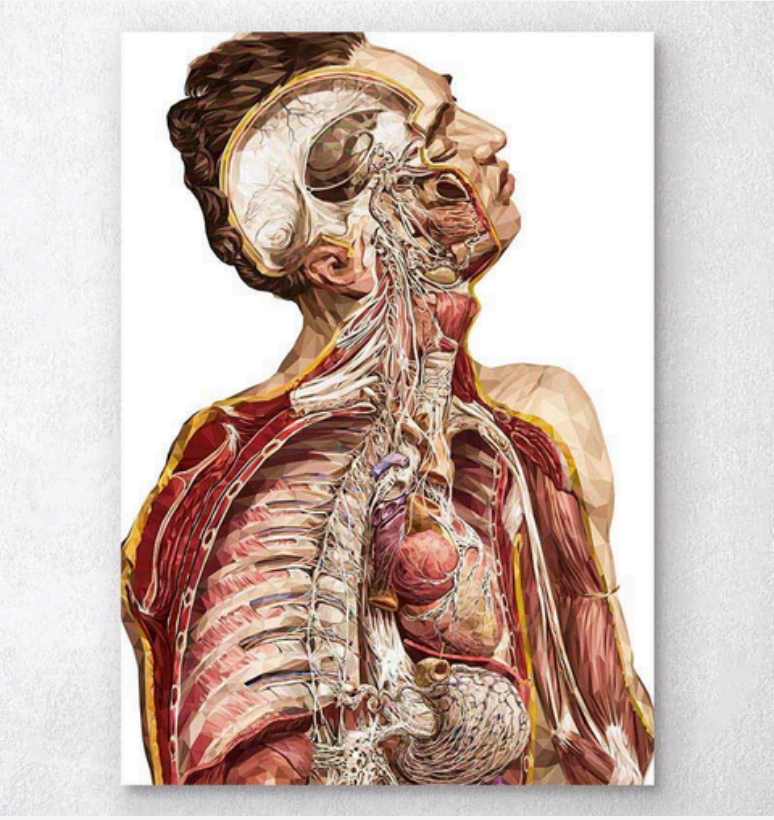
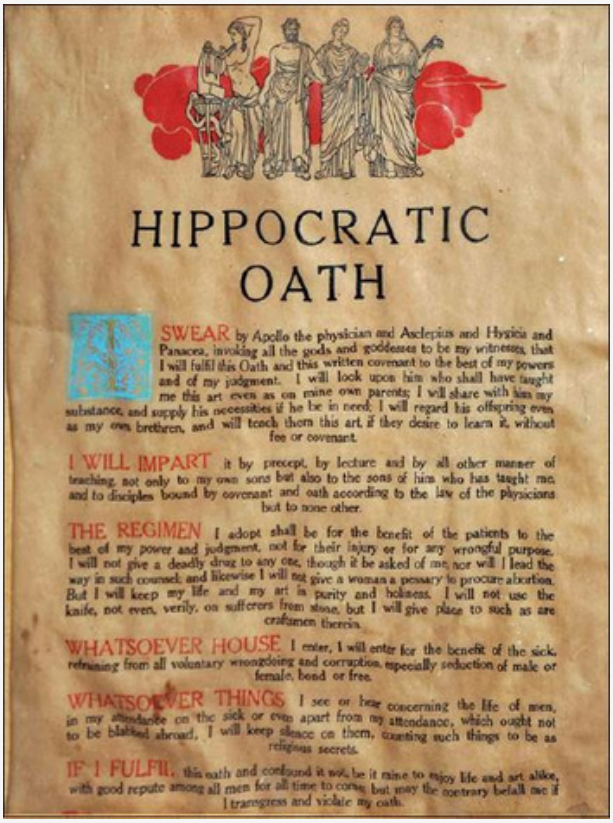
Future MedsAcademy

SEPTEMBER 2025

IMAT MOCK TEST EXAM





HIPPOCRATIC OATH

I SWEAR by Apollo the physician and Asclepius and Hygieia and Panacea, invoking all the gods and goddesses to be my witnesses, that I will fulfil this Oath and this written covenant to the best of my powers and of my judgment. I will look upon him who shall have taught me this art even as on mine own parents; I will share with him my substance, and supply his necessities if he be in need; I will regard his offspring even as my own brethren, and will teach them this art, if they desire to learn it, without fee or covenant.

