FCAT 05

FORTNIGHTLY CHILD ASSESSMENT TEST

Class 11th

READ THE FOLLOWING INSTRUCTIONS:

1. All questions are compulsory.
2. Submit your Sheets today by 6:00 pm

BIOLOGY

1. Which of the following pairs of animals has non glandular skin

a. Snake and Frog

b. Chameleon and Turtle

c. Frog and Pigeon

d. Crocodile and Tiger

2. Birds and mammals share one of the following characteristics as a common feature.

a. Pigmented skin

b. Pneumatic bones

c. Viviparity

d. Warm blooded

3. Which one of the following sets of animals belong to a single taxonomic group?

a. Cuttlefish, Jellyfish, Silverfish, Dogfish, Starfish

b. Bat, Pigeon, Butterfly

c. Monkey, Chimpanzee, Man

d. Silkworm, Tapeworm, Earthworm

4. Which one of the following statements is incorrect?

a. Mesoglea is present in between ectoderm and endoderm in Obelia.

b. Exhibits radial symmetry Asterias

c. Fasciola is a pseudocoelomate animal

d. Taenia is a triploblastic animal

5. Which one of the following statements is incorrect?

a. In cockroaches and prawns excretion of waste material occurs through malpighian tubules.

b. In ctenophores, locomotion is mediated by comb plates.

c. In Fasciola, flame cells help in excretion

d. Earthworms are hermaphrodites and yet cross fertilization take place among them.

6. Which one of the following is oviparous?

a. Platypus

b. Flying fox (Bat)

c. Elephant

d. Whale

7. Define venation? What are two types of venation?   3 mark

8. What is heart wood?   1 mark

9. Differentiate between epigynous & perigynous flowers   3 mark

10. List any four identifying features of arthopoda & give examples   4 mark

11. Differentiate between Red algae & brown algae?   3 mark

12. Distinguish between diploblastic & triploblastic animals   2 mark

13. List any three characterstic features of Bryophytes   3 mark

14. what is phyllotaxy?   1 mark

PHYSICS

1. The base quantity among the following is
   a. Speed

    b. Weight

    c. Length

    d. Area

2. Ampere second is a unit of

    a. Current

    b. Energy

    c. Charge

    d. Power

3. Which of the following is dimensionally constant

    a. Magnification

    b. Relative Density

    c. Gravitational Constant

    d. Relative Error

4. Two balls are projected vertically upwards simultaneously with speeds 40m/s and 60 m/s . Relative position of a second ball w.r.t. first ball at time t=5s is

    a. 20 m

    b. 80m

    c. 100m

    d. 120m

5. If average velocity of particle moving on a straight line is zero in a time interval, then

    a. Acceleration of particle may be zero

    b. Velocity of particle must be zero at an instant

    c. Velocity of particles may be never zero in the interval

    d. Average speed of particle may be zero in the interval

6. A particle travels half of the distance of a straight journey with speed 6m/s. The remaining part of the distance is covered with speed 2m/s for half of the time of remaining journey and with speed 4m/s for the other half of time. The average speed of the particle is

    a. 3m/s

    b. 4m/s

    c. ¾ m/s

    d. 5 m/s

7. If magnitude of average speed and average velocity over an interval of time are same, then

    a. Particle must move with zero acceleration

    b. Particle must move with uniform acceleration

    c. Particle must be at rest

    d. Particle must move in a straight line without turning back

8. A car moving with speed v on a straight road can be stopped with in distance d on applying brakes. If the same car is moving with speed 3v and brakes provide half retardation, then car will stop after travelling distance
   a. 6d
   b. 3d
   c. 9d
   d. 18d

9. Which of the following is a vector?
   a. Current
   b. Time
   c. Acceleration
   d. Volume

10. What is the path followed by the moving body, on which a constant force acts in a direction other than initial velocity
    a. Straight line
    b. Parabolic
    c. Circular
    d. Elliptical

