Previous Year Question Paper 2021-22

United Group Of Institutions

M.M:40 **Time:30 minute**

Mathematics

1) **What type of a relation is R = {(1, 3), (4, 2), (2, 4), (2, 3), (3, 1)} on the set A – {1, 2, 3, 4}**
(a) Reflexive
(b) Transitive
(c) Symmetric
(d) None of these

2) **If A, B and C are three sets such that A ∩ B = A ∩ C and A ∪ B = A ∪ C. then**
(a) A = B
(b) A = C
(c) B = C
(d) A ∩ B = d

3) **$A = [a_{ij}]_{m\times n}$ is a square matrix if**
(a) m = n
(b) m < n
(c) m > n

(d)none

4) **The function $f(x) = e^{|x|}$ is**
(a) continuous everywhere but not differentiable at x = 0
(b) continuous and differentiable everywhere
(c) not continuous at x = 0
(d) None of these

5) **If x is real, the minimum value of $x^2 - 8x + 17$ is**
(a) -1
(b) 0

(c) 1
(d) 2

6) **Can two different vectors have the same magnitude?**

A. Yes

B. No

C. Cannot be determined

D. None of the above

7) **If E and F are independent events, then;**

A. $P(E \cap F) = P(E)/ P(F)$

B. $P(E \cap F) = P(E) + P(F)$

C. $P(E \cap F) = P(E) . P(F)$

D. None of the above

8) **The equation $x^2 - x - 2 = 0$ in three-dimensional space is represented by:**

A. A pair of parallel planes

B. A pair of straight lines

C. A pair of the perpendicular plane

D. None of these

9) **What is the order of differential equation $y'' + 5y' + 6 = 0$?**

A. 0

B. 1

C. 2

D. 3

10) **Solution of differential equation x.dy – y.dx = Q represents:**

A. a rectangular hyperbola

B. parabola whose vertex is at the origin

C. straight line passing through the origin

D. a circle whose centre is at the origin

Chemistry

1) **Which solid structure has a definite and sharp melting point?**

a) All types of solids

b) No type of solid

c) Amorphous solids

d) Crystalline solids

2) **What is the total number of Bravais lattices in the crystal structures?**

a) 3

b) 6

c) 14

d) 24

3) **In a reaction, what is the driving force?**

a) Energy given

b) Energy released

c) Free energy

d) None of the mentioned

4) **Which of the following is not a suitable ore for extracting iron?**

a) Hematite

b) Magnetite

c) Siderite

d) Iron Pyrites

5) **By electromagnetic separation, where are magnetic particles collected in concentration?**

a) Away from the magnetic roller

b) On the conveyor belt

c) Below the magnetic roller

d) Above the magnetic roller

6) **What form does nitrogen take in plants?**

a) Ammonia

b) Amide

c) Nitrate

d) Nitrite

7) **As an electroplated protective covering, what metal is used?**

a) Plutonium

b) Chromium

c) Nickel

d) Iron

8) **_____ possesses the properties of both alkali metals and halogens.**

a) Helium

b) Hydrogen

c) Sodium

d) Chlorine

9) **For which of the following is the Hinsberg approach used?**

a) Preparation of primary amines

b) Separation of amine mixtures

c) Preparation of tertiary amines

d) Preparation of secondary amines

10) **Which of the following polymers does not fall within the configuration category?**

a) Cross-linked

b) Atactic

c) Syndiotactic

d) Isotactic

Physics

1) **If the sizes of charged bodies are very small compared to the distances between them, we treat them as ——————.**

a. Zero charges
b. Point charges
c. Single charge
d. No charges

2) **Unit of conductance is ————**

a. Dyne
b. Siemen
c. Ohm
d. Volts

3) **Which of the following lights deviates the most when it passes through a prism?**

a. Red Light
b. Violet Light
c. Neither (a) nor (b)
d. Both (a) and (b)

4) **For which of the following is the field of view maximum?**

a. Concave mirror
b. Convex mirror
c. Plane mirror
d. Cylindrical mirror

5) **Why was Rutherford's atomic model unstable?**

a. Electrons do not remain in orbit.
b. Nuclei will break down.
c. The nucleus repels electrons.
d. Orbiting electrons radiate energy

6) **According to the classical theory, the circular path of the electrons is**

a. Circular
b. Parabolic
c. Spiral
d. Straight line

7) **The number of electrons in the valence shell of a semiconductor is**

a. 1
b. 2

c. 3
d. 4

8) **What is the main function of a transistor?**

a. Simplify
b. Amplify
c. Rectify
d. All of the above

9) **Polaroid glasses are used in sunglasses because**

a. They are cheaper
b. They have a good colour
c. They look fashionable
d. They reduce the light intensity to half on account of polarization

10) **The summation of three sinusoidal waves is equal to**

a. AM Waves
b. FM Waves
c. Both (a) and (b)
d. Neither (a) nor (b)

Computer

1) **The first electronic computer developed in which year**

a. 1966
b.1946
c. 1876
d.1846

2) **Which of the following is the correct definition of Computer?**
a) Computer is a machine or device that can be programmed to perform arithmetical or logic operation sequences automatically
b) Computer understands only binary language which is written in the form of 0s & 1s
c) Computer is a programmable electronic device that stores, retrieves, and processes the data
d) All of the mentioned