I WILL IMPART it by precept, by lecture and by all other manner of teaching, not only to my own sons but also to the sons of him who has taught me, and to disciples bound by covenant and oath according to the law of the physicians but to none other.

THE REGIMEN I adopt shall be for the benefit of the patients to the best of my power and judgment, not for their injury or for any wrongful purpose. I will not give a deadly drug to any one, though it be asked of me, nor will I lead the way in such counsel; and likewise I will not give a woman a pessary to procure abortion. But I will keep my life and my art in purity and holiness. I will not use the knife, not even, verily, on sufferers from stone, but I will give place to such as are craftsmen therein.

WHATSOEVER HOUSE I enter, I will enter for the benefit of the sick, refraining from all voluntary wrongdoing and corruption, especially seduction of male or female, bond or free.

WHATSOEVER THINGS I see or hear concerning the life of men, in my attendance on the sick or even apart from my attendance, which ought not to be blabbed abroad, I will keep silence on them, counting such things to be as religious secrets.

IF I FULFIL this oath and confound it not, be it mine to enjoy life and art alike, with good repute among all men for all time to come; but may the contrary befall me if I transgress and violate my oath.

Prepared by :
AMIR AKHTAR

Prepared for :
IMAT CANDIDATES

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MAJOR EXAM FOR IMAT STUDENTS

Logical Reasoning and General Knowledge

Q1. The Hundred Years' War was principally a conflict between which of the following kingdoms?

a. The Kingdom of Aragon and the Kingdom of France

b. The Kingdom of Aragon and The Kingdom of Castile

c. The Kingdom of Castile and the Kingdom of Portugal

d. The Kingdom of England and the Kingdom of Portugal

e. The Kingdom of France and the Kingdom of England

Q2. In which Italian city, in 1848, did the so-called insurrection occur "five days" against Austrian domination?

1. a. Turin
2. b. Naples
3. c. Palermo
4. D. Milan
5. E. Venice

Q3. **Which of the following events occurred during Leonardo DaVinci's lifetime?**

1. A. Discovery of America
2. B. French Revolution
3. C. Richard the lionheart participates in the third crusade
4. D. Thirty Years' war
5. E. Death of Dante Alighieri

Q4. "**Circumstance or set of circumstances are from which serious harm is feared**" is the definition associated with which of these words?

1. Incognito
2. Danger
3. Alarm

4. Fragmented
5. Incident

Q5. **Four friends, all doctors, meet at a conference and during the lunch they sit together at a single round table. Their names are: Maria, Antonio, Cristina and Giacomo and by profession they do, not in order: pediatrician, surgeon, neurologist, orthopedist. He who is a surgeon is to the left of Maria, while the neurologist sits in front of Antonio. Cristina and Giacomo are next to each other and to the left a woman is sitting at the orthopedist's desk. What is the pediatrician's name?**

1. Antonio
2. Cristina
3. Maria
4. James
5. Either Antonio or Cristina, but it is impossible to establish

Q6. All CUZ are CW; no DE is CW; some DEs are DRs. If these statements are true, then it is certainly NOT true that:

1. some DR may be CW
2. no DE can be CUZ
3. not all DRs are definitely also DEs
4. no DR can be CUZ
5. some CW may not be CUZ

Q7. Which of the proposed terms correctly completes the following verbal proportion? X : smart = empty : full

1. X = Ingenious
2. X = Acute
3. X = Elegant
4. X = Superb
5. X = Fool

Questions 08) & 09) are based on the following paragraphs. Read the passage and answer each question only on the basis of the information contained (explicitly or implicitly) in the passage and not on the basis of what the candidate may know about the topic.

