AAFAQ ACADEMY – KASUR

Paper: Physics **Chapter (17)** **Class: F.Sc. Part – II**

SOLID STSTE PHYSICS

Name: _____ Roll No: (in words) _____

EVENING GROUP

OBJECTIVE TYPE

Total Marks: 11 **Paper Code: _____** **Total Time: 10 Minutes**

NOTE: Write your **Roll No.** in space provided. Using lead pencil will result in loss of marks.

Q.No.1: You have four choices for each objective type question as A,B,C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question.

Sr. No.	QUESTION	A	B	C	D
1.	Which of the following is a crystalline solid?	Copper	Sodium chloride	Zirconia	All of these
2.	Molecules of a solid possess	Rotational motion	Vibrational motion	Translational motion	All of these
3.	Which class of material would you classify Nylon?	Fibres	Polymer	Ceramics	Glass
4.	The deformation of body is the change in its	Shape	Length	Volume	All of these
5.	SI – units of strain are	N	Pa	$N \bullet m^{-2}$	None of these
6.	The substance which undergo plastic deformation until break is	Brittle	Ductile	Soft	Hard
7.	When stress is increased beyond elastic limit and material is permanently changed this property is	Permanent stress	Elasticity	Yield strength	Plasticity
8.	The strain energy in a deformed material is	$\frac{1}{2}\left(\frac{E\ell_1}{AL}\right)$	$\frac{1}{2}\left(\frac{EA\ell_1}{L}\right)$	$\frac{1}{2}\left(\frac{EA\ell_1^2}{L}\right)$	$\frac{1}{2}\left(E\frac{\ell_1}{L}\right)$
9.	The substances of conductivity of the order of $10^{-6} – 10^{-4}$ $(\Omega.m)^{-1}$ are	Insulators	Super conductors	Semiconductors	Good conductors
10.	The substance in which atoms do not form magnetic dipoles are	Crystals	Diamagnetic	Paramagnetic	Ferromagnetic
11.	The energy required to magnetize and demagnetize is called	Saturation	Retentivity	Coercivity	Hysteresis loss

SUBJECTIVE TYPE

Total Marks: 18 **Time Allowed: 0 Hours 50 Minutes**

SECTION – I (SHORT QUESTIONS)

2. Attempt any FIVE questions. (5×2=10)Marks

i. Define stress and strain. What are their SI units? Differentiate between tensile, compressive and shear modes of stress and strain.

ii. Define modulus of elasticity. Show that the units of modulus of elasticity and stress are same. Also discuss its three kinds.

iii. Distinguish between intrinsic and extrinsic semi conductors. How would you obtain n-type and p-type material from pure silicon? Illustrate it by schematic diagram.

iv. Discuss the mechanism of electrical conduction by holes and electrons in a pure semiconductor element.

v. Write note on super conductors.

vi. What is meant by strain energy? How can it be determined from force-extension graph?

vii. Describe the formation of energy bands in solids. Explain the difference amongst electrical behaviour of conductor's insulators and semi-conductor in terms of energy band theory.

SECTION – II (ESSAY TYPE) Attempt given question

3. Do as directed...

i. What is hysteresis loop? Describe it in detail and also give its uses. (5)

ii. The length of a steel wire is 1.0 m and its cross sectional area is $0 \bullet 03 \times 10^{-4} m^2$. Calculate the work done in stretching the wire where force of 100 N is applied with in the elastic region. Young's modulus of steel is $3 \bullet 0 \times 10^{-11} N \bullet m^{-2}$. (3)

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SECTION – III (Practical)

4. (a) Write answer of TWO questions. (2×2=4)

i. a
ii. c
iii. v
iv. b

4. (b) Write procedure to determine the resistance of voltmeter by graph method. (3)

(OR)

Write procedure to find the unknown high resistance by using neon flash lamp. (3)

4. (c) Answer the following questions on the basis of graph drawn between potential difference (V) and charge (Q). (4)

i. What you conclude from the graph?
ii. Find the capacitance of capacitor from the graph.

Good Luck
Ch. Khalid Mahmood Ashraf