CADET COLLEGE WANA

01 August 2021

PAPER BIOLOGY FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION-A (Marks = 10)

Note. **Attempt all questions from this section.**

Q.1 Encircle the correct option from the following:

i. The most important organelle in bacterial cell other than DNA is;

a. Mesosome b Ribosome

c. Lysosomes d. Nucleosomes

ii. Human lungs are spongy due to the presence of;

a. Bronchi b. Bronchiols

c. Alveoli d. Capoillaries

iii. Biologist use observation to develope a possible answers to a biological problems are_____.

a. Observation b. Hypothesis

c. Experiment d. Deduction

iv. Vestibule is present in the_____.

a. Middle ear b. Inner ear

c. Outer ear d. All of these

v. In hypogeal germination elongates _____.

a. Hypocotyle b. Epicotyle

c. Cotyledon d. Both A & B

vi. From which bond of ATP molecule energy is taken?

a. P-P bond b. C-N bond

c. C-H bond d. C-O bond

vii. The respiratory centre is sensitive to the concentration of _____ in blood.

a. CO_2 b. O_2

c. N_2 d. All of these

viii. Which part of brain is responsible for thinking, intelligence and emotions?

a. Cerebrum b. Cerebellum

c. Thalamus d. Hypothelamus

ix. Plant use Nitrogen in the form of_____.

a. Nitrites b. Ammonia

c. Nitrates d. Nitrogen gas

x. the complete loss of function by one or more muscle group is called

a. Epilepsy b. Muscles damage

c. Paralysis d. Sciatica

Biology

SECTION-B (Marks=40)

Note: **Attempt any eight questions from this section. Each question carries 5 marks.**

Draw neat and labelled diagram where necessary

Q- 2 Describe the osmotic adjustment in xerophytes.

Q- 3 What is binomial nomenclature?

Q- 4 Describe the basic steps of genetic engineering.

Q- 5 Breifly describe the antagonistic function of muscle.

Q- 6 Define cell cycle and explain its phases.

Q- 7 Define circulatory system of human. Draw and label structure of human heart.

Q- 8 differentiate between the following.

a. Endo-cytosis and Exo-cytosis.
b. Simple tissue and compound tissue

Q- 9 How "PH" of a cell affects the activity of enzyme?

Q- 10 Differentiate between atherosclerosis and arteriosclerosis?

Q- 11 Describe the following terms:

a. Nitrogen Fixation b. Nitrification

CADET COLLEGE WANA

01 August 2021

PAPER CHEMISTRY FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION-A (Marks=10)

Note. **Attempt all questions from this section.**

Q.1 Encircle the correct option from the following

i. Shielding effect in periods _____

a. Increases b. Decreases

c. Remains constant d. None of These

ii. Highest ionization energy is of

a. H b. He

c. Na d. K

iii. What is the mass of carbon present in 44g of CO_2

a. 12g b. 6g

c. 24g d. 44g

iv. Nelson cell is used to prepare

a. Na metal b. NaOH

c. $NaHCO_3$ d. NH_3

v. Reduction always takes place at_____

a. Anode b. Cathode

c. Both A&B d. None of these

vi. Oxidation state of Mn in $KMnO_4$ is

a. +1 b. +7

c. -2 c. -6

vii. Which one of the following is lewise Acid

a. BF_3 b. NH_3

c. H_2O d. HCl

viii. Chemical formula of ammonium carbamate is

a. $NH_2CO\ NH_2$ b. NH_2COONH_4

c. NH_2COONH_2 d. NH_3COONH_3

ix. Permanent hardness of water is due to

a. Na_2SO_4 b. $CaSO_4$

c. $Ca(HCO_3)_2$ d. $NaHCO_3$

x. Formic Acid contains functional group

a. –OH b. –CO–

c. –COOH d. –CHO

Chemistry

SECTION-B (Marks=40)

Note: **Attempt any eight questions from this section. Each question carries 5 marks.**

Q- 2 Briefly explain the mechanism of acid rain.

Q- 3 How can 0zone depletion cause global warming? Explain

Q- 4 Explain why hard water is not suitable for use of our daily life activities.

Q- 5 Define mole and Avogadro's number. Calculate the no of molecules in 36g Ice cube?

Q- 6 Sketch the neat and labelled diagram of the Daniel cell.

Q-7 State Charles's law. Prove that $\frac{v_1}{T_2} = \frac{v_2}{T_2}$

Q- 8 What is hydrogen bond? Discuss hydrogen bonding in H_2O and HF.

Q- 9 Why H_2O acts as a bronted-lowery acid as well as a base. Justify your answer by giving suitable chemical reactions.

Q- 10 Draw and explain flow sheet diagram of Solvay's process.

Q- 11 Explain methods of removing permanent hardness of water.

