

Past Papers Notes of AFNS

FULL BOOK CONTAIN:

- 5 YEARS DAY BY DAY AST PAPERS
- VERBAL SOLVING TRICKS
- NON VERBAL SOLVING TRICKS
- COMPLETE PHYSICS
- BIOLOGY
- ENGLISH
- CHEMISTRY
- SUMMARIZED TABLES OF IMPORTANT POINTS
- SHORCUT TRICKS

100% TEST PASSING GURRANNTTED NOTES

JOIN ARMY MEDICAL COLLEGE GENERAL INFORMATION

Documents Required at AS&RCs

1. Original certificate / detailed Marks Sheet of Matric/FA/FSc/ Equivalent.
2. Computerized National Identity Card for 18 years and above or Computerized Form "B" alongwith Guardian's Computerized National Identity Card (Father or Mother) for less than 18 years of age.
3. One set of attested photocopies of above mentioned documents.
4. 3 x Passport size coloured photos duly attested (front and back) by Principal/Class-1 Gazetted Officer.
5. Original as well as one photocopy of "NOT RECOMMENDED" letter by ISSB are also required for "Repeater Candidates".

Note: - Old National Identity Card and Form "B" will not be accepted.

Ineligibility Conditions

- ✓ "Not Recommended" twice by ISSB/GHQ Selection Board.
- ✓ Declared medically unfit by CMH/Appeal Medical Board.
- ✓ Enrolled cadets and recruits withdrawn/ resigned/discharged/
- ✓ dismissed from Armed Forces (Army, Navy and Air Force) training
- ✓ academies/institutions on the grounds of discipline, character,
- ✓ medical, inefficiency, weak profile or declared unsuitable.
- ✓ An individual dismissed/removed from any other government
- ✓ service.
- ✓ Convicted by a Court of Law for an offence involving moral turpitude.

Education

FSc (Pre-medical) with minimum 70% marks or "A" level

- ✓ passed in Biology, Physics and Chemistry with minimum
- ✓ grade C.
- ✓

Candidates from Balochistan, Sind (District Tharparkar,

- ✓ Omar Kot), Northern Areas, Azad Kashmir and FATA having
- ✓ domicile and local certificates can apply with 65% marks.
- ✓

Candidates possessing foreign qualifications such as 'O'

- ✓ Level and 'A' Level etc will be required to obtain Equivalence

-
- ✓ Certificate and conversion of marks from Inter Board
 - ✓ Committee of Chairman (IBCC), Ministry of Education,
 - ✓ Islamabad and attach it with application form.

Candidates who have passed FSc Part-I Examination with

- ✓ minimum 70% marks and appeared/are appearing in FSc
- ✓ Part-II/ Final Examination can also apply on "HOPE
- ✓ Certificates" by the Head of the institutions. Such candidates
- ✓ must deposit an attested copy of FSc Part II Certificate/ Mark
- ✓ Sheets to PA Directorate (PA-3C) GHQ Rawalpindi within 5
- ✓ days of announcement of result, otherwise their selection will
- ✓ not be processed further.

Physical Standard

Height

5.4 feet (162.5 cm)

Vision standard

Distance Vision With Glasses 6/9,6/12

Near Vision J2,J7 Or N8,N12 With Or Without Glasses

Weight

(As Per The Body Mass Index (BMI)

PHYSICAL TEST

Running 1.6 km in 8 min

Push ups 15 in 2 min

Sits up 15 in 2 min

Chin ups 3 in 2 min

Ditch 7.4×7.4

MEDICAL TEST

Initial medical test is simple, they will just check your

- ✓ Height
- ✓ Weight
- ✓ Eye Side
- ✓ Flat Feet
- ✓ Knee Knocking
- ✓ Chest Size
- ✓ Arm Angle.

Majority students have caring angle and flat feet problem.

TEST PATTERN

you test will look on computer like this

EXAMPLE OF VERBAL INTELLIGENCE TEST

The screenshot shows a test interface with a green header bar containing 'Time'. Below the header, there are fields for 'Name' and 'Roll #', followed by 'Question 1'. The question text is: 'Q: What number comes next in the following series 1, 2, 6, 24, ____?'. There are four radio button options: 100, 110, 120, and 130. To the right of the question is a box labeled 'Un-Attempted'. Below the options, it states '120 is the correct answer'. At the bottom, there are five buttons: 'Previous', 'Next', 'Stop', 'Finish', and 'Start'.