REPAIRING THE NEURAL DAMAGE OF DEMENTIA

Frontotemporal dementia is a chronic and irreversible deterioration of cognitive abilities: it is so called because it originates from an alteration of

neurons in the frontal and temporal lobes of the brain. Epidemiological studies indicate that it is a relatively rare disease, accounting for about 10% of all dementia cases. It is also characterised by an earlier onset than other dementias such as Alzheimer's disease: the first signs of the disease can occur between the ages of 55 and 65.Thanks to a new study published in the Journal of Neuroscience, J. Terreros-Roncal and colleagues from the Universidad Autónoma de Madrid, Spain, have identified the specific neuronal alterations associated with frontotemporal dementia in the brains of humans and a strain of genetically modified laboratory mice that represent an animal model for the disease. In rodents, the authors were also able to block and reverse the degenerative process. The study found that the neuronal damage typical of frontotemporal dementia specifically affects dentate granule cells, the main cell type found in the dentate gyrus brain region within the hippocampus.The authors demonstrated, for the first time, that in patients and animals with frontotemporal dementia, this population of hippocampal cells was disconnected from the other brain regions, a clear difference from normal subjects in the control groups. Furthermore, the researchers observed that the alterations in newly formed human granule cells were very similar to those in mice. A key finding from previous research is that the dentate gyrus produces dentate granule cells throughout life. So the researchers sought to exploit the regenerative and therapeutic potential of these cells. By chemically activating the cells and placing the animals in a stimulating environment with wheels and moving toys, they were able to compensate for the morphological changes in the dentate granular cells and partially restore the disrupted connectivity due to dementia.The success of the trial gives hope that, once transferred to humans, these results may be useful in better understanding dementia and open up new therapeutic perspectives in an area, that of age-related neurodegenerative processes, where treatment options are currently very scarce.

Q8. **The following statements can be deduced from the reading of Chapter 1:**

1- Frontotemporal dementia is always due to neuronal damage of dentate granule cells in the hippocampus.

2- The authors succeeded in finding a cure for frontotemporal dementia.

3- Approximately 10% of elderly people suffer from frontotemporal dementia.

Which of the above deductions is/are correct?

1. None
2. Only 2
3. Only 3
4. 1 & 3

5. 1 & 2

Q9. **The following statements can be deduced from the reading of Chapter 1:**

1- In animal models, environmental stimulation is an important component in increasing connectivity between hippocampal dentate cells and other brain regions.

2- Environmental stimulation improves the cognitive abilities of patients with frontotemporal dementia.

3- Chemical activation of hippocampal dentate cells reduces dementia symptoms in elderly patients.

Which of the above deductions is/are correct?

1. 1 & 2
2. All
3. 1
4. 1 & 3
5. 2 & 3

Biology

Number of Questions: 23

Q1. Codons are triplets of nitrogenous bases that form sequences in the genetic code.

Which of the following statements are true?

1. **An insertion or deletion mutation of a base often has more of an effect than substitution mutation.**
2. **Each base in a DNA strand is read multiple times when being transcribed and translated.**
3. **Because the genetic code is degenerate, one codon can code for multiple amino acids.**

A 1 only

B 2 only

C 3 only

D 1 and 2 only

E 2 and 3 only

Q2. Which of the above could be found in an adult animal cell?

1. Gene for amylase

2. Sex chromosomes

3. Starch

A **None of them**

B 1 only

C 2 only

D 3 only

E 1 and 2 only

Q3. **Which of the following statements about enzymes are true?**

1. **Enzymes are biological catalysts which speed up the rate of reactions taking place in an organism.**
2. **Enzymes are specific to certain substrates so they can form enzyme-substrate complexes.**
3. **An enzyme will always join two substrates together, such as sodium and glucose.**

A 1 only

B 2 only

C 3 only

D 1 and 2 only

E 1, 2 and 3

Q4. **Which one of the following is not part of a reflex to the stimulus of placing your**

foot touches a sharp object?

