PAK WATTAN SCHOOL AND COOLEGE OF SCIENCES
HAVELIAN
Scholarship/Entrance Test Session 2023-24

Grade: HSSC–I & II	**Time:2hrs**
Student Name:_____	**Father Name:_____**
Date:_____	**Roll No:_____**

Urdu 10%	English 15%	Mathematics 15%	Biology 15%	Chemistry 15%	Physics 15%	Computer 15%	100%

ENGLISH
SECTION–A

Q.1 Fill the relevant bubble for each part. Each part carries one mark.

1. Identify the transitional device of sequencing used in one of the following sentences:
   - A. Heal ways comes late. ◯
   - B. He is honest but his friend is not. ◯
   - C. In brief, the story is interesting. ◯
   - D. He was late, therefore, he was punished. ◯
2. Narrative literature created from the imagination, notpresentedasfact,thoughitmaybebasedonatruestoryorsituationiscalled:
   - A. poetry ◯ B. myth ◯
   - C. fiction ◯ D. legend ◯
3. Recognize the use of personification in one of the following sentences:
   - A. The story jumped off the page. ◯
   - B. He is a slippery as a fish. ◯
   - C. He is the moon for his mother. ◯
   - D. She is thin like a string. ◯
4. The**debris**onthestadiumfloorincludednumerouspapercups,ticketstubsandcigaret tebutts.Theunderlinedwordrefers to:
   - A. wreckage ◯ B. splinters ◯
   - C. trash ◯ D. garbage ◯
5. Can you **deduce** meaning from the textual clue? The underlined word means:
   - A. infer ◯ B. forecast ◯
   - C. determine ◯ D. intercept ◯
6. Mr.Alaceisa**snake**,youshouldbewareofhim.Negativeconnotationoftheunderli nedwordis:
   - A. cunning ◯ B. poisonous ◯
   - C. cheater ◯ D. scaly ◯
7. Whichoneofthefollowingisthecorrectwordthatmeanswatertankforfish,formedfromthest emword,“aqua”?
   - A. aquaria ◯ B. aquatic ◯
   - C. aquaplane ◯ D. aquarius ◯
8. Whichoneofthemodalverbsusedinthesentencesbelowshowsthefunctionofability?
   - a. You need n’t worry. ◯
   - b. I tried my best but couldn’t pick it up. ◯
   - c. You have to leave this place. ◯
   - d. May I come in sir? ◯
9. Which one of the following sentences has the use of transitive verb?
   - a. Thetrainarrivesat3p.m. ◯
   - b. Sorry, but I have to leave. ◯
   - c. She lives on the East side of the city. ◯

d. She left the key son the table. ◯

10. Identify the preposition of time used in one of the following sentences:

A. The bank is on the Faisal lane. ◯
B. He left for Karachi on Monday. ◯
C. He is of ten on bed rest. ◯
D. You stand on the other side of the fence. ◯

SECTION –B

Q. a. Paraphrase any **ONE** of the following stanzas:

I. My little horse must think it
queerTo stop without a farmhouse
near Between the woods and
frozen lake The darkest evening of
the year.

OR

II. The day is cold, and dark ,and dreary;
It rains, and the wind is never weary;
The vine still clings to the moulde ring wall,But at every gust the
dead leaves fall,
And the day is dark and dreary.

b. Read the following stanza carefully and answer the questions given at the end:

I. Theangelwrote,and**vanished**.ThenextnightItca
meagainwithagreat**wakening**light,
And showed the names whom love of God had blest,And lo!Ben Adhem's
name led all the rest.

QUESTIONS:

i. Write down the rhyme scheme of the stanza.
ii. Who wrote the names of the people who are blessed with God's love?
iii. Give meanings of the underlined words.
iv. What did the angel show to Ben Adhem?
v. Why was Abou Ben Adhem's name on the top of the list?

OR

II. For oft, when on my couch I lie
In vacant or in **pensive** mood,
They flash upon that in war
deye Which is the bliss of
solitude;
And the my heart with pleasure fills,And dances with the
daffodils.