The screenshot shows a test interface with a green header bar containing 'Time'. Below the header, there are fields for 'Name' and 'Roll #', followed by 'Question 2'. The question text is: 'Q: The word Doubt is closest in meaning to;'. There are five radio button options: Double, Suspected, Suspicion, Debate, and Certain. To the right of the question is a box labeled 'Un-Attempted'. Below the options, it states 'Suspicion is the correct answer'. At the bottom, there are five buttons: 'Previous', 'Next', 'Stop', 'Finish', and 'Start'.

NON VERBAL SAMPLE

Time

Name Roll # Question 1

Q: Select one suitable figure from the six figures given below to complete the third row in place of question mark.

Un-Attempted

Row 1: Three circles, each containing a small square.

Row 2: Three triangles, each containing a small square.

Row 3: Two empty circles, followed by a question mark.

Options:

- Option 1: A circle containing a triangle.
- Option 2: A circle containing a triangle.
- Option 3: A circle containing an empty circle.
- Option 4: A circle containing a triangle.
- Option 5: A circle containing a square.
- Option 6: An empty circle.

correct answer

Previous Next Stop Finish Start

Time

Name Roll # Question 2

Q: Which figure design is different from the rest?

Un-Attempted

Four groups of three arrows pointing upwards, labeled 1, 2, 3, and 4.

Options:

- Option 1: A circle containing the number 1.
- Option 2: A circle containing the number 2.
- Option 3: A circle containing the number 3.
- Option 4: A circle containing the number 4.

correct answer

Previous Next Stop Finish Start

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PART I

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9	Diversity among animals	35
10	Forms and functions and plants	49
11	Digestion	57
12	Circulation	64
13	Immunity	72

PART:2 BIOLOGY

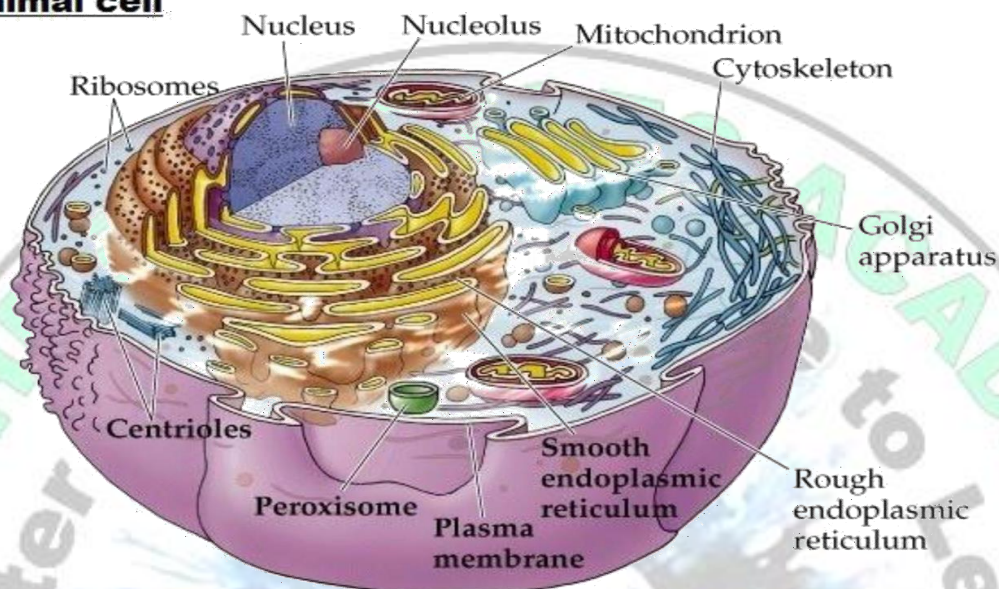
14	Respiration	79
15	Homeostasis	84
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17	Nervous coordination	96
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ABOVE SYLLABUS IS AVAILABLE IN FULL BOOK

