23 What is the current through the diode ?




(A) 1 mA

(B) 0.975 mA

(C) 0.942 mA

(D) 0.0 mA

24 The semiconductor diode can be used as a rectifier because_____.

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

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

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

(D) Its conductivity increases with rise of temperature.

25 The output equation for a series regulator is _____.

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

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

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

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

26 The switching regulators can operate in

(A) Step up

(B) Step down

(C) Polarity inverting

(D) All the mentioned

27 Filter used in switching regulator's are also as called

(A) DC – AC transformers

(B) AC – DC transformers

(C) DC transformer

(D) AC transformer

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

(A) Rectifiers

(B) Diode

(C) Transistors

(D) Relays