

National Testing Agency

Question Paper Name : PGQP30 16th Sept 2021 Shift 1
Subject Name : PGQP30
Creation Date : 2021-09-16 14:44:26
Duration : 120
Total Marks : 400
Display Marks: Yes

PGQP30

Group Number : 1
Group Id : 864351311
Group Maximum Duration : 0
Group Minimum Duration : 120
Show Attended Group? : No
Edit Attended Group? : No
Break time : 0
Group Marks : 400
Is this Group for Examiner? : No

PART A-General

Section Id : 8643511164
Section Number : 1
Section type : Online
Mandatory or Optional : Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511397
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 86435126805 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct word that can best complete the given sentence :

Marriages between members of extended family were _____ to strengthen the ties of relationship.

1. mentioned
2. promoted
3. indulged
4. performed

Options :

86435191671. 1

86435191672. 2

86435191673. 3

86435191674. 4

Question Number : 2 Question Id : 86435126806 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

From the choices given below, select the pair which exhibits the same relationship as the one in capitalized pair of words :

SOLDIER : REGIMENT

1. clown : circus
2. actor : troupe
3. dancer : ballet
4. instrument : musician

Options :

86435191675. 1

86435191676. 2

86435191677. 3

86435191678. 4

Question Number : 3 Question Id : 86435126807 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is correctly spelt?

1. Surrupitious
2. Surepptitious
3. Surrepcitious
4. Surreptitious

Options :

86435191679. 1

86435191680. 2

86435191681. 3

86435191682. 4

Question Number : 4 Question Id : 86435126808 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is nearest in meaning to the word '**EDIFY**'?

1. Instruct
2. Satisfy
3. Amuse
4. Consume

Options :

86435191683. 1

86435191684. 2

86435191685. 3

86435191686. 4

Question Number : 5 Question Id : 86435126809 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

There was nobody to attend _____ the complaints of the passengers.

1. on
2. in
3. to
4. for

Options :

86435191687. 1

86435191688. 2

86435191689. 3

86435191690. 4

Question Number : 6 Question Id : 86435126810 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A post without remuneration is known as

1. voluntary
2. sinecure
3. sincere
4. honorary

Options :

86435191691. 1

86435191692. 2

86435191693. 3

86435191694. 4

Question Number : 7 Question Id : 86435126811 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable antonym :

EXPEDITION

1. Silence
2. Explanation
3. Undertaking
4. Delay

Options :

86435191695. 1

86435191696. 2

86435191697. 3

86435191698. 4

Question Number : 8 Question Id : 86435126812 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fill in the blanks with right words :

Lakshman was initially _____ at the suggestion but later started _____ it himself.

1. thrilled, negating
2. frowning, rejecting
3. impressed, negating
4. shocked, advocating

Options :

86435191699. 1

86435191700. 2

86435191701. 3

86435191702. 4

Question Number : 9 Question Id : 86435126813 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the idiom from the options given :

Miss the boat

1. let too much time go by to complete a task
2. long for something that you don't have
3. miss out on an opportunity
4. not know the difference between right and wrong

Options :

86435191703. 1

86435191704. 2

86435191705. 3

86435191706. 4

Question Number : 10 Question Id : 86435126814 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

These grapes _____ sour.

1. are testing
2. tasted
3. taste
4. have tested

Options :

86435191707. 1

86435191708. 2

86435191709. 3

86435191710. 4

Question Number : 11 Question Id : 86435126815 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a certain code THRIVES is written as SIUHRDU. How is SOULFUL written in that code?

1. VPTKKTE
2. VPTKETK
3. TPVKKTE
4. TNRKMVG

Options :

86435191711. 1

86435191712. 2

86435191713. 3

86435191714. 4

Question Number : 12 Question Id : 86435126816 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What will come in place of the question mark (?) in the expression?

$$1050 \div 25 \times 51 - 1942 = ?$$

1. 152
2. 200
3. 252
4. 300

Options :

86435191715. 1

86435191716. 2

86435191717. 3

86435191718. 4

Question Number : 13 Question Id : 86435126817 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

There are five statues L, M, N, O and P each of them having different height. Statue L is smaller than only statue M. Statue O is smaller than statue N. Statue O is longer than statue P. The height of the tallest statue is 20 feet. The height of the second smallest statue is 11 feet. What will be the height of statue P?