THIS SAMPLE CONTAIN

- ONLY ONE CHAPTER OF EACH SUBJECT
- INTELLIGENCE QUESTION TYPE 1 TRICKS
- PAST TEST OF ONLY ONE DAY

Animal cell



S.No	QUESTIONS	ANSWERS						
1.	Plasma membrane are 7nm wide and its structure is	Dynamic						
2.	The soluble part of cytoplasm which forms ground substances are called	Cytosol						
3.	Function of rough endoplasmic reticulum	Protein synthesis						
4.	Nucleus was discovered by Robert brown in	1838						
5.	The attachment of two sub-units of ribosome's along mRNA is controlled by	Magnesium ions						
6.	Secondary wall, primary wall and middle lamella	Layers in plant cell from inside to outside						
7.	The ability of an instrument to reveal the minor details of an object is its	Resolving power						
8.	Growth movement of pollen tube towards the egg is	Chemotropism						
9.	Size of ribosome in prokaryotic cell is	70S						
10.	Size of ribosome in eukaryotic cell is	80S						
11.								
	Ribosome	<table border="1"> <tr> <td>Smaller unit</td> <td>Larger unit</td> <td>Total size</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	Smaller unit	Larger unit	Total size			
Smaller unit	Larger unit	Total size						

		Prokaryotic	30 S	50 S	70 S	
--	--	-------------	------	------	------	--

	Eukaryotic	40 S	60 S	80 S	
--	------------	------	------	------	--

12.	In paper chromatography we use	Water absorbed on papers
13.	For separation of compounds from mixture use a technique called	Chromatography
14.	The growth and reproduction of eukaryotic cell is dependent upon its	Nucleus

15.

Objective lens	Eye piece lens	Magnification
x 10	x 6	x 60
x 40	x 6	x 240
x 10	x 10	x 100
X 40	x 10	x 400

16.	Cell wall of cells are held together by	Middle lamella
17.	The membrane is like sea of lipids in which proteins are floating	Fluid mosaic model
18.	The cisternae together with vesicles are called	Golgi-complex
19.	Lysosomes contain variety of enzymes called	Hydrolases
20.	Protein extending from in double layer of lipids completely are called	Intrinsic protein

8.

	Wall	Thickness	
	Middle lamella	1 μ m	
	Primary wall	1 – 3 μ m	
	Secondary wall	5 – 10 μ m	
22.	Some protein are on one side of membrane called		Extrinsic protein
23.	Carbohydrates attached to lipids are called		Glycolipid
24.	Carbohydrates attached to proteins are called		Glycoprotein

25. Chronological developments towards fluid mosaic model of plasma membrane

1	Gorter & Grendel 1925	Two layers of lipids molecule only
---	-----------------------	------------------------------------

2	J f Danielle & Davon 1935	Lipid bilayer is covered with protein and protein pores
3	Robertson 1959	Unit membrane model

4	SJSinger&GLNicholson 1972	Fluid mosaic model
---	---------------------------	--------------------

26.	Channels of endoplasmic reticulum are separated from one another by spherical or tubular membranes one above another called	Cisternae
27.	Circulation, syntheses, detoxification, mechanical support and communication	ER functions
28.	In cytoplasm, small ions and molecules form	True solution
29.	In cytoplasm, some large molecules form	Colloidal solution
30.	Active mass movement of cytoplasm is called	Cyclosis

31.

	Plastids	Found in	
	Chloroplast	Green parts	
	Chromoplast	Other than green parts	
	Leucoplast	Colorless parts	
32.	Primary lysosomes are synthesized in RER and processed in		Golgi apparatus
33.	Ribosome are synthesized in		Nucleolus of the nucleus
34.	The two sub units are attached by		Mg ++
35.	The unit of Golgi apparatus		Dictysomes
36.	Stacks of flattened, membrane bounded sacs called		Cisternae
37.	Cisternae associated vesicles are called		Golgi-complex
38.	Storage of secretory products and packaging and modification of the secretory products		Functions of Golgi apparatus
39.	The food digestive enzyme of lysosoe are called		Hydrolases
40.	Enzymes are budded off as Golgi vesicles and are called		Primary lysosomes
41.	Metamorphosis in animals are example of		Lysosomal activity
42.	In animals peroxisomes are present in		Liver and kidney

43.