3) **Which of the following is the correct abbreviation of COMPUTER?**
a) Commonly Occupied Machines Used in Technical and Educational Research
b) Commonly Operated Machines Used in Technical and Environmental Research
c) Commonly Oriented Machines Used in Technical and Educational Research
d) Commonly Operated Machines Used in Technical and Educational Research

4) **Which of the following is the brain of the computer?**
a) Central Processing Unit
b) Memory
c) Arithmetic and Logic unit
d) Control unit

5) **Which of the following can access the server?**
a) Web Client
b) User
c) Web Browser
d) Web Server

6) **Which of the following is designed to control the operations of a computer?**

a) User
b) Application Software
c) System Software
d) Utility Software

7) **Which of the following devices provides the communication between a computer and the outer world?**
a) Compact
b) I/O
c) Drivers
d) Storage

8) **Which of the following service allows a user to log in to another computer somewhere on the Internet?**
a) e-mail
b) UseNet
c) Telnet
d) FTP

9) **Which of the following is an output device?**

a. Mouse

b. Monitor

c. Keyboard

d. CPU

10) **Which of the following is the extension of Notepad?**

a..txt

b. .xls

c. .ppt

d. .bmp

Answers

Mathematics

1)d 2)c 3)a 4)a 5)d

6)a 7) c 8) a 9) c 10)c

Chemistry

1)d 2)c 3)c 4)d 5)c

6)c 7)b 8)b 9)b 10)a

Physics

1)b 2)b 3)b 4)b 5)a

6)c 7)d 8)b 9)d 10)a

Computer

1)b 2)d 3)d 4)a 5)a

6)c 7)b 8)c 9)b 10)a

Previous Year Question Paper 2020-21

United Group Of Institute

M.M:40 **Time:30 minute**

Mathematics

1) The maximum number of equivalence relations on the set A = {1, 2, 3} are

(a) 1

(b) 2

(c) 3

(d) 5

2) **If A is a skew-symmetric matrix, then A^2 is a**

(a) Skew symmetric matrix

(b) Symmetric matrix

(c) Null matrix

(d) Cannot be determined

3) **The function f(x) = x + cos x is**

a. Always increasing
b. Always decreasing
c. Increasing for a certain range of x
d. None of these

4) **If (d/dx) f(x) is g(x), then the antiderivative of g(x) is**

a. f(x)
b. f'(x)
c. g'(x)
d. None of the above

5) **Which of the following is a second-order differential equation?**

A. $(y')^2 + x = y^2$

B. $y'y'' + y = \sin x$

Previous Year Question Paper 2020-21

United Group Of

M.M:40 **Time:30 minute**

Mathematics

1) The maximum number of equivalence relations on the set A = {1, 2, 3} are

(a) 1

(b) 2

(c) 3

(d) 5

2) **If A is a skew-symmetric matrix, then A^2 is a**

(a) Skew symmetric matrix

(b) Symmetric matrix

(c) Null matrix

(d) Cannot be determined

3) **The function f(x) = x + cos x is**

a. Always increasing
b. Always decreasing
c. Increasing for a certain range of x
d. None of these

4) **If (d/dx) f(x) is g(x), then the antiderivative of g(x) is**

a. f(x)
b. f'(x)
c. g'(x)
d. None of the above

5) **Which of the following is a second-order differential equation?**

A. $(y')^2 + x = y^2$

B. $y'y'' + y = \sin x$

Previous Year Question Paper 2020-21

United Group Of Institutions

M.M:40 **Time:30 minute**

Mathematics

1) The maximum number of equivalence relations on the set A = {1, 2, 3} are

(a) 1

(b) 2

(c) 3

(d) 5

2) **If A is a skew-symmetric matrix, then A^2 is a**

(a) Skew symmetric matrix

(b) Symmetric matrix

(c) Null matrix

(d) Cannot be determined

3) **The function f(x) = x + cos x is**

a. Always increasing
b. Always decreasing
c. Increasing for a certain range of x
d. None of these

4) **If (d/dx) f(x) is g(x), then the antiderivative of g(x) is**

a. f(x)
b. f'(x)
c. g'(x)
d. None of the above

5) **Which of the following is a second-order differential equation?**

A. $(y')^2 + x = y^2$

B. $y'y'' + y = \sin x$

C. $y''' + (y'')^2 + y = 0$

D. $y' = y^2$

6) **The position vector of the point (1, 2, 0) is:**

A. $i + j + k$

B. $i + 2j + k$

C. $i + 2j$

D. $2j + k$

7) **Time period is a _____.**

A. Vector quantity

B. Scalar quantity

C. Neither scalar nor vector

D. None of these

8) **Region represented by $x \geq 0$, $y \geq 0$ is:**

A. first quadrant

B. second quadrant

C. third quadrant

D. fourth quadrant

9) **If P (A) = 0.8, P (B) = 0.5 and P (B|A) = 0.4, what is the value of P (A ∩ B)?**