1. 9 feet
2. 12 feet
3. 13 feet
4. 15 feet

Options :

86435191719. 1

86435191720. 2

86435191721. 3

86435191722. 4

Question Number : 14 Question Id : 86435126818 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Ashok started walking towards South. After walking 50 meters he took a right turn and walked 30 meters. He then took a right turn and walked 100 meters. He again took a right turn and walked 30 meters and stopped. How far he from the starting point?

1. 180 meters
2. 150 meters
3. 50 meters
4. None of these

Options :

86435191723. 1

86435191724. 2

86435191725. 3

86435191726. 4

Question Number : 15 Question Id : 86435126819 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number, whose square is equal to the difference of the squares of the numbers 68 and 32, is

1. 36
2. 48
3. 60
4. 64

Options :

86435191727. 1

86435191728. 2

86435191729. 3

86435191730. 4

**Question Number : 16 Question Id : 86435126820 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which one of the following is not a prime number?

1. 31

2. 61

3. 71

4. 91

Options :

86435191731. 1

86435191732. 2

86435191733. 3

86435191734. 4

**Question Number : 17 Question Id : 86435126821 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

$1397 \times 1397 = ?$

1. 1981709

2. 1951609

3. 1836219

4. 1902179

Options :

86435191735. 1

86435191736. 2

86435191737. 3

86435191738. 4

**Question Number : 18 Question Id : 86435126822 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

What least number must be added to 1056, so that the sum is completely divisible by 23?

1. 21
2. 18
3. 3
4. 2

Options :

86435191739. 1

86435191740. 2

86435191741. 3

86435191742. 4

**Question Number : 19 Question Id : 86435126823 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Choose the correct answer :

$$7845 - ? = 8461 - 3569$$

1. 2953
2. 2773
3. 3569
4. 2352

Options :

86435191743. 1

86435191744. 2

86435191745. 3

86435191746. 4

**Question Number : 20 Question Id : 86435126824 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which country is called the 'Land of Fjords' ?

1. Sweden
2. Italy
3. Norway
4. Singapore

Options :

86435191747. 1

86435191748. 2

86435191749. 3

86435191750. 4

**Question Number : 21 Question Id : 86435126825 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The biggest part of the brain is

1. cerebrum
2. spinal cord
3. cerebellum
4. brain stem

Options :

86435191751. 1

86435191752. 2

86435191753. 3

86435191754. 4

**Question Number : 22 Question Id : 86435126826 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Name the person who was also known as 'Deshbandhu'.

1. S. Radhakrishnan
2. G. K. Gokhale
3. Chittaranjan Das
4. A. P. J. Abdul Kalam

Options :

86435191755. 1

86435191756. 2

86435191757. 3

86435191758. 4

**Question Number : 23 Question Id : 86435126827 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Who is known as 'The Saint of Gutters'?

1. Baba Amte
2. Anna Hazare
3. Mother Teresa
4. None of these

Options :

86435191759. 1

86435191760. 2

86435191761. 3

86435191762. 4

Question Number : 24 Question Id : 86435126828 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Garampani Sanctuary is located at

1. Junagarh, Gujarat
2. Diphu, Assam
3. Kohima, Nagaland
4. Gangtok, Sikkim

Options :

86435191763. 1

86435191764. 2

86435191765. 3

86435191766. 4

Question Number : 25 Question Id : 86435126829 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The National Rural Health Mission has been launched in the country in _____.

