
APPENDICES

DEPARTMENT OF PSYCHOLOGY
P.S.G. COLLEGE OF ARTS & SCIENCE
COIMBATORE - 641 014.

Dear Students,

I have undertaken a research work on some educational problems of secondary school students, for which I would like to have some informations about you and your family. Please answer the questionnaires given to you as per instruction.

I do assure you that the information provided by you will be kept strictly confidential and used for research purpose only. This is no test, please feel free to answer.

Thanking you for your kind cooperation.

M. ELANGO

APPENDIX - I
DEPARTMENT OF PSYCHOLOGY
PSG COLLEGE OF ARTS AND SCIENCE
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SCIENCE ACHIEVEMENT TEST @

This test is based on the portions done in your science course.

Each of the questions or incomplete statement in this test is followed by three suggested answers. You have to decide which one of these answers is correct and write the letter a, b, or c corresponding to the correct answer. Write your answer by putting a tick mark against the answer. Choose only one answer. If you want to change after marking your answer, score out well the answer you marked first and write the answer you think is correct. Be sure to answer all the questions because your score will be the number of answers that you get correct. Therefore, work speedily and carefully but don't spend too much time on any one question, as the time you take to complete this test will be noted.

@ Thirty five items were only selected after item-analysis. Hence the final format of the SAT contains the items which are indicated by an asterisk (*) mark.

PHYSICS

1. The leastcount of a scale is the measurement of
87%
0.12 (1) largest value (2) smallest value (3) average value
2. In a screw gauge the head scale zero is below the
58%
0.04 pitch scale reference line, then the error is
(1) negative error (2) no error (3) positive error
3. The change of position of a body is called
64%
0.03 (1) change of state (2) motion (3) displacement
- * 4. The formula to find the pressure at a point inside
45%
0.45 the liquid at rest is
(1) area and height (axh)
(2) volume and density (vxd) (3) hdg
5. The formula used to show the relation between the
37%
0.06 Centigrade and Farenheit scales is
(1) $C = (F-32) \frac{5}{9}$ (2) $C = (F+32) \frac{5}{9}$ (3) $C = \frac{F-32}{5/9}$
6. The most sensitive thermometres are
39%
0.06 (1) mercury thermometres (2) alcohol thermometres
(3) water thermometres.

7. Which of the following shows more volume expansion due to increase in temperature ?
 37%
 0.04 (1) solid (2) liquid (3) gases
8. The one who showed that PV is a constant at constant temperature is
 39%
 0.17 (1) Robert Boyle (2) Charles (3) Robert Hook
9. The visibility of a body is due to
 80%
 0.09 (1) refraction of light (2) reflection of light
 (3) absorption of light
10. The image formed in a plane mirror is
 72%
 0.03 (1) smaller in size (2) same size as the object
 (3) bigger in size
- * 11. We get virtual, enlarged and erect image in a concave mirror when the object is
 46%
 0.31 (1) between f and $2f$ (2) at f (3) within f
- * 12. A ray passing through the optic centre of convex lens emerges out
 49%
 0.46 (1) by passing through the principal focus (2) parallel to principal focus (3) Without any deviation

13. Primary colours are

72%

- 0.06 (1) Green, Red and Blue (2) Yellow, Magenta and Cyan
(3) Red, Green and Yellow

14. The focal length (f) means

25%

- 0.11 (1) distance between the lens and object
(2) distance between the lens and image
(3) distance between the object and image

15. The equation for magnification is

44%

- 0.01 (1) $M = \frac{v}{u}$ (2) $M = \frac{u}{v}$ (3) $M = \frac{i}{u} + \frac{i}{v}$

16. When a wave passes through a medium the particles of the medium

20%

- 0.04 (1) gets displaced along with direction of wave
(2) gets displaced perpendicular to direction of wave
(3) never gets displaced

17. The unit used to express wavelength of light is

87%

- 0.14 (1) millimetre (2) nanometre (3) kilometre

* 18. Fundamental units are

80%

- 0.32 (1) length, mass and time (2) metre, kilogram and second
(3) mile, pound and second