Organisms	No of flagella
Mammalian spermatozoon	1

Chlamydomonas	2
Paramecium	Few thousands

44.	In leaves of plants, photorespiration occurs in		Peroxisomes										
45.	Glyoxisomes (only in plants) contains glycolic acid, oxidase and		Catalase										
46.	Conversion of fatty acids to carbohydrates are done by		Glyoxisomes										
47.	Length and diameter of centriole		0.3-0.5 μm and 0.2 μm										
48.	Each centriole consist of		9 microtubules (27 tubules)										
49.	In cells two centrioles are present at		Right angle to each other										
50.	<table><tr><td rowspan="4"></td><td>Cytoskeleton</td><td>Subunit</td><td rowspan="4"></td></tr><tr><td>Microtubules</td><td>Tubulin protein</td></tr><tr><td>Microfilament</td><td>Actin protein</td></tr><tr><td>Intermediate filaments</td><td>Fibrous</td></tr></table>				Cytoskeleton	Subunit		Microtubules	Tubulin protein	Microfilament	Actin protein	Intermediate filaments	Fibrous
					Cytoskeleton	Subunit							
					Microtubules	Tubulin protein							
					Microfilament	Actin protein							
	Intermediate filaments	Fibrous											
51.	Small knob structures on inner surface mitochondria is called		Elementary / F1 particles										
52.	The presence of ribosome and DNA indicate that		Protein is synthesize here										
53.	The average number of thylakoids to form one granum is		50 or more										
54.	Chloroplast and mitochondria are		Self-replicating organelle										
55.	Glyoxisomes and plastids are unique organelle found in		Plants only										
56.	Mitochondria is absent in		Mature RBCs										
		Organelle	Diameter										
		Chloroplasts	4 -6 μ m										
		Nucleus	10 μ m										
		Ribosome	20 n m										
58.	The central bindle of microtubules in cilia is called		Axoneme										
59.	Mitosis is missing in		Prokaryotes										
60.	Prokaryotic Cell wall is made of		Murein										

Species	No of chromosomes	Species	No of chromosomes
Drosophila	8	Man	46
Garden pea	14	Chimpanzee	48
Onion	16	Potato	48
Frog	26	pigeon	80

62.	Eukaryotic Cell wall is made of	Cellulose	
63.	In cell one organelle are involved in function of other except endoplasmic reticulum	And peroxisome	
64.	Glyoxisome is only found in	Plant cell	
65.	Cell fail to detoxify the waste substances produced in it because it does not posses	Enough Smooth Endoplasmic Reticulum	
66.			
	Discoveries	Scientist	Year
	Bacteria	Leuwenhoek	1618
	Cell wall		1665
	Mitochondria		1850
	Golgi apparatus	Camillo Golgi	1898
	Transformation	Fred rich Griffah	1928
	Cytoskeleton	Koltzoff	1928
	Plant split water to release oxygen	Van Neil	1930
	Nucleus	Robert Brown	1938
	identified the transforming substance as DNA	Avery	1944
	Conduction in Escherichia coli	Lederberg and Tatum	1946
	Lysosomes	De Duve	1949
	determined sequence of amino acids in insulin	Sanger	1951
	Fluid Mosaic Model	Singer & Nicholson	1972
	Confirmation of cytoskeleton	Cohen	1977
	Ribosome	Palade	1995

67.	Mitosis occur in nucleus with nuclear membrane intact in	Fungi
68.	Ascomycota reproduce asexually by means of	Conidia

Drugs	used for	Obtain from
Ergotamine	Baby delivery	<i>Claviceps purpurea</i>
Penicillin	Antibiotics	<i>Pencillium chrysogenum</i>
Cephalosporin	Antibiotics	<i>Cephalosporin acremonium</i>
Griseofulvin	Antibiotics	<i>Pencillium</i>

70.	Braking down of glucosetoproduce ethanoland carbondioxideis doneby	<i>Saccharomyces cerevisiae</i>
71.	Yeast contain	6000 genes
72.	Peroxisomes are most common in	Liver and kidney cells
73.	Photorespiration may occur in	Peroxisomes
74.	Peroxisomes break down hydrogen peroxide to	Hydrogen and oxygen
75.	Converting of fatty acids to carbohydrates are the primary activity of	Glyoxisomes
76.	Cyclosis and amoeboid movements are because of	Microfilaments
77.	Microtubules (25nm) are made of	Tubulin protein
78.	Microfilaments (7nm) are made of	Actin protein
79.	Intermediate filaments (8-12nm) are made of	Fibrous protein
80.	Cilia and flagella contain	20 Microtubules
81.	The bundles of microtubules comprising the axoneme are surrounded by	Plasma membrane
82.	Mitochondria are also called	Power house of the cell
83.	The shapes of mitochondria may be	Vesicles, Rodsor Filaments
84.	The presence of ribosome and DNA in mitochondria shows that it is	Self Replicating organelle
85.	Small knob present ininside of mitochondrial wallis known as Elementary particles	Or F1 particles
86.	Two subunits of ribosome are attached by	Mg ⁺⁺
87.	Chlorophyll contain	Mg ⁺⁺
88.	Hemoglobin contains	Fe ⁺⁺