A Muscle cells contract.

B Sensory neuron transmits electrical impulse to the central nervous system.

C Motor neuron transmits electrical impulse to muscle cells.

D Relay neurons pass electrical impulse from sensory to motor neurons.

E Brain transmits electrical impulse to the muscle cells

Q5. **Many industrial processes use a catalyst to increase the rate of reaction.**

What advantage does the use of a catalyst have?

A It gives a purer product.

B It increases the maximum achievable yield.

C It makes the reaction exothermic.

D It saves on the energy costs.

E It yields more products

Q6. The body produces many useful hormones in a variety of different locations.

Which of these statements (s) acurrately describes a hormone produced by the body and the location in which it is produced?

1. LH is produced by the body in the adrenal gland.

2. Adrenaline is produced by the body in the adrenal gland.

3. Glucagon is produced by the body in the pancreas,

4. Oestrogen is produced by the body in the ovaries

5, FSH is produced by the body in the pituitary gland.

A Only 2

B 2 and 3

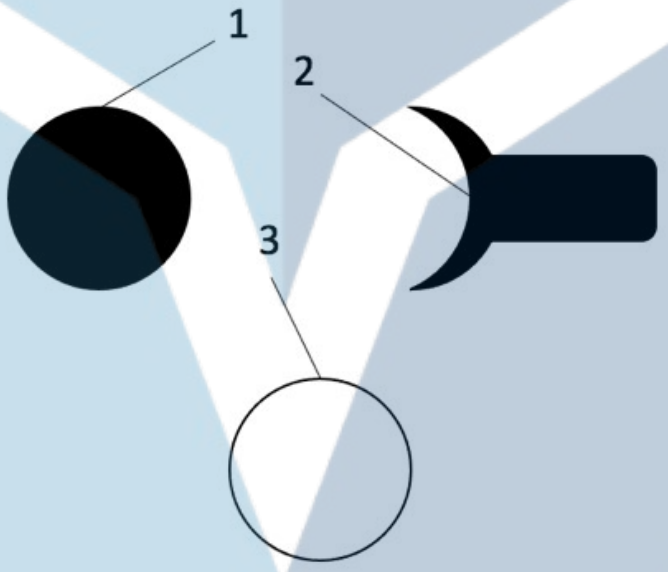
C 2, 3 and 4

D 2,3,4 and 5

E All of the statements

Q7. Dabigatran is a drug that prevents coagulation of blood by binding to the protein thrombin. Binding of dabigatran prevents thrombin from binding to fibrinogen in the same region.

If label 1 represents fibrinogen, what do labels 2 and 3 represent?



	2	3
A	Dabigatran	Thrombin active site
B	Thrombin active site	Fibrin
C	Dabigatran	Fibrin
D	Thrombin active site	Dabigatran
E	Fibrin	Thrombin active site

A A

B B

C C

D D

E E

Q8. **Which of the following transport mechanisms require the use of protein molecules found in membranes and ATP?**

1. Active transport

2. Diffusion

3. Facilitated diffusion

A 1 and 2 only

B 2 and 3 only

C 3 only

D 1 only

E 1 and 3 only

Q9. **Homeostasis**

A man drinks a lot of water- what would happen?

1. **More concentrated urine**
2. **Less ADH release**
3. **Less concentrated urine**
4. **More ADH release**

A 1 and 2

B 1 and 4

C 2 and 3

D 3 and 4

E 3 only

Q10. **Which of the following statements about the exchange of gases in breathing are true?**

1. **Smaller invertebrates exchange gases by simple diffusion and active transport.**
2. **Reptiles, mammals and birds beathe through lungs.**
3. **There are two stages in breathing; inspiration and expiration.**

A 1 only

B 2 only

C 1 and 2 only

D 2 and 3 only

E 1, 2 and 3

Q11. **Which of the following statements about genetic variation in meiosis are true?**