1. 2003
2. 2005
3. 2007
4. 2009

Options :

86435191767. 1

86435191768. 2

86435191769. 3

86435191770.4

Part B-Material Sciences and Technology

Section Id :	8643511165
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511398
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 86435126830 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a *pn*p transistor, the current carriers are

1. acceptor ions
2. donor ions
3. free electrons
4. holes

Options :

86435191771.1

86435191772.2

86435191773.3

86435191774.4

Question Number : 27 Question Id : 86435126831 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the time taken by a planet to sweep an area of 2 million square km if the time taken by the same planet to cover an area of 1 million square km is 36 hours?

1. 18 hours
2. 36 hours
3. 72 hours
4. 144 hours

Options :

86435191775. 1

86435191776. 2

86435191777. 3

86435191778. 4

Question Number : 28 Question Id : 86435126832 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A point P has Cartesian coordinates $(3, -4, 10)$. What is the cylindrical ' r ' coordinate of this point?

1. 5
2. 25
3. $\sqrt{93}$
4. $5\sqrt{5}$

Options :

86435191779. 1

86435191780. 2

86435191781. 3

86435191782. 4

Question Number : 29 Question Id : 86435126833 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The frequency of oscillation for the simple pendulum is

1. $\frac{1}{2\pi} \sqrt{L/g}$
2. $\frac{1}{2\pi} \sqrt{g/L}$
3. $2\pi \sqrt{L/g}$
4. $2\pi \sqrt{g/L}$

Options :

86435191783. 1

86435191784. 2

86435191785. 3

86435191786. 4

Question Number : 30 Question Id : 86435126834 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is a simple harmonic motion?

1. Particle moving in a circle with non-uniform speed
2. Wave moving through a string fixed at both ends
3. Earth spinning about its axis
4. Ball bouncing between two vertical walls

Options :

86435191787. 1

86435191788. 2

86435191789. 3

86435191790. 4

Question Number : 31 Question Id : 86435126835 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

As an object approaches the speed of light, its mass

1. becomes zero
2. becomes double
3. remains same
4. becomes infinite

Options :

86435191791. 1

86435191792. 2

86435191793. 3

86435191794. 4

Question Number : 32 Question Id : 86435126836 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is Einstein's mass energy relation?

1. $E_k = (m - m_0)c^2$
2. $E = mc^2$
3. $E^2 - p^2c^2 = m_0^2c^4$
4. $E_k = mv^2/c^2$

Options :

86435191795. 1

86435191796. 2

86435191797. 3

86435191798. 4

Question Number : 33 Question Id : 86435126837 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the momentum of a body is increased n times, its kinetic energy increases

1. n times
2. $2n$ times
3. n^3 times
4. n^2 times

Options :

86435191799. 1

86435191800. 2

86435191801. 3

86435191802. 4

Question Number : 34 Question Id : 86435126838 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $f(x, y, z) = 3x^2y + 2y - 3z$, then $\nabla f =$

1. $6x^2y, 3x^2, 3$
2. $6xy, 3x^2 + 2, 3$
3. $6xy, 3x^2, -3$
4. $6xy, 3x^2 + 2, -3$

Options :

86435191803. 1

86435191804. 2

86435191805. 3

86435191806. 4

Question Number : 35 Question Id : 86435126839 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the atomic packing factor of BCC structure?

1. 0.54
2. 0.68
3. 0.74
4. 0.96

Options :

86435191807. 1

86435191808. 2

86435191809. 3

86435191810. 4

Question Number : 36 Question Id : 86435126840 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Gaussian surface for a line charge will be

1. sphere
2. cylinder
3. cube
4. cuboid

Options :

86435191811. 1

86435191812. 2

86435191813. 3

86435191814. 4

Question Number : 37 Question Id : 86435126841 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Two electric lamps A and B having power 200 watt and 100 watt respectively are rated on the same voltage. The ratio of resistance of lamp A to that of B is

1. 1 : 2
2. 2 : 1
3. 1 : 4
4. 4 : 1

Options :

86435191815. 1

86435191816. 2

86435191817. 3

86435191818. 4

Question Number : 38 Question Id : 86435126842 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The velocity of a charged particle to keep moving in the same direction, in a region where electric and magnetic fields are perpendicular to each other, is

1. E/B
2. B/E
3. $E/B + qE/B$
4. $B/E + qB/E$

Options :

86435191819. 1

86435191820. 2

86435191821. 3

86435191822. 4

Question Number : 39 Question Id : 86435126843 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Find the Maxwell equation derived from Faraday's law.