89.	Chromoplast helps in pollination and dispersal of	Seeds
90.	The place where spindle fibers are attached is	Centromere

This is free sample

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- 5 years day by day past papers of every AS & RC
- Verbal solving tricks
- Non verbal solving tricks
- Full biology
- Chemistry
- Physics
- English
- Summarized tables of important points
- Shortcut tricks
- Frequently repeated questions

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Chap No. 13

S AND P BLOCK ELEMENTS

1. Group-I → alkali metals
2. Group-II → alkaline earth metals
3. S → only metals
4. P → metals + non-metals

Physical and atomic properties

5. Na – Mg – Al – Si – P – S – Cl – Ar
6. Metallic radii for sodium, magnesium and aluminium.
7. Covalent radii for silicon, phosphorus, sulphur and chlorine
8. Van der Waals radii for Argon.
9. Ionization energy increase from left to right, exception → Al and S.
10. Electronegativity increases from left to right, exception → Ar
11. Sodium, magnesium and aluminium are best conductors.
12. Silicon is semiconductor.
13. Phosphorus, sulphur, chlorine and argon are non-conductors.
14. Melting point and boiling point values increase up to Al and then decreases.

Reaction of 3rd period elements with water, oxygen and chlorine

1. Magnesium and aluminium form layers when reacting with water.
2. Sodium undergoes exothermic reaction with cold water.
3. Magnesium reacts slowly with cold water and burns in steam producing Mg(OH)_2 and MgO .
4. Magnesium burns in steam with its typical white flame.
5. Chlorine dissolves in water and produces green solution.
6. Reaction with

Metal	Water	Oxygen	Chlorine
Na	NaOH	Na_2O Na_2O_2	NaCl

Mg	Mg (OH) ₂ MgO	MgO	MgCl ₂
Al	Al ₂ O ₃	Al ₂ O ₃	AlCl ₃
Si	Si O ₂	Si O ₂	SiCl ₄
P		P ₄ O ₆ P ₄ O ₁₀	PCl ₃ PCl ₅
S		SO ₂	S ₂ Cl ₂
Cl	HCl + HOCl	Cl ₂ O , Cl ₂ O ₇	

1. Sodium burns in oxygen with yellow flame.
2. Sodium forms normal oxide and also per oxides.
3. MgO and Al₂O₃ are of white colour.
4. Aluminium burns in oxygen when it is powdered.
5. Silicon will burn in oxygen if heated strongly well and SiO₂ is produced.
6. White phosphorus catch fire spontaneously in air with white flame and forms phosphorus (III) oxide and phosphorus (IV) oxide.
7. Sulphur burns in oxygen with pale blue flame.
8. SO₂ is colourless.
9. PCl₃ → colourless fuming liquid
10. PCl₅ → straw colour solid
11. S₂Cl₂ → orange, foul smelling liquid

Physical properties of oxides

Formula of oxide	Na ₂ O	MgO	Al ₂ O ₃	SiO ₂	P ₄ O ₁₀ P ₄ O ₆	S O ₃ S O ₂	Cl ₂ O ₇ Cl ₂ O
State	S	S	S	S	S	L G	L G
Conductivity	G	G	G	v.po or	Nill	Nill	Nill
Structure	Giant	Giant	Giant	Giant	Simple molecular	Simple molecular	Simple molecular

Nature	Basic	Basic	Amphoteric	Acidic	Acidic	Acidic	Acidic
--------	-------	-------	------------	--------	--------	--------	--------

Formula of oxide	NaCl	MgCl	Al ₂ Cl ₆	SiCl ₄	PCl ₃	S ₂ Cl ₂
State	S	S	S	L	L	L G
Conductivity	G	G	v.poor	NILL	Nill	Nill
Structure	Giant	Giant	Simple molecular	Simple molecular	Simple molecular	Simple molecular
Effect on adding water	Solid dissolves readily			Chlorides react and produces fumes of HCl		

Formula of oxide	Na ₂ O H	Mg(OH) ₂ Ca(OH) ₂	Al ₂ (OH) ₃	Si(OH) ₄	H ₃ PO ₄	H ₂ SO ₄	HClO ₄
Nature	Basic	Basic	Amphoteric	Acidic	Acidic	Acidic	Acidic

Reaction of oxides with water, acid and bases;

39. Metal oxides → Basic → Ionic
40. Non-Metal oxides → Acidic → Covalent
41. Normal oxides of most metal combine with acids to form salts. these are called basic oxides.
42. Basic oxides alts dissolve in water to give soluble hydroxides.
43. Acidic oxides are oxides of non-metals such as CO₂ and SO₂.
44. Acidic oxides react with bases to form salts and combine with water to form acids.
45. BeO and Al₂O₃ are amphoteric.