1. **Independent assortment is when sections of DNA exchange between homologous chromosomes.**
2. **Genetic variation can arise from the random combination of maternal and parental gametes that forms a zygote.**
3. **Mutations are a source of genetic variation.**

A 1 only

B 2 only

C 1 and 2 only

D 2 and 3 only

E 1 and 3 only

Q12. **Which of the following statements about anaerobic respiration are true?**

1. **A deficiency in oxygen means that lactate fermentation will occur in mammals during anaerobic respiration.**
2. **Lactate is a toxic chemical but can be converted into glycogen by the liver.**
3. **Fermentation in plants results in producing ethanol and water, not lactate.**

A 1 only

B 2 only

C 3 only

D 1 and 2 only

E 1, 2 and 3

Q13. Cell division is made up of a few different stages.

Which of the following processes occur in the anaphase stage?

1 Spindle fibres attached to chromatids contract.

2 Chromatids are pulled towards poles.

3 Spindles form.

A 1 only

B 2 only

C 1 and 2

D 1 and 3

E 1, 2 and 3

Q14. **Which of the following statements about contraception are true?**

1. **Use of physical and hormonal methods together is the most effective.**
2. **Progesterone plays a role in inhibiting the release of mature eggs.**

3. **High levels of oestrogen inhibits FSH production and thus the maturation and release of eggs.**

A 1 only

B 2 only

C 1 and 2

D 2 and 3

E 1, 2 and 3

Q15. **In a prokaryote, transcription can occur in which of the following?**

1. cytoplasm

2. mitochondria

3. ribosomes

A 3 only

B 1 and 3 only

C 1 only

D 1 and 2 only

E 2 only

Q16. The air that leaves the body is different to the air that enters the airway. Of the following options, which completely corrects the sentence.

When compared with air entering the body, air leaving the body has:

A More oxygen

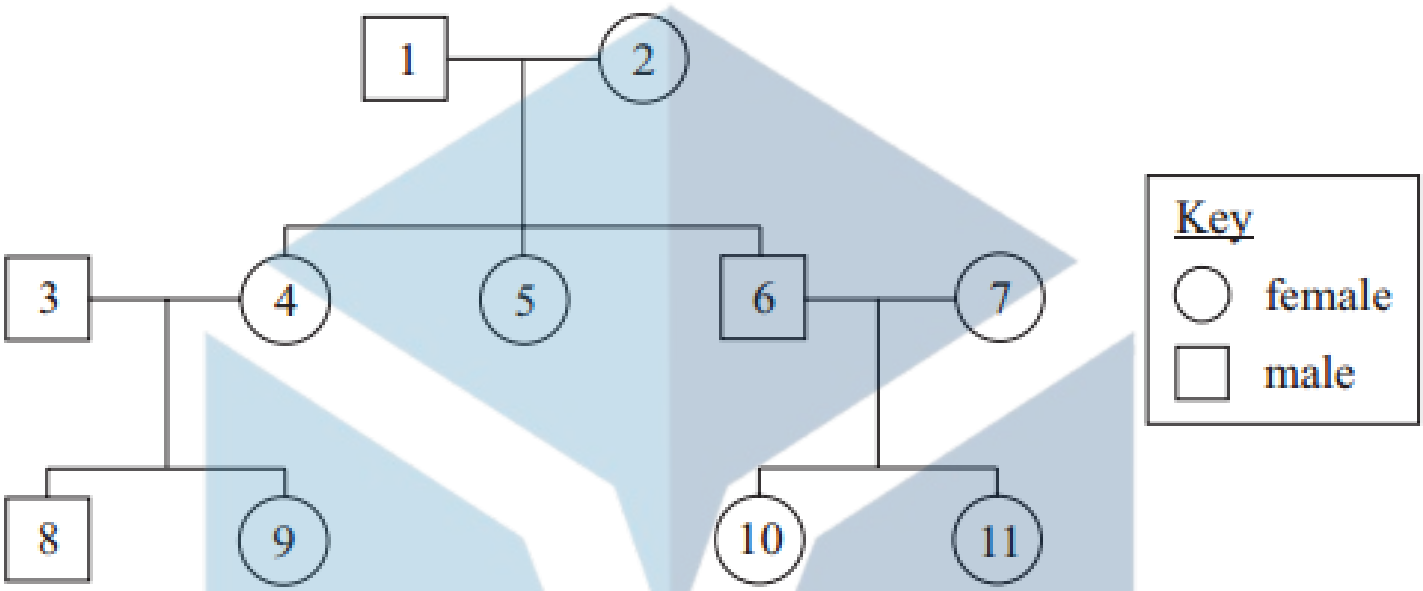
B Less carbon dioxide

C Less water vapour

D More pollen

E Fewer virus particles

Q17. **The diagram shows a family tree.**



The grandfather, individual 1, carries a recessive allele on his X chromosome. Which of the following options consists only of individuals who definitely have OR could have inherited this allele?

A 3,4,5,6

B 3,4,5,7

C 4,5,6,8

D 4,5,8,9

E 5,8,9,10

Q18. **Which of the following statements about protein synthesis is true?**

1. **Both strands of the DNA helix are transcribed to make a protein.**
2. **The mRNA codon GAC binds to the anticodon CUG on tRNA.**
3. **Proteins are formed during transcription.**
4. **Amino acids bond together by peptide bonds only.**

A None of them

B 1 only

C 2 only

D 3 only

E 4 only

Q19. Which of the following is/are intervertions in the control of blood glucose?

1. Insulin injection.

2. Regular cardiovascular exercise.

3. Glucagon injection.

A All of the above

B None of the above

C 1 and 2

D 2 and 3

E 1 only

Q20. The following five statements relate to homeostasis (the maintenance of stable internal conditions of the body)

1 Insulin helps to control the water content of the body.

2 Homeostasis depends only on hormones.

3 The pancreas helps to control the glucose content of the blood.

4 Both the nervous and hormonal systems are involved in homeostasis.

5 The skin is used to help control the body temperature.

Which statements are correct?

A 1, 2 and 3 only

B 1, 3 and 4 only

C 1, 4 and 5 only

D 2, 3 and 5 only

E 3, 4 and 5 only

Q21. **Which of the following are functions of the nucleus?**

1. The site of protein synthesis

2. To hold the genetic information of the cell

3. To undergo aerobic respiration

A 1,2 and 3

B 1 and 2

C Only 1

D Only 2

E Only 3

Q22. **Which of the following regarding the respiratory system are correct.**

1. **Thin capillary walls reduced diffusion distance to increase the rate of gas exchange.**
2. **A low surface area to volume ratio within the respiratory system is important to allow multicellular organisms to perform gas exchange.**
3. **Contraction of the diaphragm causes it to flatten at the lungs to inflate.**

A 1

B 2

C 3

D 1 and 2

E 1 and 3

Q23. **Which of the following statements about digestion are true?**

1. **The stomach is very alkaline with a high pH of about 14.**
2. **Mechanical digestion takes place in the mouth.**
3. **Peristalsis is the contraction of the oesophagus which allows food to be pushed down.**
4. **Gastric juices consist of hydrochloric acid and a range of enzymes.**

A 1 only

B 3 only

C 1 and 2 only

D 2 and 4 only

E 2, 3 and 4 only

Chemistry

Number of Questions: 15

1. Which equation represents the standard enthalpy of formation of liquid methanol?

(A) $C(g) + 2H_2(g) + \frac{1}{2}O_2(g) \rightarrow CH_3OH(l)$

(B) $C(g) + 4H(g) + O(g) \rightarrow CH_3OH(l)$

(C) $C(s) + 4H(g) + O(g) \rightarrow CH_3OH(l)$

(D) $C(s) + 2H_2(g) + \frac{1}{2}O_2(g) \rightarrow CH_3OH(l)$

(E) $CH_4(g) + O_2(g) \rightarrow CH_3OH(l)$

2. Which gas in the atmosphere causes the pH of unpolluted rain to be approximately 6?
(A) Carbon dioxide
(B) Sulfur dioxide
(C) Oxygen
(D) Nitrogen
(E) Ozone