1. $\text{Div}(H) = J$
2. $\text{Div}(D) = I$
3. $\text{Curl}(E) = -dB/dt$
4. $\text{Curl}(B) = -dH/dt$

Options :

86435191823. 1

86435191824. 2

86435191825. 3

86435191826. 4

Question Number : 40 Question Id : 86435126844 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Differential form of Gauss's law in magneto statics is

1. $\text{div } B = \rho/\epsilon_0$
2. $\text{div } B = 0$
3. $\text{div } B = -dB/dT$
4. $\text{div } B = \mu J$

Options :

86435191827. 1

86435191828. 2

86435191829. 3

86435191830. 4

Question Number : 41 Question Id : 86435126845 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the expression for Lorentz force?

1. qE
2. $q(v \times B)$
3. $ma + qE$
4. $qE + q(v \times B)$

Options :

86435191831. 1

86435191832. 2

86435191833. 3

86435191834. 4

Question Number : 42 Question Id : 86435126846 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the wavelength of light waves if their frequency is 5.0×10^{14} Hz?

1. 0.60 m
2. 6.0 mm
3. 0.060 mm
4. 0.60 μm

Options :

86435191835. 1

86435191836. 2

86435191837. 3

86435191838. 4

Question Number : 43 Question Id : 86435126847 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is an electromagnetic wave?

1. α -rays
2. β -rays
3. γ -rays
4. All of these

Options :

86435191839. 1

86435191840. 2

86435191841. 3

86435191842. 4

Question Number : 44 Question Id : 86435126848 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Find the product of Eigenvalues of a matrix $A = \begin{bmatrix} 1 & 2 & 4 \\ 0 & 6 & 0 \\ 3 & 1 & 2 \end{bmatrix}$

1. 68
2. 45
3. - 60
4. 40

Options :

86435191843. 1

86435191844. 2

86435191845. 3

86435191846. 4

Question Number : 45 Question Id : 86435126849 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The average kinetic energy associated with each degree of freedom is

1. kT
2. $2kT$
3. $kT/2$
4. $kT/4$

Options :

86435191847. 1

86435191848. 2

86435191849. 3

86435191850. 4

Question Number : 46 Question Id : 86435126850 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The ratio of rms velocity to most probable velocity is

1. $\sqrt{3} : \sqrt{2}$
2. $\sqrt{2} : \sqrt{3}$
3. $3 : 2$
4. $2 : 3$

Options :

86435191851. 1

86435191852. 2

86435191853. 3

86435191854. 4

Question Number : 47 Question Id : 86435126851 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Phase space is a

1. 3-dimensional space
2. 4-dimensional space
3. 5-dimensional space
4. 6-dimensional space

Options :

86435191855. 1

86435191856. 2

86435191857. 3

86435191858. 4

Question Number : 48 Question Id : 86435126852 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fermi-Dirac statistics cannot be applied to

1. electrons
2. photons
3. fermions
4. protons

Options :

86435191859. 1

86435191860. 2

86435191861. 3

86435191862. 4

Question Number : 49 Question Id : 86435126853 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The angle between [111] and [11-2] directions in a cubic crystal is (in degrees)

1. 0
2. 45
3. 90
4. 180

Options :

86435191863. 1

86435191864. 2

86435191865. 3

86435191866. 4

Question Number : 50 Question Id : 86435126854 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which theory is confirmed by the Davisson-Germer experiment?