- * 19. Using screw-gauge we can measure
65%
- 0.33 (1) very long distance (2) heavy mass (3) the thickness of very thin plates accurately
20. Which of the following is a vector quantity ?
66%
- 0.09 (1) Acceleration (2) Distance (3) Velocity
21. The rate of change of displacement in a certain direction in one second is
54%
- 0.22 (1) Velocity (2) Speed (3) Acceleration
22. If a car initially runs with a velocity of 2m/s^2 , the velocity of it after 4 secs is
83%
- 0.27 (1) 2 m/s (2) 8 m/s (3) 4 m/s
23. Liquids can change their shape easily due to
37%
- 0.06 (1) surface tension (2) liquid thrust (3) the force of attraction between the molecules is less
24. The rise of water in a capillary tube is due to
29%
- 0.19 (1) liquid pressure (2) atmospheric pressure (3) surface tension
25. Normal temperature of human body is
59%
- 0.09 (1) 39°C (2) 38° (3) 36.9°C

26. A thermometer is used to measure
74%
0.06 (1) latent heat (2) heat (3) temperature
27. A circular copper plate has a small circular hole.
18%
When this plate is heated uniformly, then the
diametre of the hole
0.14 (1) increases (2) decreases (3) remains the same
28. At high temperature, the molecules of a body
69%
0.03 (1) moves faster (2) moves slowly (3) remains at
rest
- * 29. The thermometer was first designed by
31%
0.31 (1) Joule (2) Farenheit (3) Gallileo
30. The mirror used to see the vehicles coming behind is
56%
0.09 (1) Concave mirror (2) Plane mirror (3) Convex
mirror
31. The equation to measure the focal length of a mirror
41%
is
0.09 (1) $f = \frac{uv}{u+v}$ (2) $f = \frac{u+v}{uv}$ (3) $f = \frac{uv}{u-v}$

32. The laws of refraction are suited for
66%
0.14 (1) plane mirror (2) concave mirror (3) convex
mirror
33. The unit of power of the lens is
60%
0.17 (1) metre (2) focal length (3) diopter
34. The splitting of white light into 7 colours is due to
87%
0.06 (1) interference (2) dispersion (3) reflection
35. Virtual image is the one that
77%
0.03 (1) can be caught on the screen (2) can not be
caught on the screen (3) can be caught sometimes
36. For propagation of sound waves
94%
0.04 (1) a medium is necessary (2) no need of medium (3)
propagate on its own
37. The SONAR is used to find
84%
0.08 (1) Ocean depths (2) velocity of sound in air
(3) time period of sound's stay

- * 38. On rubbing a glass rod with a silk cloth, it
42%
0.32 (1) loses electrons (2) gains electrons (3) loses positive ions.
39. Almost all metals are
74%
0.03 (1) conductors (2) insulators (3) semi-conductors.
40. Thermalions are liberated
34%
0.14 (1) when ultraviolet rays fall on metals
(2) when electromagnetic waves fall on metals
(3) on heating the metals
41. The electron gun in a cathode ray tube is
52%
0.11 (1) cathode (2) cylindrical anode (3) two cylindrical anodes and cathode
42. If a body at rest gains velocity of 10m/s, in 5
52% seconds its acceleration is
0.04 (1) 2m/S^2 (2) 0.2m/S^2 (3) 0.5m/S^2
43. The absolute unit of force is
103%
0.19 (1) newton (2) kilogram (3) kilogram weight

44. The °F equal to 40° C is
28%
0.11 (1) 104°F (2) 100°F (3) 80°F
45. If an ice - cube at 0°C is placed in water at 0°C, then
44%
0.14 (1) the ice - cube melts (2) ice-cube never melts
(3) the ice - cube melts completely
46. When the strings of a guitar is tuned, the waves
42%
0.01 (1) longitudinal (2) transverse (3) electromagnetic
47. The distance between two consecutive particles that
27%
0.03 (1) $\lambda/2$ (2) 2λ (3) λ
48. When an object is placed at the centre of curvature
54%
0.03 (1) f (2) 3 f (3) 2 f
49. The unit of length in MKS system is
75%
0.04 (a) Kilometre (2) Metre (3) Millimetre
50. Using a screw gauge the thickness of a wire can be
77%
0.06 (1) centimetre (2) millimetre (3) deci-metre

