PHYSICS

AAKASH INSTITUTE ENGLISH

Mock Test 39: PHYSICS

Example

1. Deuterium is represented by

A. H_1^1

B. He_2^2

C. H_2^1

D. H_3^1

Answer: C

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2. One a.m.u. stands for

A. $\frac{1}{20}$(mass of one O-atom)

B. $\frac{1}{12}$(mass of one C-atom)

C. $\frac{1}{18}$(mass of one N-atom)

D. $\frac{1}{24}$(mass of one S-atom)

Answer: B

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3. Select the correct option

A. β^+ decay occurs only when N/Z is too small for stability

B. β^- decay occurs only when N/Z is too large for stability

C. In β^+ decay Z decreases by one,N increases by one

D. All of these

Answer: D

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4. The half life of radium is about 1200 years.if hundred gram of radium is existing now than 25g will remain undecayed after

A. 1800 years

B. 2400 years

C. 2800 years

D. 3200 years

Answer: B

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5. In nuclear reactions which of the following conservation laws is not obeyed?

A. conservation of mass

B. conservation of linear momentum

C. conservation of charge

D. conservation of total number of nucleons

Answer: A

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6. If the nuclear of radius of O^8 is 2.4 fermi, then radius of Al^{27} would be

A. 6.0 fermi

B. 5.6 fermi

C. 3.6 fermi

D. 3.0 fermi

Answer: C

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7. The incorrect feature of nuclear forces among following is

A. nuclear forces are charge dependent

B. nuclear forces are short range forces

C. nuclear forces shows saturation properties

D. nuclear forces are non -central

Answer: A

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8. The $t_{0.5}$ of a radioactive element is related to its average life by the expression

A. $T_{12} = 1.44T_{av}$

B. $T_{12} = 1.36T_{av}$

C. $T_{12} = 0.693T_{av}$

D. $T_{12} = \frac{T_{av}}{0.693}$

Answer: C

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9. The unit of radioactivity decay rate is

A. Curie

B. Becquerel

C. decay per second

D. all of these

Answer: D

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10. The quark content of proton and neutron are respectively

A. udd,udd

B. uud,udd

C. uuu,ddd

D. udd,uud

Answer: B

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11. If M,m_n and m_p are masses (in kg) of nucleus X_z^A, neutron and proton respectively, then mass defect(Δm) is equal to

A. $\Delta m = [(A-Z)m_n + Am_p - M]$

B. $\Delta m = [M - (A-Z)m_n + Am_p]$

C. $\Delta m = [(A-Z)m_n + Zm_p + M]$

D. $\Delta m = [(A-Z)m_n + Zm_p - M]$

Answer: D

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12. A pure semiconductors

A. extrinsic semiconductor

B. intrinsic semiconductor

C. n type semiconductor

D. p type semiconductor

Answer: B

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13. In a p-n junction diode, holes diffuse from p-region to n- region because

A. there is a large concentration of holes in p region as compared to n regions

B. there is large concentration of electrons in p region as compared to the n region

C. the concentration of holes and electrons in both (p region & n region) is same

D. the mobility of holes is more than the mobility of electrons

Answer: A

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14. The total number of current careers in intrinsic semiconductor of dimensions $1m \times 1m \times 10^{-2}m$ having number of free electrons $n_e = 5 \times 10^8$ per cubic metre is