3. What is the product of the addition of chlorine (Cl2) to propene (C3H6)?
(A) 1,1-dichloropropane
(B) 2,2-dichloropropane
(C) 1,2-dichloropropane
(D) 1,3-dichloropropane
(E) 3,3-dichloropropane

4. Which combination of properties best describes sodium oxide (Na2O)?

(A) High melting point, soluble in water, basic

(B) Low melting point, insoluble in water, acidic

(C) High melting point, soluble in water, neutral

(D) Low melting point, soluble in water, neutral

(E) High melting point, insoluble in water, amphoteric

5. Which combination of shape and bond angle is correct for a molecule of xenon tetrafluoride (XeF_4)?

A. Linear, 180°
B. Trigonal bipyramidal, 120°
C. Tetrahedral, 109.5°
D. Square planar, 90°

E. None of the above

6. Which compound forms an acidic solution when dissolved in water?

A. $FeCl_3$
B. CH_3NH_2

C. $NaNO_3$
D. Na_2CO_3

E. None of the above

7. The elements argon, potassium, and calcium are consecutive in the periodic table. Which gives the correct order of increasing first ionization energies?

A. Ar < Ca < K
B. K < Ar < Ca
C. Ca < K < Ar
D. K < Ca < Ar

E. None of the above

8. Which product is formed when bromine water is added to propene (CH_3CHCH_2)?

A. $CH_3CBr_2CH_3$
B. $CH_2BrCH_2CH_2Br$
C. $CH_3CHBrCH_2Br$
D. $CH_3CH_2CH_2Br$

E. None of the above

9. A solution of 50 cm^3 hydrochloric acid has a pH of 4. What is the final pH if 450 cm^3 of water is added?

A. 3
B. 4
C. 5
D. 6

E. None of the above

10. What is the conjugate base of phenol (C_6H_5OH)?

A. $C_6H_4^-—OH$
B. $C_6H_5—OH_2^+$
C. $C_6H_5—O^-$
D. $C_6H_6^+—OH$
E. None of the above

11. What is the mass (in g) of one mole of hydrated copper(II) sulfate ($CuSO_4 \cdot 5H_2O$)?

(Given atomic masses: Cu = 63.5, S = 32.1, O = 16.0, H = 1.0)
A. 160 g
B. 178 g
C. 186 g
D. 250 g

E. None of the above

12. Which pair of elements shows the greatest difference in electronegativity?

A. Mg and O
B. Li and F
C. K and F
D. Li and I

E. None of the above

13. Which properties do typical ionic compounds have?

A. High melting points, conduct electricity in solid state
B. Low melting points, insoluble in water
C. High melting points, conduct electricity in molten state
D. Low melting points, soluble in nonpolar solvents

E. None of the above

14. Which molecule is trigonal bipyramidal in shape?

A. PCl_3
B. $SiCl_4$
C. PCl_5
D. SF_6

E. None of the above

15. Which equation represents the second electron affinity of oxygen?

A. $O\ (g) + e^- \rightarrow O^-\ (g)$
B. $O^-\ (g) + e^- \rightarrow O^{2-}\ (g)$
C. $O^{2-}\ (g) + e^- \rightarrow O^{3-}\ (g)$
D. $O_2\ (g) + 2e^- \rightarrow 2O^-\ (g)$

E. None of the above

Mathematics

Q1. David has two boxes containing shapes. In box A there are 4 stars and 2 hearts. In box B there are 2 stars and 1 heart. David takes, at random, a shape from box A and puts it into box B. He then takes a shape from box B. What is the probability that this shape is a star?

1. 49
2. 43
3. 112
4. 23
5. 43

Q2. Suppose you have a list of prime numbers, and you multiply all the numbers in the list together, then add 1. Which of the following statements about the resulting number must be true?