A. 0.32

B. 0.25

C. 0.1

D. 0.5

10) **The direction cosines of the y-axis are:**

A. (9, 0, 0)

B. (1, 0, 0)

C. (0, 1, 0)

D. (0, 0, 1)

Chemistry

1) **Sulfur exists in two polymorphic forms _____ and _____**

a) rhombic and monoclinic

b) rhombic and triclinic

c) hexagonal and triclinic

d) hexagonal and monoclinic

2) **Which of the following does not belong in the category of electrochemical cells?**

a) Voltaic cell

b) Photovoltaic cell

c) Electrolytic cell

d) Fuel Cell

3) **The study of reaction kinetics is called reaction kinetics.**

a) Rate of reaction

b) Mechanism of reaction

c) Factors which affects the rate of reaction

d) All of the mentioned

4) **What is the term for a liquid dispersion in another liquid?**

a) Emulsion

b) Aerosol

c) Gel

d) Foam

5) **Which of the following ore is used to extract silver?**

a) Calamine

b) Cinnabar

c) Argentite

d) Malachite

6) **The term 'pnictogens' refers to which group?**

a) Group 15

b) Group 14

c) Group 11

d) Group 13

7) **_____ possesses the properties of both alkali metals and halogens.**

a) Helium

b) Hydrogen

c) Sodium

d) Chlorine

8) **When phenol reacts with bromine water, what is the result?**

a) Brown liquid

b) Colourless gas

c) White precipitate

d) No reaction

9) **Any substance made up of multiple repeating units called polymers is referred to as a polymer.**

a) Mers

b) Plastic

c) Resins

d) Blocks

10) **What is an example of camphor in N2 gas?**

a) Solid in gas solution

b) Gas in gas solution

c) Solid in liquid solution

d) Liquid in gas solution

Physics

1) **The force per unit charge is known as ————**

a. Electric current
b. Electric potential
c. Electric field
d. Electric space

2) **Unit of conductance is ————**

a. Dyne
b. Siemen
c. Ohm
d. Volts

3) **SI unit of the magnetic field is ————-**

a. Dyne
b. Ohm
c. Tesla
d. Volt

4) **Which of the following states that an emf is induced whenever there is a change in the magnetic field linked with electric circuits?**

a. Lenz's Law
b. Ohm's Law

c. Faraday's Law of Electromagnetic Induction
d. None of the above

5) **Which of the following waves have a maximum frequency?**

a. infrared waves
b. gamma rays
c. microwaves
d. radio waves

6) **Who discovered Poisson's bright spot?**

a. Fresnel
b. Rayleigh
c. Fraunhofer
d. Poisson

7) **Why was Rutherford's atomic model unstable?**

a. Electrons do not remain in orbit.
b. Nuclei will break down.
c. The nucleus repels electrons.
d. Orbiting electrons radiate energy.

8) **Isotones have the same number of**

a. Protons
b. Electrons
c. Neutrons
d. All of the above

9) **What bonds are present in a semiconductor?**

a. Monovalent
b. Bivalent
c. Trivalent
d. Covalent

10) **In a P-type semiconductor, the current conduction is due to**

a. Holes
b. Atoms
c. Electrons
d. Protons

Computer

1) **What is the full form of CPU?**
a) Computer Processing Unit
b) Computer Principle Unit
c) Central Processing Unit
d) Control Processing Unit

2) **Which of the following computer language is written in binary codes only?**
a) pascal
b) machine language
c) C
d) C#

3) **Which of the following is the smallest unit of data in a computer?**
a) Bit
b) KB
c) Nibble
d) Byte

4) **Which of the following are physical devices of a computer?**
a) Hardware
b) Software
c) System Software
d) Package

5) **Which of the following can access the server?**
a) Web Client
b) User
c) Web Browser
d) Web Server

6) **Which of the following language does the computer understand?**
a) Computer understands only C Language
b) Computer understands only Assembly Language
c) Computer understands only Binary Language
d) Computer understands only BASIC

7) **Which of the following computer language is written in binary codes only?**
a) pascal
b) machine language
c) C
d) C#

8) **Which of the following is not a type of computer on the basis of operation?**
a) Digital

b) Analog
c) Hybrid
d) Remote

9) **Who is the father of Computers?**
a) James Gosling
b) Charles Babbage
c) Dennis Ritchie
d) Bjarne Stroustrup

10) **Which of the following is the correct abbreviation of COMPUTER?**
a) Commonly Occupied Machines Used in Technical and Educational Research
b) Commonly Operated Machines Used in Technical and Environmental Research
c) Commonly Oriented Machines Used in Technical and Educational Research
d) Commonly Operated Machines Used in Technical and Educational Research

Answers

Mathematics

1)d 2)b 3)a 4)a 5)b

6)c 7) b 8) a 9) a 10)c

Chemistry

1)a 2)b 3)d 4)a 5)c

6)a 7)b 8)c 9) a 10)a

Physics

1)c 2)b 3)a 4)a 5)b

6)d 7)a 8)d 9) b 10)d

Computer

1)c 2)b 3)c 4)c 5)a

6)c 7)b 8)c 9) d 10)a