* 51. When the scale pans are empty in a physical balance we get

82%

0.35 (1) resting point (2) turning point (3) zero resting point

* 52. The scalar quantity is the one that has

64%

0.31 (1) only magnitude (2) only direction (3) both magnitude and direction

53. The second equation of motion is

57%

0.20 (1) $v = u + at$ (2) $a = \frac{v - u}{t}$ (3) $s = ut + \frac{1}{2} at^2$

54. The value of g is

69%

0.06 (1) 9.8 m/S^2 (2) 980 m/S^2 (3) 98 m/S^2

55. The formula to find angular velocity is

70%

0.09 (1) $\theta \times t$ (2) $\frac{\theta}{t}$ (3) $\frac{t}{\theta}$

56. The instrument used to measure atmospheric pressure is

94%

0.11 (1) hydrometre (2) burometre (3) thermometre

57. The lens which always give virtual image is

34%

0.11 (1) concave (2) convex (3) complex

58. The most denser medium is
75%
0.09 (1) glass (2) air (3) water
- * 59. The magnetic lines of force around the poles are
67%
0.32 (1) denser (2) lesser (3) rarer
60. When an object loses electrons it attains
62%
0.16 (1) positive change (2) negative change (3) neutral change
- * 61. The vacuum tube diode is discovered by
47%
0.33 (1) Faraday (2) Thomson (3) Flemming
62. The velocity of sound in air is
34%
0.01 (1) 332 m/S^2 (2) 331.3m/S^2 (3) 334.3m/S^2
63. In the equation $v = \frac{2d}{t}$, v denotes
25%
0.06 (1) initial velocity (2) velocity of sound (3) final velocity
64. The boiling point of alcohol is
75%
0.04 (1) 60° C (2) 78° C (3) 57° C

* 65. The co-efficient of thermal expansion of gases is
45%

0.32 (1) constant (2) more (3) less

66. Lateral inversion is observed in
71%

0.17 (1) concave mirror (2) plane mirror
(3) convex mirror

CHEMISTRY

67. The atomic particle having no electrical charge is
80%
0.09 (1) Proton (2) Neutron (3) Electron
- * 68. The isotope used in Atom bomb is
76%
0.40 (1) U_{235} (2) Cl_{37} (3) P_{32}
69. Isotopes differ in
50%
0.16 (1) number of electrons (2) number of protons
(3) number of neutrons
70. The symbol for silver is
75%
0.08 (1) Hg (2) Ag (3) Au
- * 71. Washing soda is
49%
0.31 (1) Sodium chloride (2) Sodium Carbonate (3) Sodium sulphate
72. Air contain 80% of
45%
0.12 (1) H (2) O (3) N

73. Halogen is
105%
0.17 (1) Chlorine (2) Mercury (3) Iron
74. The ammonium compound used in the dry cell is
41%
0.03 (1) ammonium chloride (2) ammonium sulphate
(3) ammonium carbonate
75. Nitrochalk is a
27%
0.09 (1) fertilizer (2) explosive (3) dye
76. Brown-ring test is used to identify
65%
0.14 (1) sulphate (2) nitrate (3) chloride
- * 77. A best phosphate fertilizer is
66%
0.33 (1) Di-ammonium phosphate (2) Ammonium phosphate
(3) Super phosphate
78. The colour of chlorine is
95%
0.11 (1) greenish yellow (2) Yellow (3) Red
79. PVC is a
65%
0.11 (1) explosive (2) fuel (3) plastic

80. A thinner is
85%
0.19 (1) Turpentine Oil (2) Ground-nut Oil
(3) Coconut Oil
81. The chemical used to prepare insecticides
48%
0.06 (1) Naphtha (2) Naphthelene (3) Benzene
82. The nucleus of an atom contains
75%
0.12 (1) protons and neutrons (2) only neutrons
(3) electrons and neutrons
83. The uronium isotope used in atomic reactor is
75%
0.22 (1) U_{92}^{229} (2) U_{92}^{235} (3) U_{92}^{239}
84. The Modern Periodic Law was corrected by
15%
0.17 (1) Mendeleef (2) Lothar Mayer (3) Moseley
85. The molecular weight of a compound can be calculated
79%
0.00 using
(1) symbol (2) molecular formula (3) equation
86. Used as a refrigerant is
61%
0.03 (1) liquid nitrogen (2) nitrogen gas
(3) nitrogen-di-oxide