1. de Broglie theory
2. Newton's theory
3. Einstein's theory
4. Planck's theory $x > 0$

Options :

86435191867. 1

86435191868. 2

86435191869. 3

86435191870. 4

Question Number : 51 Question Id : 86435126855 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

As the applied voltage increases, the minimum wavelength of X-radiation from a metal

1. increases
2. decreases
3. remains same
4. variable with metal

Options :

86435191871. 1

86435191872. 2

86435191873. 3

86435191874. 4

Question Number : 52 Question Id : 86435126856 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The uncertainty principle and the concept of wave nature of matter was proposed by _____ and _____ respectively

1. Heisenberg, de Broglie
2. de Broglie, Heisenberg
3. de Broglie, Planck
4. Planck, Heisenberg

Options :

86435191875. 1

86435191876. 2

86435191877. 3

86435191878. 4

Question Number : 53 Question Id : 86435126857 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The group velocity of a wave with a phase velocity of 60×10^9 is (in 10^6 order)

1. 1.5
2. 2
3. 2.5
4. 3

Options :

86435191879. 1

86435191880. 2

86435191881. 3

86435191882. 4

Question Number : 54 Question Id : 86435126858 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Tunnel effect is notably observed in the case of

1. X-rays
2. gamma rays
3. alpha particles
4. beta particles

Options :

86435191883. 1

86435191884. 2

86435191885. 3

86435191886. 4

Question Number : 55 Question Id : 86435126859 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

It is given for the azimuthal quantum number $l = 3$, the total number of different possible values of the magnetic azimuthal quantum number, m_l is

1. 3
2. 7
3. 4
4. 5

Options :

86435191887. 1

86435191888. 2

86435191889. 3

86435191890. 4

Question Number : 56 Question Id : 86435126860 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If 13.6 eV energy is required to ionise the hydrogen atom, then energy required to remove an electron from $n = 2$ is

1. 8.6 eV
2. 0 eV
3. 3.4 eV
4. 6.8 eV

Options :

86435191891. 1

86435191892. 2

86435191893. 3

86435191894. 4

Question Number : 57 Question Id : 86435126861 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In Bohr's model of an atom which of the following is an integral multiple of $h/2\pi$?

1. Kinetic energy
2. Radius of an atom
3. Potential energy
4. Angular momentum

Options :

86435191895. 1

86435191896. 2

86435191897. 3

86435191898. 4

Question Number : 58 Question Id : 86435126862 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A 15Ω resistor, an inductor with 8Ω inductive reactance, and a capacitor with 12Ω capacitive reactance are in parallel across an ac voltage source. The circuit impedance is

1. 1.27Ω
2. 12.7Ω
3. 127Ω
4. 0.127Ω

Options :

86435191899. 1

86435191900. 2

86435191901. 3

86435191902. 4

Question Number : 59 Question Id : 86435126863 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Zeeman effect is the splitting of spectral line in the presence of

1. electric field
2. magnetic field
3. inert environment
4. vacuum nuclear fission

Options :

86435191903. 1

86435191904. 2

86435191905. 3

86435191906. 4

Question Number : 60 Question Id : 86435126864 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If the forward voltage in a semiconductor diode is doubled, the width of the depletion layer will

1. become one-fourth
2. become half
3. remain unchanged
4. become double

Options :

86435191907. 1

86435191908. 2

86435191909. 3

86435191910. 4

Question Number : 61 Question Id : 86435126865 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Iron has a Body-Centered Cubic (BCC) structure with atomic radius 0.123 Å. Find the lattice constant.

1. 0
2. 4.587 Å
3. 2.314 Å
4. 0.2840 Å

Options :

86435191911. 1

86435191912. 2

86435191913. 3

86435191914. 4

**Question Number : 62 Question Id : 86435126866 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

With the increase of pressure, the boiling point of any substance

1. increases
2. decreases
3. remains same
4. becomes zero

Options :

86435191915. 1

86435191916. 2

86435191917. 3

86435191918. 4

**Question Number : 63 Question Id : 86435126867 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which one of the following is the property of an ionic compound?