CADET COLLEGE WANA

01 August 2021

PAPER COMPUTER SCIENCE FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION-A (Marks=10)

Note. **Attempt all questions from this section.**

Q.1 Encircle the correct option from the following:

i. Where is columbia supercomputer located?

a. NASA Russia b. NASA USA c. NASA China d. NASA Italy

ii. Which of the following is the exclusive legal right that prohibits copying of intellectual property?

a. Legal Right b. Book Right c. Copy Right d. All Right

iii. Which of the following is a sequence of instructions written in computer language to solve a problem?

a. Program b. Algorithm c. Flowchart d. Problem Analysis

iv. Which program translates high level language into machine language?

a. Loader b. Linker c. compiler d. Debugger

v. Which of the following is an arithmetic operator?

a. && b. % c. += d. <=

vi. Which of the following gates are also known as inverter?

a. OR Gate b. NOT Gate c. NOR Gate d. NAND Gate

vii. In which network topology all nodes are connected to a common communication medium or central cable?

a. Bus b. Ring c. Star d. Mesh

viii. Which symbol is used for processing in flowchart?

a. Rectangle b. Parallelogram c. Diamond d. Oval

ix. Which character terminates a C statement?

a. Colon b. Semi Colon c. Perid d. comma

x. Which loop is used when it is required to execute the loop at least once?

a. for loop b. while loop c. do-while loop d. nested loop

Computer Science

SECTION-B (Marks=40)

Note: **Attempt any eight questions from this section. Each question carries 5 marks.**

Draw neat and labelled diagram where necessary

Q-2 What is the difference b/w software engineer and hardware engineer?

Q-3 Differentiate b/w guided and unguided media with its types.

Q-4 What are the advantages of using flowcharts?

Q-5 Write a C program that reads three numbers and prints their sum, product and average.

Q-6 Differentiate b/w "while loop" and "do while loop".

Q-7 What is batch processing operating system?

Q-8 Write note on client and server network.

Q-9 What is cybercrime?

Q-10 Differentiate between high level languages and low level languages.

Q-11 What is if-else statement? Draw and explain its structure.

CADET COLLEGE WANA

01 August 2021

PAPER ENGLISH / URDU FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION ENGLISH (Marks=25)

Q.1 Write an essay on any one of the following. 10

i. Student's role in nation's building

ii. Causes and effects of pollution on environment

Q.2 Use the following pair of words in your own sentences? 10

i. Loose, Lose ii. Affect, Effect iii. Pray, Prey

iv. Diary, Dairy v. Lesson, Lessen

Q.3 Translate into English 05

(1) میں صبح سے آپ کا انتظار کر رہا تھا۔

(2) جس کی لاٹھی اُس کی بھینس۔

(3) چلتی کا نام گاڑی ہے۔

(4) انہوں نے اپنا کام مکمل کیوں نہیں کیا ہے؟

(5) پولیس نے ہجوم کو منتشر کیا۔

SECTION URDU (Marks=25)

سوال نمبر 1۔ دیے گئے الفاظ و محاورات کو جملوں میں استعمال کریں۔ 05

خاطر میں نہ لانا۔ دل آئینہ ہونا۔ عقل دنگ ہونا۔ تھرا اُٹھنا۔ مرجع

سوال نمبر 2۔ الف۔ مرکب ناقص اور مرکب نام کی وضاحت کریں نیز مرکب ناقص کی اقسام بیان کریں۔ 05

ب۔ اسم جامد اور اسم مشتق کی تعریف کریں نیز مثالیں لکھیں۔ 05

سوال نمبر 3۔ اپنے چھوٹے بھائی کو خط لکھیں جس میں اسے کورونا SOPs پر عمل کرنے کی ہدایت کریں۔ 10

CADET COLLEGE WANA

01 August 2021

PAPER MATHS FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION-A (Marks=10)

Note. Attempt all questions from this section.

Q.1 Encircle the correct option from the following

i. L.C.M of $a^2 - a + 1$ and $a^3 + 1$ is_____.

a. $a + 1$ b. $a^2 - a + 1$ c. $a^3 + 1$ d. $a^2 + a + 1$

ii. The solution set of $\left|\frac{5x}{3}\right| = 5$ is _____.

a. $\{\pm 3\}$ b. $\{5, -5\}$ c. $\{4, -4\}$ d. $\{-4\}$

iii. $\frac{1}{1+Sin\theta} + \frac{1}{1-Sin\theta}$ = _____.

a. $2\,Sec^2\theta$ b. $2\,Cos^2\theta$ c. $Sec^2\theta$ d. $Cos\theta$

iv. If $3i\,(2+5i) = x + 6i$ then x=_____.

a. 5 b. -15 c. $5i$ d. $15i$

v. In a circle, two chords are equally distant from the centre of the circle the chords are_____.