Sodium and magnesium hydroxides;

46. NaOH → soap, peteroleum and rubber industry
47. These are white solids having soapy touch.
48. Sodium hydroxides is only slightly soluble in water,
49. Sodium hydroxides is the most soluble substances in water evolving a considerable amount of heat due to the
50. formation of a number of hydrates such as NaOH.2H₂O
51. Magnesium hydroxide is obtained as white ppt when caustic potash us added to a soluble magnesium salt.
$$\text{MgCl}_2 + 2\text{KOH} \rightarrow \text{Mg}(\text{OH})_2 + 2\text{KCl}$$
52. Solubility of Mg(OH)₂ is enhanced tremendously by the addition of NH₄Cl and NH₄OH is formed
53.
$$2\text{NH}_4\text{Cl} \rightarrow 2\text{NH}_4^+ + 2\text{Cl}^-$$
54.
$$\text{Mg}(\text{OH})_2 \rightarrow 2\text{OH}^- + \text{Mg}^{2+}$$
55.
$$2\text{NH}_4^+ + 2\text{OH}^- \rightarrow \text{NH}_4\text{OH}$$

Aluminium hydroxide

56. When an alkali is added to aquaseous solution of aluminium salts, alumiunium hydroxides get precipitated.
57.
$$\text{Al}(\text{SO}_4)_3 + 6\text{NH}_4\text{OH} \rightarrow 2\text{Al}(\text{OH})_3 + 3[(\text{NH}_4)_2\text{SO}_4]$$
58. The hydroxides is soluble in acids and caustic alkalies forming aluminates in the later.
59.
$$2\text{Al}(\text{OH})_3 + 2\text{NaOH} \rightarrow 2\text{Na}[\text{Al}(\text{OH})_4]$$
60. The Al(OH)₃ can also be obtained by hydrolysis of AlCl₃ in excess water.
61.
$$\text{AlCl}_3 + 3\text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + 3\text{HCl}$$
62. The Al(OH)₃ has the ability to absorb various dyes forming colouring matter known as lakes.

Other hydroxides

63. Silicon hydroxide is a molecule with formula Si(OH)₄.
64. Li-Na-K-Rb-Cs-Fr

Group-I A

65. Group first members are called alkali metals since they form oxides and hydroxides which combine with water to produce alkaline solution.
66. Li-Na and K are safe to save in school lab and rest are violently reactive.
67. They are softer than other metals and can cut with knife.
68. These metals are lighter than other elements and having low melting point, boiling point and density.

Atomic and physical properties

69. Down the group;
- Atomic radius → Increases
 - Density → Decreases
 - Ionization energy → Decreases
 - Electronegativity → Decreases
 - M.P and B.P → Decreases
70. Potassium is lighter than sodium.

Trend in reactivity with water

71. Excluding Lithium, which reacts slower than al the other elements of group-I.
72. The reactivity of group-I follow the values of electrode potential.

Reaction with oxygen

73. Li, Na and K are stored in oil.
74. Cs and Rb are normally stored in a sealed glass tube to prevent air contact.

Reaction with air or oxygen

75. Alkali metals react with air or oxygen to form various oxides such as
- Li_2O and Li_3N
 - Na_2O and Na_2O_2
 - K_2O_2 and KO_2
 - Rb and Cs form superoxide

Oxides;

- Li → normal oxide
- Na → normal and peroxide
- K → peroxide and superoxide
- Rb → superoxide
- Cs → superoxide

Reaction of oxides with water and dilute acids;

77. Normal oxide; $X_2O + H_2O \rightarrow 2XOH$
78. Peroxide; $X_2O_2 + 2H_2O \rightarrow 2XOH + H_2O_2$
79. Superoxide; $2XO_2 + 2H_2O \rightarrow 2XOH + H_2O_2 + O_2$

Reaction with dilute acids

80. Normal oxide; $X_2O + 2HCl \rightarrow 2XCl + H_2O$
81. Peroxide; $X_2O_2 + 2HCl \rightarrow 2XCl + H_2O_2$
82. Superoxide; $2XO_2 + 2HCl \rightarrow 2XCl + H_2O_2 + O_2$

Reaction with chlorine

83. Sodium burns with intense orange flame in chlorine in exactly the same way as it does in pure oxygen,
84. $2X + Cl_2 \rightarrow 2XCl$
85. $2Na + Cl_2 \rightarrow 2NaCl$
86. Compounds of Group-I A elements are more stable to heat than the corresponding compounds of Group-II elements with the exception of lithium compounds.