1. High melting and boiling points
2. Low melting and boiling points
3. Weak inter-atomic forces
4. Non-conductors of electricity

Options :

86435191919. 1

86435191920. 2

86435191921. 3

86435191922. 4

Question Number : 64 Question Id : 86435126868 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The magnetic dipole moment of a revolving electron is _____ (e) is charge on an electron, V is the orbital speed and r is radius of orbit

1. $evr/2$
2. $2ev/r$
3. $2er/v$
4. $2rv/e$

Options :

86435191923. 1

86435191924. 2

86435191925. 3

86435191926. 4

Question Number : 65 Question Id : 86435126869 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The _____ circuital law states that the line integral of the magnetic field around some closed loops is equal to ' μ_0 ' times the algebraic sum of the currents which passes through the loop (μ_0 is the permeability of free space)

1. Ampere's
2. Biot-Savart's
3. Lorentz's
4. Kirchhoff's

Options :

86435191927. 1

86435191928. 2

86435191929. 3

86435191930. 4

Question Number : 66 Question Id : 86435126870 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a coil current changes from 4A to 2A in 0.05sec, If induced e.m.f. is 8 volt then self-inductance of the coil is

1. 0.5 H
2. 0.35 H
3. 0.2 H
4. 2 mH

Options :

86435191931. 1

86435191932. 2

86435191933. 3

86435191934. 4

Question Number : 67 Question Id : 86435126871 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The divergence of which quantity will be zero?

1. *E*
2. *D*
3. *H*
4. *B*

Options :

86435191935. 1

86435191936. 2

86435191937. 3

86435191938. 4

Question Number : 68 Question Id : 86435126872 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A system, after passing through different states returns back to its original state, is called

1. cyclic process
2. isothermal process
3. adiabatic process
4. isobaric process

Options :

86435191939. 1

86435191940. 2

86435191941. 3

86435191942. 4

Question Number : 69 Question Id : 86435126873 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A perfect black body has a unique characteristic feature as

1. a good absorber only
2. a good radiator
3. a good absorber and a good radiator
4. neither a radiator nor an absorber

Options :

86435191943. 1

86435191944. 2

86435191945. 3

86435191946. 4

Question Number : 70 Question Id : 86435126874 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A thermodynamic process where no heat is exchanged with the surroundings is

1. isothermal
2. adiabatic
3. isobaric
4. isotropic

Options :

86435191947. 1

86435191948. 2

86435191949. 3

86435191950. 4

Question Number : 71 Question Id : 86435126875 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The fringe width in a young double slit experiment can be increased if we decrease in

1. separation of slits
2. width of slits
3. wavelength of light used
4. distance between slits and screen

Options :

86435191951. 1

86435191952. 2

86435191953. 3

86435191954. 4

**Question Number : 72 Question Id : 86435126876 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Alkalis are

1. acids, which are soluble in water
2. acids, which are insoluble in water
3. bases, which are insoluble in water
4. bases, which are soluble in water

Options :

86435191955. 1

86435191956. 2

86435191957. 3

86435191958. 4

**Question Number : 73 Question Id : 86435126877 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

What is the pH range of our body?

1. 7.0 – 7.8
2. 7.2 – 8.0
3. 7.0 – 8.4
4. 7.2 – 8.4

Options :

86435191959. 1

86435191960. 2

86435191961. 3

86435191962. 4

Question Number : 74 Question Id : 86435126878 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Sodium hydroxide is used

1. as an antacid
2. in manufacture of soap
3. as a cleansing agent
4. in alkaline batteries

Options :

86435191963. 1

86435191964. 2

86435191965. 3

86435191966. 4

Question Number : 75 Question Id : 86435126879 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reduction is the decrease in

1. oxidation number
2. charge
3. solubility
4. None of the above

Options :

86435191967. 1

86435191968. 2

86435191969. 3

86435191970. 4

Question Number : 76 Question Id : 86435126880 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reaction in which oxidation and reduction takes place at the same time is called

1. redox reaction
2. oxidation reaction
3. reduction reaction
4. None of the above

Options :

86435191971. 1

86435191972. 2

86435191973. 3

86435191974. 4

Question Number : 77 Question Id : 86435126881 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following reactions does not involve either oxidation or reduction?