A. 10^{18}

B. 10^{7}

C. 10^{16}

D. 10^{15}

Answer: B

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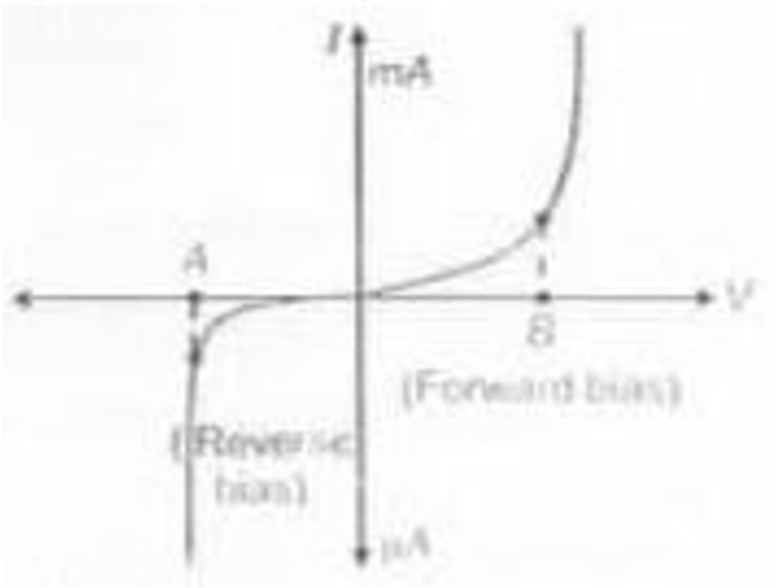
15. In the voltage current (V-I) characteristics of junction diode (figure) the point A and B

corresponds to



A. $A \rightarrow$ Avalanche breakdown $B \rightarrow$ Zener voltage

B. $A \rightarrow$ Knee voltage $B \rightarrow$ Avalanche breakdown

C. $A \rightarrow$ Knee voltage $B \rightarrow$ Zener voltage

D. $A \rightarrow$ Zener voltage $B \rightarrow$ knee voltage

Answer: D

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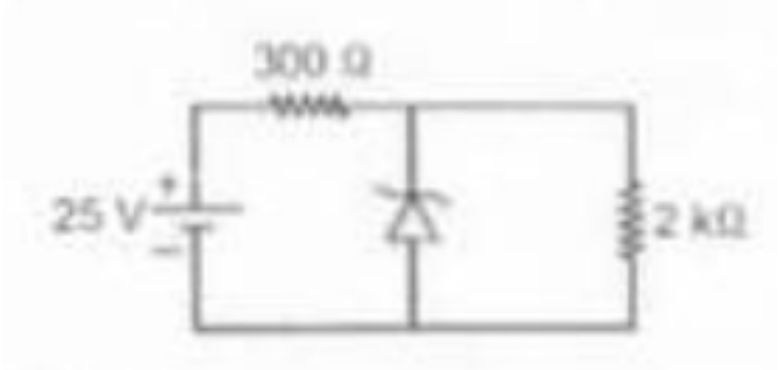
16. In the circuit below ,the breakdown voltage of zener diode is 10v. The current through

diode would be



A. 50mA

B. 45mA

C. 40mA

D. 30mA

Answer: B

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17. Symbolic representation of photodiode is-

A. 

B. 

C. 

D. 

Answer: A

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18. The electron density of intrinsic semiconductor at room temperature is $10^{16}m^{-3}$. When doped with a trivalent impurity , the electron density is decreased to $10^{14}m^{-3}$ at the same temperature . The majority carrier density is

A. 

B. 

C. 

D. 

Answer: C

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19. The correct statement among the following is/are

A. the electrical conductivity of pure semiconductor increases by doping

B. the electrical conductivity of pure semiconductor decreases by doping

C. there is no effect of doping on the electrical conductivity of semiconductor

D. electrical conductivity of pure semiconductor may increase or decrease on doping

Answer: A

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20. In p-n junction, having depletion layer of thickness $2 \times 10^{-6} m$ the potential difference across it is 0.2 V. The electric field is

A. $10^6 \frac{V}{m}$

B. $4 \times 10^5 \frac{V}{m}$

C. $10^5 \frac{V}{m}$

D. $10^{-5} \frac{V}{m}$

Answer: C

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21. A N - type semiconductor is