Effect of heat on nitrates;

87. Colour of nitrogen dioxide is brown fumes.
88. Lithium nitrate produces lithium oxide, nitrogen dioxide and oxygen.
 $4LiNO_3 \rightarrow 2Li_2O + 4NO_2 + O_2$
89. Nitrates of the other alkali metals decompose to corresponding nitrites.
 $2XNO_3 \rightarrow 2XNO_2 + O_2$

Effect of heat on Carbonates;

90. Lithium carbonate decomposes on heating to give lithium oxide and carbon dioxide.
 $Li_2CO_3 \rightarrow Li_2O + CO_2$
91. The rest of group-I carbonates do not decompose even at higher temperature.

Effect of heat on Hydrogen Carbonates;

92. Carbonates of alkali metals are stable enough to be isolated as solids.
93. Hydrogen carbonates decompose on heating forming carbonates.
94. Thermal stability of hydrogen carbonates of group I and Group II increases down the group. The reason is increasing size and decreasing charge density of the metal ions.
95. The polarizing power of a cation increases with increasing charge on the ion and decreasing the radius of the ion.
96. Cation of greater polarizing power distorts the HCO_3 ion more and facilitates its decomposition than a cation of larger size and lesser polarizing power.
97. Bicarbonates of group-I are more stable than those of group II and stability decreases down the group.

Flame Tests;

- 98. Li → Red
- 99. Na → Yellow
- 100. K → Lilac
- 101. Rb → Red
- 102. Cs → Blue/violet
- 103. Polarizing power is directly proportional to decomposition.
- 104. Polarizing power is directly proportional to charge and inversely to radius.

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SAMPLE PHYSICS PORTION

CHAPTER NO.2

VECTOR & EQUILIBRIUM

S.NO	QUESTIONS	ANSWERS
1.	θ is the angle made with +X direction in	Anticlockwise Sense
2.	Two vectors of same magnitude result vector of same magnitude by	Angle of 120°
3.	If both R_x and R_y are positive the θ lies in	I Quadrant
4.	If R_x is positive and R_y is negative the θ lies in	II Quadrant
5.	If both R_x and R_y are negative the θ lies in	III Quadrant
6.	If R_x is negative and R_y is positive the θ lies in	IV Quadrant
7.	$A \cdot B = AB$	$\cos\theta$
8.	$A \times B = AB$	$\sin\theta$
9.	Scalar product (work and power) is also called	Dot product
10.	Vector product (torque) is also called	Cross product
11.	$AB\cos\theta$, here A is magnitude of 1 st vector while B is that component of B which is	Parallel to A
12.	$AB\sin\theta$, here A is magnitude of 1 st vector while B is that component of B which is	Perpendicular to A
13.	The point of rotation in torque is called	Fulcrum or Pivot
14.	Torque is rotational analogue of	Force
15.	For concurrent forces, the line of action of are	Common
16.	If 1 st condition is satisfied the body will be in translational equilibrium and there will be no	Linear acceleration
17.	If 2 nd condition is satisfied the body will be in translational equilibrium and there will be no	Rotational Acceleration
18.	If both conditions are satisfied the body has	Zero acceleration
19.	Difference of two vectors divided by scalar must also be	Vector

