Physics	(A)	L.K.No. 1312	Paper Code No. 8472
Paper II (Objective Type)		Inter -A- 2019	(New Pattern)
Time : 20 Minutes		Inter (Part II)	Group 2nd
Marks : 17		Session (2015 -17) to (2017 ~ 19)	

Note : Four possible choices A , B , C ,D to each question are given. Which choice is correct fill that circle in front of that Question No. Use Marker or Pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

Q.No.1

(1) Photocopier and Inkjet Printer are the applications of :
(A) Magnetism (B) Electricity (C) Electrostatics (D) Electronics

(2) Electroretinography is used for the diagnosis of abnormality in the :
(A) Eyes (B) Ears (C) Throat (D) Heart

(3) If Fourth Band is missing on Carbon Resistor, its Tolerance is :
(A) ± 5 % (B) ± 20 % (C) ± 10 % (D) ± 30 %

(4) The Magnetic Flux Density is measured in :
(A) Weber (B) Weber / m^2 (C) Tesla / m^2 (D) Nm

(5) Shunt Resistance is :
(A) High Resistance (B) Zero Resistance (C) Infinite Resistance (D) Low Resistance

(6) If the Motor is overloaded, then magnitude of back emf :
(A) Increases (B) Decreases (C) Remains same (D) Becomes zero

(7) Transformer is an Electrical Device used to change :
(A) *Alternating Current* (B) *Direct Current* (C) *Alternating emf* (D) Voltage

(8) During each cycle of A.C. Voltage reaches a peak value :
(A) Once (B) Twice (C) Thrice (D) Four Times

(9) Phase Difference between V and I of an A.C. through Resistor is :
(A) Zero Degree (B) 90° (C) 180° (D) 270°

(10) The Young's Modulus of Mercury is :
(A) $70 \times 10^9 Nm^{-2}$ (B) $15 \times 10^9 Nm^{-2}$ (C) Zero (D) $91 \times 10^9 Nm^{-2}$

(11) The thickness of Base in Transistor is of the order of :
(A) 10^{-6} cm (B) $10^{-6} m$ (C) $10^6 m$ (D) $10^{-6} mm$

(12) A Sensor of Light is : (A) Transistor (B) LED (C) Diode (D) LDR

(13) The most refined form of Matter by de-Broglie is :
(A) Smoke (B) Fog (C) Light (D) Protons

(14) The existence of Positron was predicted by :
(A) G.P. Thomson (B) Dirac (C) Germer (D) Newton

(15) Balmer Series lies in the region of Electromagnetic :
(A) Infrared (B) Far Infrared (C) Ultraviolet (D) Visible

(16) The number of Neutrons present in the Nucleus is given by :
(A) N = A - Z (B) N = A +Z (C) N = Z - A (D) N = A x Z

(17) The S.I. Unit of Decay Constant is :
(A) Second (B) Meter (C) (Second)$^{-1}$ (D) (Meter)$^{-1}$

B

Roll No.	1312-/8000	Session (2015-17) to (2017-19)	Inter (Part-II
Physics (Subjective)	Inter-A-2019	Time 2:40 Hours Marks: 68	(New Pattern)/Group II

Note: It is compulsory to attempt any (8-8) Parts each from Q.No. 2 and Q.No.3 and attempt any (6) Parts from Q.No.4. Attempt any (3) Questions from Part-II. Write same Question No. and its Part No. as given in the Question Paper.

Make Diagram where necessary. | **Part - I** | **22 x 2 = 44**

.No.2
(i) Define Electric Force and Electric Flux.
(ii) Define Capacitor and Farad.
(iii) Electric Lines of Force never cross, why?
(iv) Do electrons tend to go to region of high potential or of low potential?
(v) Why the Resistance of an Ammeter should be very low?
(vi) Why does the picture on a T.V. Screen become distorted when a magnet is brought near the screen?
(vii) Define Magnetic Flux and Flux Density.
(viii) Give the name of components of C.R.O.
(ix) Define Induced Current and Induced e.m.f.
(x) Define Mutual Induction and Mutual Inductance.
(xi) When an Electric Motor, such as an electric drill, is being used does, it also act as a generator? If so what is the consequence of this?
(xii) Does the induced emf in a circuit depend on the resistance of the circuit? Does the induced current depend on the resistance of the circuit?

.No.3
(i) What is Wheatstone Bridge? How can it be used to determine the unknown resistance?
(ii) Is the filament resistance lower or higher in a **500 W, 220 V** light bulb than in a **100 W, 220 V** bulb?
(iii) State and explain Kirchhoff's Second Rule.
(iv) In a R-L Series Circuit, will the current lag or lead the voltage? Illustrate your answer by a Vector Diagram.
(v) What is meant by Modulation and Types of Modulation?
(vi) Define and explain Impedance of a Circuit.
(vii) Define Young's Modulus and Bulk Modulus.
(viii) What are Crystalline Solids? Give few examples of Crystalline Solids.
(ix) What are Conductors and Super Conductors?
(x) Why Ordinary Silicon Diodes do not emit light?
(xi) Why charge carriers are not present in the depletion region?
(xii) Write briefly about Operational Amplifier.

.No.4
(i) If an Electron and a Proton have the same deBroglie Wavelength, which particle has greater speed?
(ii) What happens to total radiation from a black body if its absolute temperature is doubled?
(iii) Define Compton Effect. Write the formula of Compton Shift for scattering angle θ.
(iv) How can the Spectrum of Hydrogen contain so many lines when Hydrogen contains one electron?
(v) Write down two postulates of Bohr's Theory.
(vi) Why are Heavy Nuclei unstable?
(vii) What factors make a fusion reaction difficult to achieve?
(viii) Briefly explain what is meant by Quenching?
(ix) Define Mass Defect and Binding Energy.

Part - II

.No.5 (a) Derive an Expression for Charge on an Electron by Millikan's Oil Drop Method. What did Millikan conclude from this experiment? (5)

(b) A Rectangular Bar of Iron is **2.0 cm** by **2.0 cm** in Cross-Section and **40 cm** long. Calculate its Resistance if the Resistivity of Iron is $11 \times 10^{-8} \Omega m$. (3)

.No.6 (a) Derive an Expression for Energy stored in an Inductor in terms of Magnetic Field. (5)
(b) A Power Line **10 m** high carries a current **200 A**. Find the Magnetic Field of the Wire at the ground. (3)

.No.7 (a) What is Transistor? How it is used as an Amplifier? Explain it with diagram. (5)
(b) Find the value of Current Flowing through a Capacitance **0.5 µF**, when connected to a source of **150 V** at **50 Hz**. (3)

.No.8 (a) State and explain Photoelectric Effect on the basis of Einstein's Quantum Theory. Also derive Einstein Photoelectric Equation. (5)
(b) A **1.25 cm** diameter cylinder is subjected to a load of **2500 Kg**. Calculate the Stress on the bar in Mega Pascals. (3)

.No.9 (a) Explain the Principle, Construction and working of G.M. Counter. (5)
(b) Calculate the Longest Wavelength of Radiation for the Paschen Series. (3)

B   1-04-2019