A. positively charged

B. negatively charged

C. positively charged at low temperature and negative charged at high temperature

D. electrically neutral

Answer: D

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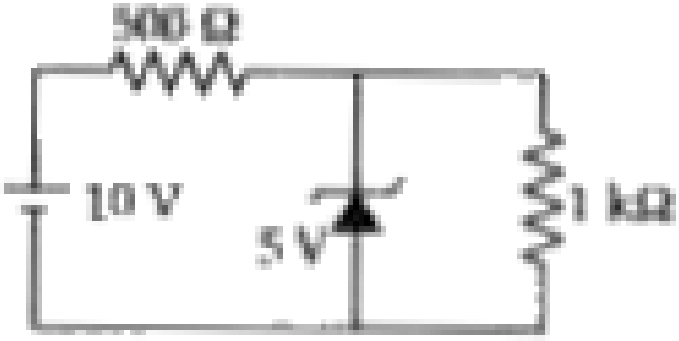
22. In the following circuit, the current flowing through $1k\Omega$. resistor is



A. o mA

B. 5 mA

C. 10 mA

D. 15 mA

A. o mA

B. 5 mA

C. 10 mA

D. 15 mA

Answer: D

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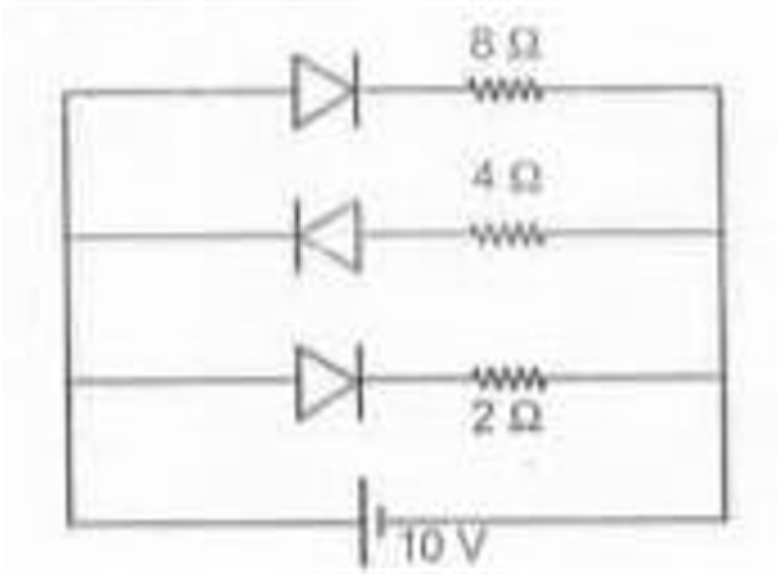
23. The current through 2 Omega resistor is(diodes are considered as ideal)



A. 3A

B. 5A

C. 2A

D. 4A

Answer: B

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24. If n_i, n_e and n_h represents the number of intrinsic charge carrier, number of free electrons and number of holes respectively in semiconductor, then relation $n_h n_e = n_i^2$ is true for

A. intrinsic semiconductor

B. p type semiconductor

C. n-type semiconductor

D. all of these

Answer: D

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25. The cut-in voltage of a germanium diode is approximately equal to

A. 1.1V

B. 0.72V

C. 0.01V

D. 0.3V

Answer: D

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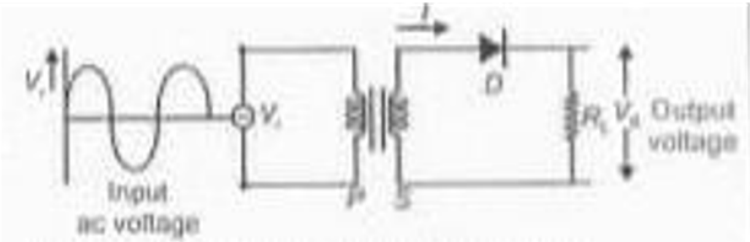
26. In a half wave rectifier, the current flows



A. during first and third half cycle only

B. during second half cycle only

C. during first and second half cycle only

D. during second and third half cycle only

Answer: A

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