1. $\text{VO}_2^+ \rightarrow \text{V}_2\text{O}_3$
2. $\text{Na} \rightarrow \text{Na}^+$
3. $\text{CrO}_4^{2-} \rightarrow \text{Cr}_2\text{O}_7^{2-}$
4. $\text{Zn}^{2+} \rightarrow \text{Zn}$

Options :

86435191975. 1

86435191976. 2

86435191977. 3

86435191978. 4

Question Number : 78 Question Id : 86435126882 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Rain is called fully acid rain when its

1. pH falls below 8
2. pH falls below 7
3. pH falls below 5
4. pH is above 7

Options :

86435191979. 1

86435191980. 2

86435191981. 3

86435191982. 4

Question Number : 79 Question Id : 86435126883 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following cannot be used to measure bond lengths?

1. Spectroscopy
2. X-ray diffraction
3. Electron diffraction
4. Young's double-slit method

Options :

86435191983. 1

86435191984. 2

86435191985. 3

86435191986. 4

Question Number : 80 Question Id : 86435126884 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the bond order of CO?

1. 3
2. 2
3. 1
4. 4

Options :

86435191987. 1

86435191988. 2

86435191989. 3

86435191990. 4

Question Number : 81 Question Id : 86435126885 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What kind of hybrid orbital is utilized by the carbon atom in CF_4 molecules?

1. sp
2. sp^2
3. sp^3
4. sp^3d

Options :

86435191991. 1

86435191992. 2

86435191993. 3

86435191994. 4

Question Number : 82 Question Id : 86435126886 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For a diamagnetic material, which of the following statements is correct?

1. Magnetic susceptibility < 0
2. Magnetic susceptibility > 0
3. Magnetic susceptibility $= 0$
4. Magnetic susceptibility $= 1$

Options :

86435191995. 1

86435191996. 2

86435191997. 3

86435191998. 4

Question Number : 83 Question Id : 86435126887 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

With an increase in temperature, magnetic susceptibility of a ferromagnetic material

1. increases
2. decreases
3. remains constant
4. first increases and then decreases

Options :

86435191999. 1

86435192000. 2

86435192001. 3

86435192002. 4

Question Number : 84 Question Id : 86435126888 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

One Bohr magneton equals

1. $Ehc/4\pi n$
2. $ec/4\pi hm$
3. $hc/me4\pi$
4. $eh/4\pi mc$

Options :

86435192003. 1

86435192004. 2

86435192005. 3

86435192006. 4

Question Number : 85 Question Id : 86435126889 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following combination of statements is true regarding the interpretation of the atomic orbitals?

- A. An electron in an orbital of high angular momentum stays away from the nucleus than an electron in the orbit of lower angular momentum
- B. For a given value of the principal quantum number, the size of the orbit is inversely proportional to the azimuth quantum number
- C. According to wave mechanism, the ground state angular momentum is equal to $h/2\pi$
- D. The plot of ψ vs r for various azimuthal quantum number show peak shifting towards higher r value

Choose the *correct answer* from the options given below.

- 1. B and C
- 2. A and B
- 3. A and D
- 4. A and C

Options :

86435192007. 1

86435192008. 2

86435192009. 3

86435192010. 4

Question Number : 86 Question Id : 86435126890 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The outermost electronic configuration of the most electronegative element is

- 1. ns^2, np^3
- 2. ns^2, np^4
- 3. ns^2, np^5
- 4. ns^2, np^6

Options :

86435192011. 1

86435192012. 2

86435192013. 3

86435192014. 4

Question Number : 87 Question Id : 86435126891 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the simplest form of carbohydrates?

1. Carboxyl groups
2. Aldehyde and Ketone groups
3. Alcohol and Carboxyl groups
4. Hydroxyl groups and Hydrogen groups

Options :

86435192015. 1

86435192016. 2

86435192017. 3

86435192018. 4

Question Number : 88 Question Id : 86435126892 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is the general formula of Carbohydrates?