QUESTIONS:

i. Write down the rhyme scheme of the stanza.
ii. What flashes upon the inward eye of the poet?
iii. Give meanings of the underlined words.
iv. Which poetic device has been used in the last line of the stanza?
v. How does the poet enjoy the company of daffodils?

Q)a. Fill in the blanks to complete the process of washing clothes in a machine.Use the passive voice form of the verbs given in brackets.

Dirty clothes are_____(take)for washing. Clothes are _____(separate)on the basis of texture,colour,etc.Each pile is _____(put)in the washing machine tub.Then the detergent powder is_____(add).Once the washing is over the

clothes are_____(remove)from the tub and hung for drying.

b. UsetheVerbsgiveninthebracketsaspresentandpastparticiples.(any**FIVE**)**(5)**

i. When I am tired,I enjoy_____television. (watch)
ii. I' m not in a hurry.I don't mind_____.(wait)
iii. They don't have much money.They can't afford_____out.(go)
iv. I wish that dog would stop_____.It is driving memad. (bark)
v. Hurry up!I don't want to risk_____the train.(miss)
vi. Where are the chocolates? Have you_____themall?(eat)
vii. How is your new job? Are you_____it?(enjoy)

c. Punctuate the following para/line(s):

Looking straight at her he said I cant help you I don't like this one said ayesha

SECTION –C

Q)Write an email to your sister congratulating her on her success in the speech competition.

OR

Write an application for two days leave for attending your brother's marriage

Q)Write a paragraph of about 80 to100 words on any **ONE** of the following:

Good Manners

OR **GreenPakistan**

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MATHEMATICS

SECTION – A

Fill the relevant bubble for each part. All parts carry one mark.

(1) Which one of the following represents an identity matrix?

A. $\begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$ ◯ B. $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ ◯

C. $\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$ ◯ D. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ ◯

(2) Which one of the following options is the real part of $5(3 - 2i)$?

A. –10 ◯ B. 10 ◯

C. 15 ◯ D. –5 ◯

(3) The scientific notation of 537.1 is:

A. 5.371×10^2 ◯ B. 5.371×10^3 ◯

C. 5.371×10^{-2} ◯ D. 5.371×10^{-3} ◯

(4) Which one of the following is a polynomial?

A. $x^3 + 3x^2 - 5$ ◯ B. $x^3 + 3x^{-2} - 5$ ◯

C. $x^{3/2} + 3x^2 - 5$ ◯ D. $x^2 + 3x^{-1/2} - 5$ ◯

(5) The expansion of $(x - 1)^3$ is:

A. $x^3 + 3x^2 - 3x + 1$ ◯ B. $x^3 - 3x^2 + 3x - 1$ ◯

C. $x^3 - 3x^2 - 3x + 1$ ◯ D. $x^3 - 3x^2 - 3x - 1$ ◯

(6) The multiplicative factors of $(2x^2 - 18)$ are:

A. $2(x - 3)(x - 3)$ ◯ B. $2(x - 3)(x + 3)$ ◯

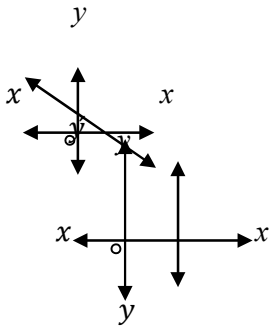
C. $(\sqrt{2}x - 9)(\sqrt{2}x - 9)$ ◯ D. $(\sqrt{2}x - 9)(\sqrt{2}x + 9)$ ◯

(7) Let a, b be real numbers, then a is greater than b if the difference $a - b$ is positive and we denote this order relation by the inequality:

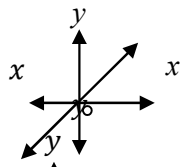
A. $a > b$ ◯ B. $a < b$ ◯

C. $b \geq a$ ◯ D. $b \leq a$ ◯

(8) Which one of the following is a graph of $y = mx$?

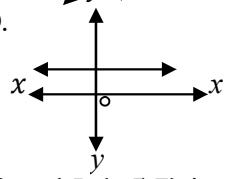
A. 

◯

B. 

◯

C. ◯

D. 