1. The resulting number is always a prime number.
2. The resulting number is never a prime number.

3. The resulting number shares a common factor with at least one of the primes in the original list.
4. The resulting number is either a prime number or it has a prime factor that is not in the original list.
5. The resulting number is divisible by 2.

Q3.Richard bought oranges at a cost of 6 for 0.43$, and then sold them on at a price of 8 for 0.72$. If having sold all his oranges, Richard made a 4.80$ profit. How many oranges did he sell?

1. 16
2. 262
3. 160
4. 26
5. 480

Q4. If the average (arithmetic mean) of X, Y, Z is 50, what is the arithmetic mean of (3X - 10), (3Y + 20), (3Z + 50)

1. 70
2. 120
3. 130
4. 150
5. 170

Q5. If x and y are inversely proportional; and x = 10 and y = 5, what is y when x is 25?

1. 1
2. 1.5
3. 2
4. 4
5. 5

Q6. The number of admissions to hospital is represented by a circle graph (pie chart). 43% of admissions are emergency admissions, 18% are from the surgical department, 12% are from the oncology department, 7% are prom out-patients and the rest are related to chronic diseases. How many degrees of the circle are used to represent admissions due to chronic diseases?

1. 20
2. 36
3. 40
4. 72

5. 90

Q7. If in the formula X= 1(2r)3, r is halved, by what factor X is it multiplied?

1. 1
2. 8
3. 64
4. 18
5. 116

Physics

Q1. Which of the following pairs of physical quantities have the same dimensions?

1. Stress and strain
2. Work and energy
3. Velocity and displacement
4. Weight and mass
5. Torque and angular momentum

Q2. Two copper wires have the same volume, but the 2nd wire is longer than the 1st wire by 20%. What is the value of the ratio (Resistance of 1st wire/Resistance of 2nd wire)?

1. 1.44
2. 0.91
3. 1.11
4. 1.2
5. 0.69

Q3. A 2 kg block of ice at -20°C is heated until it turns into steam at 120°C under standard atmospheric pressure. Given the following data:

- Specific heat capacity of ice: 2.1 J/g°C
- Specific heat capacity of water: 4.18 J/g°C
- Specific heat capacity of steam: 2.0 J/g°C
- Latent heat of fusion of ice: 334 J/g
- Latent heat of vaporization of water: 2260 J/g

What is the total heat energy required for this entire transformation?

1. 6.1 MJ
2. 4.7 MJ
3. 5.9 MJ
4. 6.9 MJ
5. 7.3 MJ

Q4. A horizontal pipe of varying cross-section carries an incompressible, non-viscous fluid. At a narrow section, the velocity is 4 times that of the wider section. If the pressure at the wider section is P_0, what is the pressure at the narrow section? (Take the fluid density as ρ and assume steady flow.)

1. $P_0 - 6\rho v^2$
2. $P_0 - 7.5\rho v^2$
3. $P_0 - 8\rho v^2$
4. $P_0 - 9\rho v^2$
5. $P_0 - 10\rho v^2$

Q5. A straight current-carrying conductor produces a magnetic field around it. What is the direction of the magnetic field lines?

1. Circular around the conductor, following the right-hand rule
2. Parallel to the conductor in the direction of current
3. Radially outward from the conductor
4. Perpendicular to the conductor and in the direction of current
5. A magnetic field does not exist around a straight conductor

Q6. Two large parallel plates are given uniform surface charge densities +σ and −σ. Which of the following statements about the equipotential surfaces and the electric field is correct?

1. The equipotential surfaces are parallel to the plates, and the electric field is perpendicular to them.
2. The equipotential surfaces are perpendicular to the plates, and the electric field is parallel to them.
3. The equipotential surfaces are not uniformly spaced, and the electric field varies between the plates.
4. The equipotential surfaces form concentric spheres around the plates.
5. The electric field between the plates is zero because the charges cancel out.