20.	Deceleration is also called	Retardation
21.	If x-component of vector is $3x$ and y-component is $-3y$ the angle of its resultant is	315°
22.	Mass	Scalar
	Acceleration, momentum, electric intensity	Vector
24.	The magnitude of resultant of two forces is $2F$. if the magnitude of each force is F than the angle between these forces is	0°
25.	Three vectors of equal magnitude are acting on three sides of an equilateral triangle .the magnitude of their resultant is	zero
26.	Two concurrent forces have maximum resultant of 45N and minimum of 5N	These are 20N and 25N
27.	Two vectors are such that $a+b = b+a$ the angle between them is	90°
28.	A unit vector is obtained by dividing the vector with its magnitude	not the direction
29.	Impulse is	Vector quantity
30.	When vector is multiplied by negative number its direction	Change by 180°
31.	The resultant of two forces, each of magnitude 5N has resultant of 5N , the angle between the forces are	120°
32.	A force of 10N is acting along y-axis, its component along x-axis is	Zero
33.	In the self cross product, the angle is	Zero degree
34.	Two equal forces make an angle 180° with each other. The magnitude of their resultant is	Zero
35.	the scalar product of two vectors A and B making an angle θ with each other is given by	$ A B \cos\theta$
36.	The scalar product of two vector is zero, when they are	Perpendicular to each other
37.	If two vectors are parallel to each other, their resultant is	Zero
38.	5N is	Vector quantity
39.	Area of parallelogram in which the two adjacent sides are A and B is given by	$AB\sin\theta$
40.	The vector product is also called	Cross product

LAST 5 YEARS PAST PAPERS OF VARIOUS AS&RC

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AS & RC PESHAWAR

1. Value of "g" remains constant in the range of 1km.
2. Area under v-t graph gave distance.
3. $F_{net}=0$, $\Delta a=0$, Δv does not equal to zero. The body will move with constant velocity.
4. When a triangle have two sides equal then there angle will also be equal.
5. increase in K.E=4 times
6. Momentum=?
7. $P=V^2mE$
8. $P= 2$ times

AS&RC RAWALPINDI

1. Charged pores in a cell membrane are formed by Channel proteins.
2. Cytokinesis is the division of CELL after the division of cytoplasm.It is not the division of cytoplasm.
3. Bacterial chromosome has DNA only,nothing else.
4. NOSTOC lacks mitochondria and hence it is not present.
5. Chromosome condensation is at PEAK in METAPHASE phase.
6. All those sugars ending in "ulose" are KETO SUGARS { exceptions are Fructose and Dihydroxyacetone},these are also keto.

AS&RC LAHORE

1. ENDOSPORES are formed during DECLINE phase.
2. Spores are formed during ASEXUAL reproduction in Rhizopus.
3. Most superficial infections are caused by Duetromycetes fungi.
4. RED ALGAE also help in Coral formation.
5. Secondary host of Liverfluke is SNAIL.
6. TRANSDUCED bacteria has three types of DNA in it.{of itself,of other bacteria and of Virus }
7. RHIZOPUS is Aseptate and Multinucleate.
8. Bacteriophage is always DNA,it cannot have RNA. 5
9. First organ system ever developed in evolution after formation of Mesoderm is neither Digestive,nor Nervous but it is EXCRETORY system by PLATYHELMENTHES.

AS&RC KARACHI

1. most of the animals around us OPEN TYPE blood circulation is present.
2. Longest part of Digestive system is ILEUM.
3. innermost layer of digestive systems is MUCOSA.
4. Pancreas is involved in Chemical digestion of LIPIDS.
5. Mucous is made of Glycoprotein.
6. Trypsinogen is activated by Enterokinase enzyme.
7. Ciliated Epithelial cells are present in TRACHEA.
8. Respiratory surface is 2-cell thick.
9. CO,carbon monoxide has highest affinity for Haemoglobin-
- 10.Ptalyin works on the food when it passes through oesophagus

AS&RC PANO AQIL

1. Pappilary muscles are extensions of Endocardium.
2. In case of fungal infections Eosinophils increases in numbers.
3. Lymph flow requires a strong pumping by blood.
4. Mitral valve is also known as Bicuspid valve.
5. Urinogenital tract is also known as Urethra.
6. Maximum reabsorption of water takes place in Proximal Convoluted Tubule.
7. Covering of Kidneys is Fibrous capsule.
8. Kidney interstitium is related to Aldosterone for more concentration.

AS&RC HYDERABAD

1. DNA ligase not required for PCR.
2. Antigen of donor reacts with antibody of reciepent.
3. Hydrogen bonds are more sensitive as compared to other bonds
4. Chlorophyll a is common in antenna complex and reaction centre of photosynthesis.
5. Evolution operates upon population.
6. Product of evolution is the origion of a new species.
7. Pilli are made up of PILLIN protein.
8. Wheat grain is seed as well as fruit.
9. Structural unit Reflex action is Neuron.
- 10.Nerve Tracts are part of Central Nervous Ssystem.
- 11.Hepatic Vein has maximum amount of Urea.

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