◯

(9) The distance between the points $A\ (5,3)$ and $B\ (-5,7)$ is:

A. $\overline{10\sqrt{29}}$ ◯ B. $\overline{4\sqrt{29}}$ ◯

C. $\overline{8\sqrt{29}}$ ◯ D. $\overline{2\sqrt{29}}$ ◯

(10) Which one of the following points lies on the line $x - 2y + 1 = 0$?

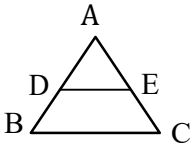
A. $(0, -1)$ ◯ B. $(-1,0)$ ◯

C. $(1,0)$ ◯ D. $(0,1)$ ◯

(11) In a given figure, If D and E are the mid points of the sides and $m\overline{DE} = 5cm$ then $m\overline{BC}$ = ?

A. $5\ cm$ ◯ B. $10\ cm$ ◯

C. $15\ cm$ ◯ D. $2.5\ cm$ ◯



(12) What is the value of $|-a|$, where $a > 0$?

A. $-a$ ◯ B. $+a$ ◯

C. $-|a|$ ◯ D. $\overline{\sqrt{a}}$ ◯

(13) Which one of the following side measures represents a right angled triangle?

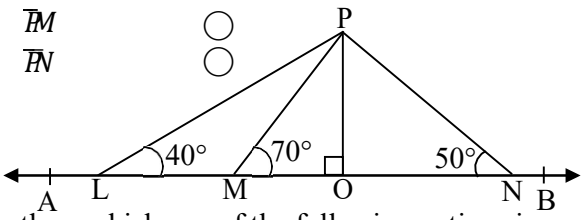
A. 1, 2, 3 ◯ B. 2, 3, 5 ◯

C. 2, 4, 7 ◯ D. 3, 4, 5 ◯

(14) In the figure given below, P is any point and AB is a line. Which one of the following is the shortest distance between the point P and the line AB?

A. $\overline{PO}$ ◯ B. $\overline{PM}$ ◯

C. $\overline{PL}$ ◯ D. $\overline{PN}$ ◯



(15) If P, Q and R are the collinear points then, which one of the following options is correct?

A. $\overline{PQ} + \overline{QR} = \overline{PR}$ ◯ B. $\overline{PQ}^2 + \overline{QR}^2 = \overline{PR}^2$ ◯

C. $\overline{PQ}^2 + \overline{QR}^2 \neq \overline{PR}^2$ ◯ D. $\overline{PQ} + \overline{QR} \neq \overline{PR}$ ◯

SECTION – B

Attempt any **NINE** parts from the following. All parts carry equal marks. $(9\times4=36)$

i. If $\boldsymbol{A}=\begin{bmatrix}\frac{1}{4} & \frac{7}{2}\\ 2 & 2\end{bmatrix}$

a. Find $|\boldsymbol{A}|$

b. Is matrix **A** non-singular?

c. Find $\boldsymbol{A^{-1}}$(multiplicative inverse)

ii. Simplify using laws of exponents $\frac{(x^{m+n})^2\times(x^{n+p})^2\times(x^{p+m})^2}{(x^{m+n+p})^3}$

iii. Simplify $\frac{2+6i}{3-i}-\frac{4i}{3-i}$ and write answer in the form $a+bi$.

iv. If $x=\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ find b. $x+\frac{1}{x}$ c. $x^3+\frac{1}{x^3}$

a. $\frac{1}{x}$

v. Factorize $(x+1)\,(x+3)\,(x+4)\,(x+6)-119$

vi. $(x)=x^4+5x^3-8x^2-45x-9$

a. Find the remainder when (x) is divided by $(x-3)$.

b. Use the factor theorem to show that $(x+3)$ is a factor of (x).

vii. Find HCF of the given polynomials by division method:
$3x^3+5x^2-6x-2\ ;\ 3x^3-5x^2+6x-4$

viii. Find the values of l and m for which the following expression $64x^4+153x^2+48x^3+lx+m$ will become a perfect square.