11. Define the following terms.(10 marks)
    a. Centripetal acceleration
    b. Uniform circular motion
    c. Angular speed
    d. Frequency
    e. Scalar
    f. Relative velocity
    g. Instantaneous velocity
    h. Acceleration
    i. Impulse
    j. Friction Force

12. Define and Derive (i)both position equations , (ii)time period, (iii) horizontal range &(iv) Height of the projectile.(7 marks)

MATHEMATICS

1. Solve the inequality, $3x - 5 < x + 7$, when (4 marks)

(i) x is a natural number

(ii) x is a whole number

(iii) x is an integer

(iv) x is a real number

2. In drilling world's deepest hole it was found that the temperature T in degree celcius, x km below the earth's surface was given by T = 30 + 25 (x − 3), 3 ≤ x ≤ 15. At what depth will the temperature be between 155°C and 205°C?(3marks)

3. The water acidity in a pool is considerd normal when the average pH reading of three daily measurements is between 8.2 and 8.5. If the first two pH readings are 8.48 and 8.35, find the range of pH value for the third reading that will result in the acidity level being normal. (3 marks)

4. A solution of 9% acid is to be diluted by adding 3% acid solution to it. The resulting mixture is to be more than 5% but less than 7% acid. If there is 460 litres of the 9% solution, how many litres of 3% solution will have to be added?(3marks)

5. In a small village, there are 87 families, of which 52 families have atmost 2 children. In a rural development programme 20 families are to be chosen for assistance, of which atleast 18 families must have at most 2 children. In how many ways can the choice be made?(2 marks)

6. In how many ways a committee consisting of 3 men and 2 women, can be chosen from 7 men and 5 women?(2 marks)

7. Find the number of different words that can be formed from the letters of the word 'TRIANGLE' so that no vowels are together. (2 marks)

8. Find the number of positive integers greater than 6000 and less than 7000 which are divisible by 5, provided that no digit is to be repeated. (2 marks)

9. The number of six-digit numbers, all digits of which are odd is _____.(2 marks)

10. A committee of 6 is to be chosen from 10 men and 7 women so as to contain atleast 3 men and 2 women. In how many different ways can this be done if two particular women refuse to serve on the same committee.

11. Every body in a room shakes hands with everybody else. The total number of hand shakes is 66. The total number of persons in the room is
 (A) 11   (B) 12   (C) 13   (D) 14

12. The length of a rectangle is three times the breadth. If the minimum perimeter of the rectangle is 160 cm, then
 (A) breadth > 20 cm   (B) length < 20 cm
 (C) breadth x ≥ 20 cm   (D) length ≤ 20 cm

CHEMISTRY

1. What is the number of photons of light with wavelength 4000 pm which provide 1 Joule of energy?(2)

2. A photon of wavelength 4×10^{-7} m strikes on metal surface; the work function of the metal being 2.13 eV. Calculate(3)

(i) the energy of the photon,

(ii) the kinetic energy of the emission

(iii) the velocity of the photoelectron. (Given 1 eV = 1.6020×10^{-19} J).

3. The energy associated with first orbit in hydrogen atom is -2.17×10^{-18} J atom^{-1}. What is the energy associated with the fifth orbit?Calculate the radius of Bohr's fifth orbit for hydrogen atom.(3)

4. Calculate the wave number for the longest wavelength transition in the Balmer series of atomic hydrogen.(3)

5. What is the energy in joules required to shift the electron of the hydrogen atom from the first Bohr orbit to the fifth Bohr orbit and what is the wavelength of light emitted when the electron returns to the ground state? The ground state electronic energy is-2.18×11^{-11} ergs.(4)

6. In astronomical observations, signals observed from the distant stars are generally weak. If the photon detector receives a total of 3.15×10^{-18} J from the radiations of 600 nm, calculate the number of photons received by the detector.(4)