a. Congruent b. None congruent c. Parallel d. Non parrallel

vi. $(4xy^4)^3$ = _____.

a. $64x^3y^8$ b. $64x^3y^6$ c . $64x^3y^{12}$ d. $64x^3y^7$

vii. In a ratio x:y , y is called_____.

a. Relation b. Antecedent c. Consequent d. None of these

viii. If $\tan\theta = \sqrt{3}$, then θ is equal to _____.

a. 90° b. 45° c. 60° d. 30°

ix. If $A \subseteq B$, then $A \cap B$ is equal to _____.

a. A b. B c. $\emptyset$ d. None

x. An equation of the type $3^x + 3^{2-x} + 6 = 0$

a. Exponential Equation b. Radical Equation

c. Reciprocal Equation d. None of these

Maths

SECTION-B (Marks=40)

Note: Attempt any eight questions from this section. Each question carries 5 marks.

Q-2 Solve the following system of linear equation using inversion method.

$x+2y = -13,\ 3x+6y = 11$

Q-3 Verify the identity, $\frac{1+Cos\theta}{Sin\theta} + \frac{Sin\theta}{1+Cos\theta} = 2\ Cosec\theta$

Q-4 Find the value of

$\frac{S-3p}{S+3p} + \frac{S+3p}{S-3p}$, if $S=\frac{6pq}{p-q}$

Q- 5 Factorize : $(x+1)(x+2)(x+3)(x+6) - 3x^2$

Q-6 The difference of a number and its reciprocal is $^{15}/_{4}$. Find the numbers.

Q-7 Using theorem of componendo - dividendo

Solve $\frac{(x-2)^2-(x-4)^2}{(x-2)^2+(x-4)^2} = \frac{12}{13}$

Q-8 Solve: $x^{2/3} + 54 = 15x^{1/3}$

Q- 9 Calculate the length of a chord which stands at a distance 5cm from the center of a circle whose radius is 9 cm.

Q-10 Prove the trigonometric identily

$(Cos\theta-Sin\theta)^2 = 1-2\ Cos\theta.Sin\theta$

Q-11 Evaluate; $(1+3w-w^2)(1+w-2w^2)$

CADET COLLEGE WANA

01 August 2021

PAPER PHYSICS FOR FIRST YEAR CLASS

Total Marks: 50 **Time: 1 Hour**

SECTION-A (Marks=10)

Note. **Attempt all questions from this section.**

Q.1 Encircle the correct option from the following:

i. How does sound travel from its source to your ear.

a. By changing air pressure b. By vibration in wire or strings
c. By electromagnetic wave d. By infrared wave

ii. An electric current in conductor is due to the flow of

a. +ve ions b. –ve ions
c. Free electron d. +ve charge

iii. Pressure at depth in fluid_____.

a. Increases b. Deereases
c. Stays the same d. None

iv. The value of "g" at equator is_____.

a. Same as at poles b. Larger than at poles
c. Smaller than at poles d. None

v. Capacitance is defined as_____.

a. VC b. $^{Q}/_{V}$
c. QV d. $^{V}/_{Q}$

vi. The distance cover by a car in time "t" starting from rest.

a. vt b. Zero
c. $\frac{1}{2}gt^2$ d. 2 as

vii. When horse pulls a cart, the action is on the _____.

a. Cart b. Earth
c. Horse d. Earth & Cart

viii. If the length of a simple pendulum is halve, then its time period will become .

a. $^{T}/_{2}$ b. $^{T}/_{\sqrt{2}}$
c. $\sqrt{2T}$ d. 2T

ix. Slope of work time graph is equal to

a. Displacement b. Acceleration
c. Power d. Energy

x. An electric charge at rest produces

a. Only magnetic field b. Only an electric field
c. Neither electric nor magnetic field d. Both electric and magnetic field

Physics

SECTION-B (Marks=40)

Note: **Attempt any eight questions from this section. Each question carries 5 marks.**

Q.2 Explain why?

a. Land breeze blows from land towards sea.

b. Deserts soon get hot during the day and soon get cool after sunset.

Q- 3 Explain how the value of 'g' varies with altitude.

Q- 4 What is barometer? Why water is not suitable to use in barometer?

Q- 5 Define the following.

a. Physics b. momentum c. Torque d. Work e. Power

Q- 6 Discuss the main features of parallel combination of resistors.

Q- 7 State and explain ohm's law. What are its limitations?

Q- 8 Define moment of a force. Give its mathematical description and elaborate the factors on which its depends.

Q- 9 Explain coulomb's law of electrostatics and write its mathematical form.

Q- 10 If the length of a simple pendulum is doubled, what will be the change in its time period?

Q- 11 What is hook's law? What is meant by elastic limit?