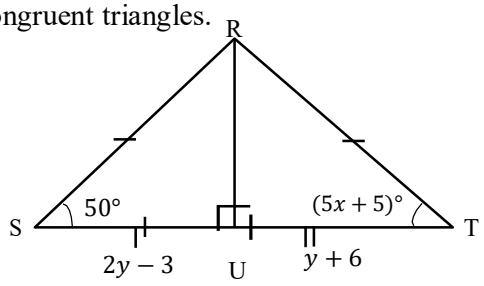
ix. Prove that, any point on the right bisector of a line segment is equidistant from its end points.

x. Solve for x: $\frac{3^{|x-5|}}{2}-8=12-|x-5|$

xi. Simplify: $\frac{a+b}{a^2+b^2}\cdot\frac{a}{a-b}\div\frac{(a+b)^2}{a^4-b^4}$

xii. Evaluate log 81 to base $\sqrt[3]{3}$.

xiii. Find the values of x and y for the given congruent triangles.



SECTION – C (Marks 24)

Note: Attempt any **THREE** questions. All questions carry equal marks. $(3\times 8 = 24)$

Q3. If $A = \begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 7 \\ 6 & 8 \end{bmatrix}$ then verify the following:

(a) $(AB)^t = B^t.A^t$ (b) $A.A^{-1} = A^{-1}.A$

Q4. Prove that in a right-angled triangle, the square of the length of hypotenuse is equal tothe sum of the squares of the lengths of the other two sides.

Q5. Prove that parallelograms on the same base and lying between the same parallel lines (orof the same altitude) are equal in area.

Q.6 Find 'b' such that the points $(2, b), B(5, 5)$ and $C\ (-6, 0)$ are vertices of a right angled triangle ABC with $m\angle BAC = 90°$.

Q7. If $m\overline{XZ} = 5cm$, $\angle X = 75°$ and $m\angle Y = 45°$

a. Construct triangle XYZ.

b. Draw perpendicular bisectors of the three sides of triangle XYZ.

c. Are the perpendicular bisectors concurrent?

URDU

i. اردوکا پہلا تنقید نگار کون ہے؟

ا)مرزا غالب	ب)مولانا شبلیٔ نعمانیٔ	ج)الطاف حسین حالی	د) مولوی نذیر احمد

ii. زین اور عابد اچھے دوست ھیں اس جملے میں اور ــــــــ ہے۔

ا)حرف شرط	ب)حرف ندا	ج)حرف عطف	د) حرف ندا

iii. جملہ اسمیہ کے فاعل کو ــــــــ کہتے ہیں۔

ا) مسند الیہ	ب)مسند	ج)مرکب	د)کلمہ

iv. موسم خوشگوار ہے۔

ا)جملہ اسمیہ	ب)جملہ فضلیہ	ج)مرکب	د)کلمہ

v مرکب کی ــــــــ اقسام ہیں۔

ا)۲ ب)۳ ج)۴

د)۵

BIOLOGY

SECTION – A (Marks 12)

Fill the relevant bubble for each part. All parts carry one mark.

1. Inhaled and exhaled oxygen concentration differs with each other due to:
   - A. Storage of Oxygen in lung tissue.
   - B. Non-reactivity of Oxygen with blood.
   - C. Liberation of Oxygen gas as a metabolic waste.
   - D. Utilization of Oxygen during the aerobic respiration.

2. Which one of the following metabolic wastes is deposited in the leaves of tomato plant?
   - A. Ammonium phosphate
   - B. Calcium oxalate
   - C. Magnesium phosphate
   - D. Calcium phosphate

3. In binary fission of Amoeba, the offspring lack genetic variation because they:
   - A. Are limited in number
   - B. Are produced asexually
   - C. Are unicellular organism
   - D. Contain a single chromosome

4. The single cell protein involves replication of all microorganisms **EXCEPT**:
   - A. Virus
   - B. Bacteria
   - C. Algae
   - D. Yeast

5. (5) DNA is a very delicate molecule. In chromosome it is supported by:
   - A. Actin
   - B. Fibrin
   - C. Histone
   - D. Myosin

6. (6) Apart from hearing, ear also performs the function of:
   - A. Hormone secretion
   - B. Memory
   - C. Body balance
   - D. Osmoregulation