87. The oxide of nitrogen which is in liquid form is
28%
0.04 (1) nitrous oxide (2) nitric oxide
(3) nitrogen-di-oxide
88. Substance used to get dry ammonia gas is
75% (1) quick lime (2) hydrochloric acid (3) lime
0.08 water
89. A Catalyst a chemical reaction.
63%
0.04 (1) induces (2) reduces (3) raises the temperature in
90. Navatcharam is
48%
0.03 (1) ammonium sulphate (2) ammonium chloride (3)
ammonium carbonate
91. In a neutralization reaction
36%
0.08 (1) salt and water are formed (2) acid and salt are
formed (3) two salt solutions are formed
92. The gas which puts off burning splinter with a 'pop'
37%
0.03 sound is
(1) nitrogen (2) hydrogen (3) carbon-di-oxide
93. The acid which give yellow colour with protein is
41%
0.09 (1) nitric acid (2) sulphuric acid (3) carbonic acid

94. The plants which take nitrogen directly from the atmosphere are
41%
0.08 (1) Phthalophytes (2) Monocotyledom (3) Legumeorpod
- * 95. Dutch metal is an alloy of
52%
0.40 (1) copper and sulpher (2) copper and silver (3) copper and Zinc
96. The cause for the decolorization reaction of chlorine is
16%
0.09 (1) (0) (2) O_2 (3) O_3
97. Florine atom contains 9 electrons and 10 neutrons. The mass number is
95%
0.06 (1) 9 (2) 19 (3) 10
- * 98. The scientist, who first found out the electrons, is
75%
0.41 (1) Flemming (2) J.J. Thomson (3) Neils Bohr
99. Alpha particles is
43%
0.09 (1) the nucleus of helium (2) proton (3) helium atom containing two protons
100. The smallest particle taking part in the reaction of atom is
55%
0.04 (1) molecule (2) atom (3) compound

* 101. Which of the following has highest mass?

43%

0.41 (1) 0.1 mole of carbon-di-oxide (2) 0.5 mole of water (3) 0.5 mole of sulphur-di-oxide

102. The chemical name of the common salt is

67%

0.12 (1) sodium chloride (2) sodium sulphate (3) calcium sulphate

103. The molecular formula for sodium sulphate is

86%

0.11 (1) $\text{Na}_2 \text{SO}_3$ (2) $\text{Na}_2 \text{SO}_4$ (3) $\text{Na}_2 \text{CO}_3$

104. Laughing gas is

92%

0.20 (1) nitrogen-di-oxide (2) nitric oxide (3) nitrous oxide

105. T.N.T. is

50%

0.00 (1) an explosive (2) a fertilizer (3) an aquaregia

106. Smelling salt is

45%

0.03 (1) ammonium chloride (2) ammonium carbonate (3) ammonium sulphate

* 107. The halogen compound present in some toothpastes is
59%

0.32 (1) chlorine (2) iodine (3) fluorine

108. Tear gas can be prepared by using
37%

0.01 (1) hydrogen (2) chlorine (3) oxygen

* 109. Aquaregia is used to
75%

0.32 (1) remove stein (2) preserve rubber (3) dissolve
gold and platinum

110. The fertilizer obtained from cattledung and plants is
44%

0.11 (1) compost fertilizer (2) phosphate fertilizer
(3) primary nutrients

111. Shellac is a
41%

0.01 (1) natural plastic (2) thermoplastic
(3) thermosetting plastic

112. Example for a polymer is
59%

0.22 (1) wool (2) rubber (3) nylon

113. In the preparation of cement, the compound formed in
59% the cement kiln is

0.06 (1) liquid cement (2) clinker (3) portland stone

114. The coal which has more carbon content is
42%

0.04 (1) charcoal (2) lignite (3) bituminous coal

115. The substance used to preserve trees is
43%

0.12 (1) anthracene oil (2) phenol (3) cryosote oil

116. The symptom for the disease fluorosis is
37%

0.08 (1) breathing trouble (2) dysentery (3) formation of
yellow stain in teeth

* 117. Which of the following does not reduce the oxygen
50% content in air ?