1. $(C_4H_2O)_n$
2. $(C_6H_2O)_n$
3. $(CH_2O)_n$
4. $(C_2H_2O)_n COOH$

Options :

86435192019. 1

86435192020. 2

86435192021. 3

86435192022. 4

**Question Number : 89 Question Id : 86435126893 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which of the following lines are most intense?

1. Stokes lines
2. Rayleigh scattered lines
3. Anti-Stokes lines
4. All have same intensity

Options :

86435192023. 1

86435192024. 2

86435192025. 3

86435192026. 4

**Question Number : 90 Question Id : 86435126894 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

NMR spectroscopy is used for determining structure in which of the following materials?

1. Radioactive materials
2. Insoluble chemical compounds
3. Liquids
4. Gases

Options :

86435192027. 1

86435192028. 2

86435192029. 3

86435192030. 4

**Question Number : 91 Question Id : 86435126895 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Presence of a functional group in a compound can be established by using

1. chromatography
2. IR spectroscopy
3. mass spectroscopy
4. X-ray diffraction

Options :

86435192031. 1

86435192032. 2

86435192033. 3

86435192034. 4

**Question Number : 92 Question Id : 86435126896 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

According to Stefan-Boltzmann law of thermal radiation

1. $q = \alpha AT$
2. $q = \alpha AT^4$
3. $q = \alpha AT^3$
4. $q = \alpha AT^5$

Options :

86435192035. 1

86435192036. 2

86435192037. 3

86435192038. 4

Question Number : 93 Question Id : 86435126897 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A small body has a total emissive power of 4.5 kW/m^2 . Determine its surface temperature of maximum emission ($\sigma = 5.67 \times 10^{-8} \text{ W/(m}^2\text{K}^4)$)

1. 530.77 K
2. 345.65 K
3. 236.54 K
4. 367.8 K

Options :

86435192039. 1

86435192040. 2

86435192041. 3

86435192042. 4

Question Number : 94 Question Id : 86435126898 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The magnetic moment of a field with current 12A and area 1.6 units is

1. 19.2
2. 12.9
3. 21.9
4. 91.2

Options :

86435192043. 1

86435192044. 2

86435192045. 3

86435192046. 4

Question Number : 95 Question Id : 86435126899 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following is also known as wood alcohol?

1. Methanol
2. Ethanol
3. Propanal
4. Butanol

Options :

86435192047. 1

86435192048. 2

86435192049. 3

86435192050. 4

Question Number : 96 Question Id : 86435126900 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A cube of 1.2 inches on the side has a mass of 36 grams. What is the density in g/cm^3 ?

1. 21
2. 2.2
3. 30
4. 1.28

Options :

86435192051. 1

86435192052. 2

86435192053. 3

86435192054. 4

Question Number : 97 Question Id : 86435126901 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The idea of quantum nature of light is required to explain

1. interference of light
2. thermionic emission
3. radioactivity
4. blackbody radiation

Options :

86435192055. 1

86435192056. 2

86435192057. 3

86435192058. 4

Question Number : 98 Question Id : 86435126902 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Transition metals are generally coloured because

1. they absorb electromagnetic radiations
2. their penultimate d-subshells are fully filled
3. of d-d transition
4. None of the above

Options :

86435192059. 1

86435192060. 2

86435192061. 3

86435192062. 4

Question Number : 99 Question Id : 86435126903 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The substituent groups that are commonly associated with benzene ring are

1. phenyl and benzyl
2. propyl and phenyl
3. methyl and benzyl
4. butyl and phenyl

Options :

86435192063. 1

86435192064. 2

86435192065. 3

86435192066. 4

Question Number : 100 Question Id : 86435126904 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Triple bond with two carbon atoms on either side is called

1. methyl group
2. ethynyl group
3. propionyl group
4. propargyl group

Options :

86435192067. 1

86435192068. 2

86435192069. 3

86435192070.4