7. Hinge joint which allows movement in one plane only is present in:
   - A. Neck
   - B. Hip
   - C. Knee
   - D. Shoulder

8. Calcitonin and Parathormone work in collaboration with each other for the regulation of:
   - A. Calcium in cell cytoplasm
   - B. Calcium in teeth
   - C. Calcium in bones
   - D. Calcium in blood

9. Applying your knowledge of inheritance, pin point the correct Genotype of true breading round seededpea plant:
   - A. RR
   - B. Rr
   - C. rr
   - D. RR and Rr

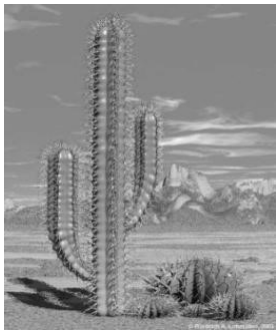
10. Human immunodeficiency virus (HIV) causes acquired immunodeficiency syndrome (AIDS) in human beings by:
   - E. Increasing the pH of blood
   - F. Decreasing the number of white blood cells
   - G. Increasing the division of red blood cells
   - H. Decreasing the oxygen carrying capacity of blood

SECTION – B (Marks 33)

Attempt any **ELVEN** parts from the following. All parts carry equal marks.(11 3 = 33)

i. What are the three main effects of air pollution on environment? Describe them briefly.

ii. a. Plants can be categorized on the basis of availability of water and salt. Identify the group and habitat to which this plant belongs. (1)

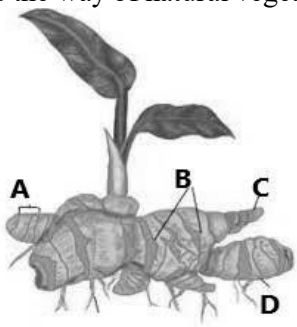


b. Which characteristics make its survival possible? (2)

iii. Complete the table given below to associate the adaptations with the relevant flowers.

	Insect pollinated flower	Wind pollinated flower
Colour		
Stamen and stigma		
Pollen grain		

iv. Following diagram shows the way of natural vegetative propagation.



a. Label the parts A, B, C and D (1)

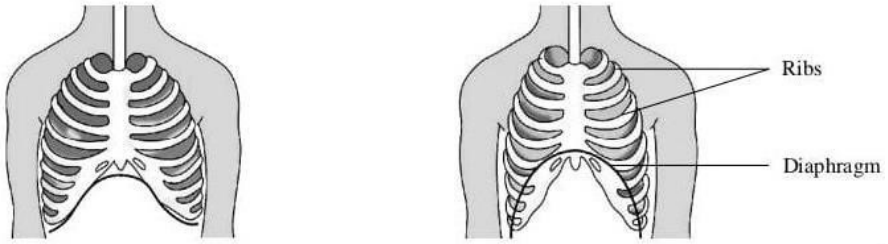
b. Name this type of vegetative propagation and give example. (1)

c. From which part shoot and root of new plant arise. (1)

v. State the harmful effects of cigarette smoke on lungs and circulatory system.

vi. Differentiate between the cross sectional views of brain and spinal cord with reference to white and grey matter.

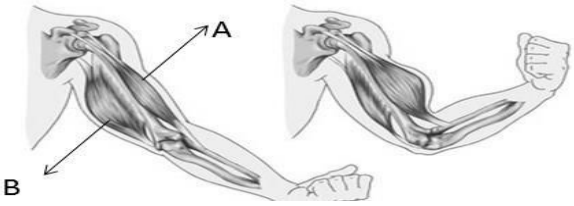
vii. Following diagram shows the two steps of breathing.