0.31 (1) respiration (2) rusting (3) photosynthesis

118. Hard water is
45%

0.20 (1) H_2O (2) $2H_2O$ (3) D_2O

119. The mass number of Phosphorous is 31. If the number
73% of neutrons is 16, what is the atomic number?

0.20 (1) 31 (2) 16 (3) 15

120. The electrons and protons are held together in an atom due to

46%

0.14 (1) static force (2) electromagnetic force
(3) centrifugal force

121. The layer which absorbs ultraviolet radiations and protect us is

65%

0.08 (1) Ozone (2) atmosphere (3) water vapour

122. The molecular formula for canesugar is

62%

0.08 (1) $C_{12}H_{22}O_{11}$ (2) $C_{12}H_{12}O_{12}$ (3) $C_6H_{10}O_6$

BIOLOGY

123. The animal that exhibits METAMERISM is
45%
0.16 (1) earthworm (2) tapeworm (3) sponges
124. The cell organelle involved with respiration is
37%
0.11 (1) golgi apparatus (2) mitochondria (3) ribosomes
125. An example for RHIZOME is
53%
0.16 (1) potato (2) onion (3) ginger
126. The cell was discovered by
78%
0.14 (1) Robert Hooke (2) Purkinje (3) Schwan
127. Starch is stored in
09%
0.03 (1) chloroplasts (2) chromoplasts (3) leucoplasts
- * 128. The tissue that stores fat is
56%
0.31 (1) connective tissue (2) adipose tissue (3) bone tissue
129. The vitamin synthesized by skin is
84%
0.01 (1) D (2) A (3) B

130. An example for endoparasite is
35%
0.22 (1) round worm (2) earthworm (3) tapeworm
131. Eczema is a
58%
0.16 (1) viral disease (2) bacterial disease (3) fungal disease
132. The nitrogenous base not present in DNA is
52%
0.14 (1) thiamine (2) urasil (3) adenine
133. The theory of recapitulation was put forward by
20%
0.03 (1) Haeckel (2) Darwin (3) Mendel
134. The plant which has air cavities in it is
55%
0.11 (1) lotus (2) hydrilla (3) eichhormia
135. Social insects are
85%
0.06 (1) honey bees (2) grasshoppers (3) cockroaches
- * 136. Insect which posses protective mimicry is
41%
0.34 (1) silkmoth (2) allima butterfly (3) honey bee

137. Bacteria converts cellulose into
37%
0.01 (1) sugar (2) fat (3) protein
- * 138. Indigo is a
47%
0.32 (1) root dye (2) wood dye (3) leaf dye
139. Asexual reproduction is done by
53%
0.16 (1) paramoecium (2) coelenterata (3) phylum
140. Example for invertebrates is
47%
0.17 (1) phylum (2) malarial parasite (3) mullet fish
141. Oscillatoria is
52%
0.11 (1) blue alga (2) blue green alga (3) green alga
142. The shape of the gametophyte prothallus is
34%
0.01 (1) round shaped (2) heart shaped (3) cone shaped
143. In which plant coral roots are seen?
50%
0.01 (1) selaginella (2) pynus (3) Eaqusittum

144. Which is a dicotyledonous plant?
80%
0.19 (1) pea (2) maize (3) sugar cane
145. Where are guard cells present?
58%
0.22 (1) in stomata (2) in leaf (3) in veins
146. What type of root system is Rhizome?
40%
0.09 (1) taproot system (2) adventitious root system
(3) underground root system
147. "Protoplasm is the physical basis of life" - this
47% statement was proposed by
0.14 (1) Schwaan (2) T.H. Huxely (3) Robert Hooke
148. What type of substances are carbohydrates?
58%
0.16 (1) inorganic (2) organic (3) minerals
149. The part of the protoplasm found in between the
73% plasma membrane and nuclear membrane is
0.11 (1) nucleus (2) cytoplasm (3) plasmalemma
150. The vacuoles of plant cells are covered by
29%
0.14 (1) lipo protein (2) tonoplast (3) leucoplast

151. Plasmamembrane is made up of
66%
0.03 (1) lipids (2) pectin (3) tannin
152. In plants, plastids are present in
53%
0.03 (1) protoplasm (2) cytoplasm (3) nucleus
153. Leucoplasts are
50%
0.20 (1) red in colour (2) yellow in colour
(3) colourless
- * 154. The endoplasmic reticulum is smooth because
43%
0.31 (1) ribosomes are less in number (2) ribosomes are
more in number (3) ribosomes are absent.
- * 155. Ribosomes are
47%
0.32 (1) rod shaped (2) spherical shaped (3) oval shaped
156. What are called suicidal bags?
63%
0.08 (1) mitochondria (2) ribosomes (3) lysosomes
157. The fingerlike projections seen in the internal
64%
0.12 (1) listernae (2) cristae (3) plasma