7. Threshold frequency, v_0 is the minimum frequency which a photon must possess to eject an electron from a metal. It is different for different metals. When a photon of frequency 1.0×10^{15}s^{-1} was allowed to hit a metal surface, an electron having 1.988×10^{19} J of kinetic energy was emitted. Calculate the threshold frequency of this metal. Show that an electron will not be emitted if a photon with a wavelength equal to 600 nm hits the metal surface.(4)

Questions from 8 to 11 are of 1 mark

8. The excitation energy of a hydrogen atom from its ground state to its third excited state is

(a) 12.75 eV

(b) 0.85 eV

(c) 10.2 eV

(d) 12.1 eV

9. Which of the following properties of atom could be explained correctly by Thomson Model of atom?

(i) Overall neutrality of atom.

(ii) Spectra of hydrogen atom.

(iii) Position of electrons, protons and neutrons in atom.

(iv) Stability of atom.

10. Two atoms are said to be isobars if.

(i) they have same atomic number but different mass number.

(ii) they have same number of electrons but different number of neutrons.

(iii) they have same number of neutrons but different number of electrons.

(iv) sum of the number of protons and neutrons is same but the number of protons is different.

11. If travelling at same speeds, which of the following matter waves have the shortest wavelength?

(i) Electron

(ii) Alpha particle (He^{2+})

(iii) Neutron

(iv) Proton

BUSINESS STUDIES

1. Investment cannot be considered as an objective of business. Why?   (3)

2. Name the industries specified under the first schedule of the Development and Regulation Act 1951 engaged in the manufacture or production of goods. Give a brief outline on them.   (3)

3. Two college friends Mr A and Mr B studying in the same college decided to venture into business after their graduation. However, both are adamant about the type of company they should from with respect to profits and efficiency. The former finanis interested in opening a private company, while the latter wants it to be a public company. What would be your advice to Mr A and Mr B.   (4)

4. Describe different types of financial instruments used in international financing.

                                                                               (5)

5. There is a type of product selling business, which is carried through newspapers, magazines and circulars.

    a. What type of selling business is being referred to here?

    b. Explain its usefulness.   (5)

ECONOMICS

6. Because of a fall in price of a commodity, the quantity demanded rises by 10%. The price elasticity of demand is given (-5). What is the percentage fall in price of the commodity?   (3)

7. A consumer is in equilibrium in consuming two Goods X and Y. With the help of utility analysis, show that if the price of Good X falls, then its demand would rise.(3)

8. Explain with the help of an example the effect of change in the price of substitute good to change in the demand of the commodity. (4)

9. What is economic problem? Why does it arise? (3)

10. Explain producer's equilibrium with the help of TR-TC approach. (6)

ACCOUNT

11. Explain Going Concern Assumption and Matching Concept. (3)

12.Calculate Closing Stock if

Cash sales 1.5 times of credit sales

Credit sales Rs. 1,20,000

Purchase Rs. 1,40,000

Rate of Gross Profit 25% on cost. (3)

13. Vinod has the following transactions. Show accounting equation for the same.

(a) Commenced business with cash Rs. 3,00,000

(b) Purchased goods for cash Rs. 80,000

(c) Purchased machinery on credit Rs. 1,25,000

(d) Purchased old car for personal use for Rs. 1,00,000 (4)

14. Classify the following into Assets, Liabilities, Capital, Expenses and Revenue:

a. Land

b. Investments

c. Building

d. Interest Received

e. Salary

f. Bank Overdraft

g. Debtors

h. Creditors

i. Bad Debts

j. Capital

k. Depreciation

l. Motor Vehicles

m. Freight

n. Wages

o. Goodwill

p. Repairs   (5)

15. Show the effect of the following transactions on the Accounting Equation:

a. Started business with cash rs. 50,000

b. Salaries paid rs. 2,000

c. Wages outstanding rs. 200

d. Interest due but not paid rs. 100

e. Rent paid in advance rs.150   (5)