A B

Which diagram (A or B) shows the process of inhalation? Support your answer with reasons.

viii. a. Mention the name of muscles at A and B. (1)

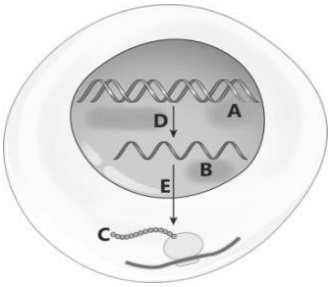


b. Elaborate the antagonistic movement of arm muscles. How do they cause the movement of elbow joint? (2)

ix. DNA is a genetic material that has instructions to direct all functions of cells.

a. Identify the labeled parts A, B and C in the diagram. (1)

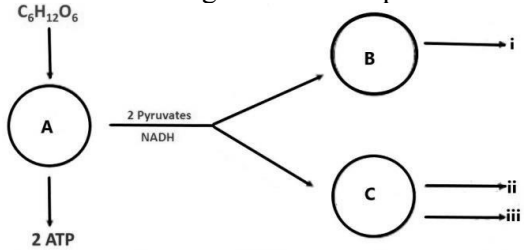
b. Name the processes D and E. Describe them briefly. (2)



x. Complete the given table.

Blood group	Possible Genotypes	Antigen Produced	Relationship between alleles
A			
B			
AB			
O			

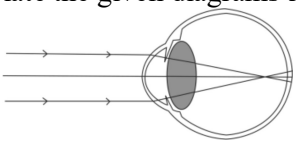
xi. The flow chart is showing anaerobic respiration.



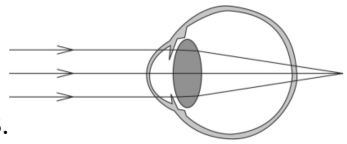
a. Identify the processes A, B and C. (1.5)

b. Mention the products (i), (ii) and (iii) produced by these processes. (1.5)

xii. a. Relate the given diagrams A and B with the specific disorder of eye.(1)



A.



B.

b. Recognize the cause of the eye sight problem of the grandmother if she is unable to read the newspaper. (1.5)

c. Suggest the lens to rectify this problem. (0.5)

xiii. Which type of symbiosis exists between lice and human being? Justify your answer with reasons and two relevant examples.

xiv. a. Visualize what would happen if there are no nitrogen fixing bacteria present in an ecosystem. How will it disturb the nitrogen cycle? (2)

b. Which natural process would be stopped if denitrifying bacteria becomeextinct? (1)

xv. Keeping in view the working of vaccine, summarize how does corona vaccine produce immunity in human body.

SECTION – C

(Marks: 20)

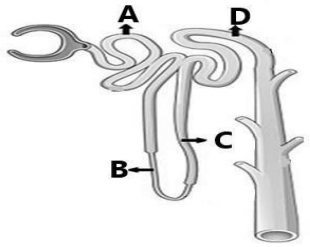
Note: Attempt any **TWO** questions from the following. All questions carry equal marks. (2×10=20)

a. How are seeds produced from male and female gametophyte in angiosperms? Explain the process with the help of diagram. **(4+2)**

b. Antibiotics are very essential medicinal drugs. How does antibiotic resistance develop? Analyze serious effects caused by antibiotic resistance. **(3+1)**

a. Genetic engineering offers enormous benefits by producing the GMO. Apply the knowledge to identify the different steps of production of GMO. Illustrate it with the help of labelled diagram. **(3+3)**

b. Nephron is the structural and functional unit of kidney. Explain the re-absorption of glomerular filtrate at A, B, C and D. Which processes are involved in it? **(4)**



a. Draw and label the structure of eye. Give detail of each layer of eye. **(3+3)**

b. Skeleton provides protection and support for animal body. Describe the bones of the axial skeleton in human. **(4)**

* * * * *

CHEMISTRY

Q.1 Fill the relevant bubble for each part.Each part carries one mark.