158. In which phase nucleolus and nucleus started
23% disappearing ?
0.12 (1) interphase (2) anaphase (3) prophase
159. Epithelium seen in the nasal cavity
57%
0.14 (1) stratified epithelium (2) ciliated epithelium
(3) Olfactory epithelium
160. The other name for the pelvic cavity is
75%
0.19 (1) ilibulla (2) acetabulum (3) ulna
161. The matrix in the cartilage tissue is hard due to
37% the presence of
0.08 (1) lacunae (2) inorganic salt (3) dust particles
162. The RBCs are produced chiefly in
75%
0.08 (1) flat bones (2) bone marrow (3) flat tissues
- * 163. RBCs are also called as
35%
0.32 (1) leucocytes (2) thrombocytes (3) erythrocytes
164. Which of the following is not controlled by our wish?
29%
0.03 (1) involuntary muscles (2) voluntary muscles
(3) skeletal muscles

165. The epithelium found in our skin is
71%
0.04 (1) tertiary epithelium (2) stratified epithelium
(3) ciliated epithelium
166. Dermal papillae are the extensions of
40%
0.03 (1) glands (2) dermis (3) connective tissue
- * 167. The liquid called Sebum is found in
52%
0.31 (1) sweat glands (2) sensory organs (3) oil glands
168. Sensory organs are connected with
80%
0.12 (1) blood (2) brain (3) heart
169. The substance present in cornea is
41%
0.11 (1) kerotin (2) xanthophil (3) ergosterol
- * 170. Exoskeleton means
44%
0.34 (1) internal frame work of bones (2) external frame
work of bones (3) back bone system
- * 171. The bacteria that is responsible for the sour taste
45%
0.31 (1) tuberculosis (2) lactobacillus (3) botulism

172. The concept of heredity was proposed by
71%
0.17 (1) Aristotle (2) Gregor Jogan Mendel (3) Schwaan
173. The aminoacid molecules were synthesised by
25%
0.20 (1) Spinnimiller (2) Neit home (3) Spallenzani
- * 174. The plant in which the stem is modified into
48% tendrils is
0.32 (1) Pea (2) Bengal grams (3) Grapes
175. The unicellular organisms belong to
83%
0.14 (1) Coelenterata (2) Platyhelminthes (3) Protozoa
- * 176. The skeleton of animals belonging to Porifera is
41%
0.33 (1) Spicules (2) Flagella (3) Pseudopodia
177. In Cactus (OPUNTIA) the leaves are modified into
85%
0.12% (1) tendrills (2) jar like (3) spines
178. The excretion in Arthropodes take place due to
43%
0.16 (1) flame cells (2) malpighian tubules (3)
exoskeleton

179. Oviparous means
48%
0.19 (1) giving birth to young ones (2) egg laying animals
(3) cold blooded animals
180. The roots of cycas are called as
67%
0.22 (1) Coral roots (2) stilt roots (3) bulb
181. Taproot system is conical in
41%
0.11 (1) radish (2) turnip (3) carrot
- * 182. The cellwall is made up of
79%
0.32 (1) lipid (2) cellulose (3) tonoplast
183. Which substance in skin is modified into Vitamin D?
40%
0.03 (1) kerotin (2) ergosterol (3) fat cells
184. The number of bones in vertebrae is
64%
0.06 (1) 33 (2) 14 (3) 12
- * 185. The sugar present in RNA is
30%
0.41 (1) Deoxiribose (2) ribose (3) purines

186. The units of heredity are

96%

0.19 (1) purines (2) pyrimidines (3) genes

187. One called plant is

87%

0.11 (1) Pistia (2) Lykkan (3) Chlamydomonas

188. The medicine to cure Malaria is obtained from

28%

0.17 (1) leucas (2) cincona (3) asparagas

189. The dyes used in food

70%

0.14 (1) indigo (2) litmus (3) turmeric

* 190. The vitamins mostly present in Codliver oil are

62%

0.31 (1) Vitamins A & B (2) Vitamins B & C (3) Vitamins
A&D