1. Which one of the following charged ions will be formed by an element of group IIA having electronic configuration $1s^2 2s^2 2p^6 3s^2$?
   A. A^{+3} ◯ B. A^{+2} ◯
   C. A^{+1} ◯ D. A^{-2} ◯
2. Which one of the following pairs of sub shell has the lowest energy as compared to the repairs of sub shells?
   A. 1s,2s ◯ B. 2s,2p
   C. 3s,3p ◯ D. 3s,4s
3. Which one of the following Isotopes is used in nuclear reactors?
   A. U-234 ◯ B. U-238
   C. U-235 ◯ D. U-233
4. How many molecules of oxygen gas contains one mole of oxygen gas? A. $8x6.022x10^{23}$ ◯
   B. $6.022x10^{23}$ ◯
   C. $32x6.022x10^{23}$ ◯
   D. $16x6.022x10^{23}$ ◯
5. The most dilute solution amongst the following is:
   a)1M b)0.5M c)0.02M d)0.0005M
6. 17g of NH_3 is dissolved in 1 dm^3 of solution, its molarity will be:
   A. 1 ◯ B. 2
   C. 3 ◯ D. 4
7. In H_2S, the oxidation state of Sulphur is:
   A. +1 ◯ B. +2
   C. -1 ◯ D. -2
8. The compound having Hydrogen bonding among its molecule is:
   A. C_6H_6 ◯ B. MgO
   C. CH_4 ◯ D. H_2O
9. Metallic Character increases down the group, which one of the following is the most metallic:
   A. Rb ◯ B. Cs
   C. Na ◯ D. K
10. The most electronegative element in the group VIIA is:
    B. F ◯ B. Cl ◯
    C. Br ◯ D. I ◯

SECTIONB

Q.2 Attempt the following. All parts carry equal marks.

i. Calculate the number of molecules in 4.5 moles of Carbon dioxide.
ii. Draw Bohr's Atomic Model for Potassium $_{19}K^{39}$ indicating the location of electrons, protons and neutrons.
iii. Calculate the mass of one Hydrogen atom in gram.
iv. Why is an atom always electrically neutral ? Give reason.
v. Write electronic configuration of Aluminum $_{13}Al^{27}$. Identify its group and period.
vi. Define ionic bond. Give one example of two elements forming an ionic bond between them.
vii. Write two similar I ties and two differences between isotopes.
viii. Elements are unstable in free state except noble gases. Explain how elements attains ability?
ix. State Charles's Law. Derive its mathematical expression.
x. How does the change in temperature affect the Vapour Pressure of a liquid? Show with the help of graph.

SECTION–C

Note: Attempt the following questions.

Q.3 a. What are type of bonds responsible for the formation of F_2, O_2 and N_2?
b. Give importance of intermolecular forces in our life. Mention any four points.

Explain the principle ,working and construction of Daniel Cell.

PHYSICS

SECTION–A

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

(1) In vacuum, all electromagnetic waves have the same:

A. Speed ◯ B. Amplitude

C. Frequency ◯ D. Wavelength

(2) Therelationshipbetweenspeed,frequencyandwavelengthofawaveisknownas:

A. Wave equation ◯ B. Frequency equation

(3)(3) C. SHM equation ◯ D. Wave length equation

Which of the following forms of wave is"sound"?

A. Electrical ◯ B. Longitudinal

C. Transverse ◯ D. Magnetic

(4) If a ray of light in a glass is incident on an air surface at an angle greater than the critical angle, the ray will:

A. Refract only ◯ B. Reflect only ◯

C. Partially reflect & refract ◯ D. Diffract only ◯

(5) According to Coulomb's law, if distance between charges increases, the force of attraction:

A. Will be increased ◯ B. Will be decreased

C. Will be unchanged ◯ D. Will become repulsion

(6)(6) When we apply more voltage to an ohmic conductor, we get:

A. More resistance ◯ B. More flow of current

(7) Electromagnetism is the study of:

A. Magnetic effect of current ◯ B. Flow of protons

C. Flow of electrons ◯ D. Flow of neutrons

8. Logic gates are used in:

A. LDRs ◯ B. DC circuits

C. Analogue circuits ◯ D. House safety

9. Which one of the following is the most suitable means of reliable continuous communication between an orbiting satellite and Earth?

A. Microwaves ◯ B. Radio waves

C. Sound waves ◯ D. Any light wave

10. Which one of the following particles has the greatest penetrating power?

A. α-Particle ◯ B. β-Particle ◯

C. γ-Particle ◯ D. Proton ◯

SECTION –B

Q.2 Attempt the following .All parts carry equal marks.

i. A pendulum of length1mandperiod 2.01sis placed at the top of Mount Everest having analtitudeof8849m.Calculate the value of'g'at that point.

ii. If the concave mirror produces are ali mage of an object, will the image be Necessarily inverted?

iii. Is there storing force on a mass attached to spring in SHM ever zero?If so,where?

iv. How can a body be negatively charged by electrostatic induction?

v. Does increasing the frequency of wave also increases its wave length ?If not, how are these quantities related?

vi. Will two wires carrying current in the same direction repel or attract each other? Give reason.

vii. Write down differences between conductors and insulators.

viii. How is an ammeter connected with adevice to measure current ? Support your answer with reason.

ix. What do you understand by digital and analogue quantities?

x. Why are some elements radio active but some are not?

SECTION –C

Note: Attempt the following questions. All questions carry equal marks.

Q.3 a. With the help of electro scope,how can you achieve the following:

i. The detection of charge on a body.

ii. Determining the nature of charge.

Q.4 a. Explain the working of transformer in connection with mutual induction. Describe types of transformer. **(6)**

b. Lead-210hashalf-lifeof22.3years.Howmuchofthe80mgoflead will beleftafter66.9years

COMPUTER

SECTION–A

Q.1 Fill the relevant bubble for each part. Each part carries one mark.

(1) How many pairs of computers can communicate simultaneously on LAN?

A. 1 ◯ B. 3 ◯
C. 2 ◯ D. Multiple ◯

(2)(2) Which storage device has the fastest read/write access?

A. Compact Disk ◯ B. Floppy Disk
C. Digital Video Disk ◯ D. Hard Disk

(3) Whichfeaturewouldanauthorusewhilewritingadocumenttoaddanexternallinktoawebsiteinms-Word?

A. Online link ◯ B. Hyper link ◯
C. Web link ◯ D. Anchor link ◯

(4) Television broad casting is an example of following transmission mode:

A. Simplex ◯ B. Half-Duplex ◯
C. Full-Duplex ◯ D. Simple Duplex ◯

(5)(5) Rate of change of electrical signals per second is called:

A. Data rate ◯ B. Baud rate
C. Bandwidth ◯ D. Signal-to-Noise ratio

(6) Whichoneofthefollowingcommunicationdevicesisusedtoconnecttwodifferenttypes of networks?

A. Router ◯ B. Bridge
C. Switch ◯ D. Gateway

7. In which one of the following topologies can a Node be easily added?

A. Ring topology ◯ B. Bus topology
C. Star topology ◯ D. Tree topology

8. Whichoneofthefollowingoperatingsystemsisusedinanairlinetrafficcontrolsystem?
   1. Batch processing system
   2. Time sharing system
   3. Multi tasking system
   4. Real time system

9. Cards used to connect additional devices to motherboard are attached via:

A. Expansions lot ◯ B. Connector ◯
C. Bays ◯ D. Links ◯

10. 'Multi modal Authentication' means:
    1. Use of user name and password
    2. Use of two or more authentication methods
    3. Use of access cards
    4. Use of biometrics

SECTION –B

Q)Attempt the following.

i. Write down two benefits and one draw back of laser printer.
ii. Write down the characteristics of Third generation computers.
iii. With increasing Memorysizes, do you still think Memory Management is an important function of an Operating System? Justify your answer.
iv. Write down the purpose of Shareware and Freeware Software? Give an example of each.
v. Define any three transmission impairments in communication mediums.
vi. Write down any three difficulties a company may face in running a business without having a computer network.
vii. IdentifythemostsuitablesoftwaretoprepareResultSheetofstudents.Givetworeasons.
viii. List down any three authentication methods along with their applications in daily life.
ix. Differentiate between synchronous and asynchronous transmission by giving an example of each.
x. How is the job of System Analyst different from a Programmer?

SECTION–C

Note: Attempt the following questions.

i. DescribefourtypesofUnguidedtransmissionmediaalongwithitsapplicationsindailylife.
ii. Explain the following data communication lines in terms of transfer rate, cost ,merits ,and demerits:
   (i) Dialup (ii)DSL (iii)ADSL (iv)CDMA

NOTE: There can be any section included in test like A,B or C. SO come with Full preparation of all three sections.

THANKS