

JEE Main Session 2 2024 Apr 5 Shift 2 Question Paper

1.

Which of the following is not correct

- 1) stopping potential depends on frequency of incident light
- 2) it increases by increasing intensity
- 3) it depends on the nature of material
- 4) it is equal to $K.E / e$

2.

The 50th word in the dictionary using the letters B, B, H, J, O is:

- (a) OBBJH
- (b) OBBHJ
- (c) JHBBO
- (d) BBHOJ

3.

$\left(\frac{1}{3^5} + \frac{2x}{5^3}\right)^{12}$. Find which term is constant.

a) 4th
b) 5th ♦
c) 6th
d) 7th

4.

Let $4^{1+x} + 4^{1-x}, \frac{k}{2}, 16^x + 16^{-x}$ are in A.P.
then least value of k is

5.

Consider the following reaction:



The product is

- a) Adipic Acid
b) Oxalic Acid
c) Succinic acid
d) Benzoic Acid ♦

6.

Which of the following is true regarding coagulation of egg:

- a. 1° structure does not change
- b. 2° structure does not change
- c. 3° structure does not change
- d. Denaturation of protein does not occur.

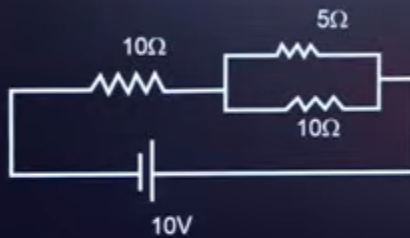
7.

The maximum height reached by a projectile is 64 m if initial velocity is halved then new maximum height of projectile is m.

8.

The ratio of heat dissipated per second through 5Ω and 10Ω is given

- a) 1:1
- b) 2:1
- c) 4:1
- d) 1:2

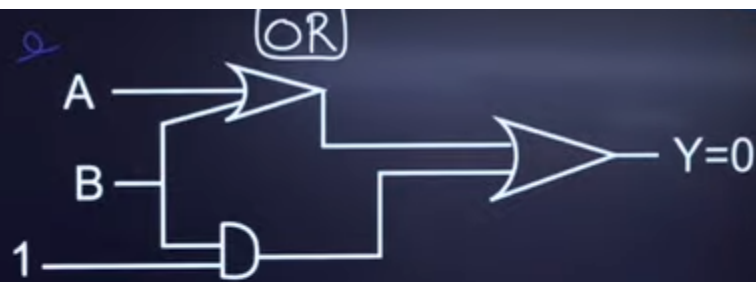


9.

During adiabatic process if pressure of gas is found to be proportional to Cube of its absolute temp $\frac{C_p}{C_v}$ for gas

- a) 5/3
- b) 7/5
- c) 3/2
- d) 9/7

10.



- a) $A = 1 B = 0$
- b) $A = 1 B = 1$
- c) $A = 0 B = 1$
- d) $A = 0 B = 0$

11.

The Electrostatic force (\vec{F}_1) and M.F (\vec{F}_2) acting on charge moving with velocity

a) $\vec{F}_1 = \vec{V} \times \vec{E}$ $\vec{F}_2 = q(\vec{B} \times \vec{V})$

b) $\vec{F}_1 = qB$ $\vec{F}_2 = q(\vec{B} \times \vec{V})$

c) $\vec{F}_1 = q\vec{E}$ $\vec{F}_2 = q(\vec{B} \times \vec{V})$

d) $\vec{F}_1 = q\vec{E}$ $\vec{F}_2 = q(\vec{V} \times \vec{B})$

12.

Number of moles of methane used for combustion to give 11g of carbon dioxide

13.

Angular Momentem of H-atom is directly proportional to

1. r

2. \sqrt{r}

3. $\frac{1}{r}$

4. r^2

14.

Find out E cell of the given cell $M|M^{2+}||X^{2-}|X$.

$$E^\circ_{M^{2+}|M} = 0.34V$$

$$E^\circ_{X|X^{2-}} = 0.46V$$

- a. 0.80 V
- b. 0.12 V
- c. -0.12 V
- d. -0.80 V

15.

How many of the following have zero dipole moment

$H_2S, CH_4, NH_3, BF_3, SO_2, NF_3$

16.

One coulomb charge is passed through $AgNO_3$ solution during electrolysis. Find mass of silver (in mg) deposited at the electrode.
_____ (nearest integer)

17.

Find the differential equation of a circle having centre on $y = x$ line and passing through origin?

18.

$ABCD$ and $AEFG$ are two squares of side length 4 and 2 respectively. If E lies on line segment AB and F lie on diagonal AC , find radius of circle passing through F and touching BC and CD ?

19.

$$f(x) = |x - 1|, g(x) = \begin{cases} e^x & x \geq 0 \\ x + 1 & x < 0 \end{cases}$$

then $f(g(x))$ is

- a) one-one & onto
- b) one-one but not onto
- c) onto but not one-one
- d) not both

20.

$$\frac{dy}{dx} + \frac{2x}{(1+x^2)^2} (y) = x \cdot e^{1/(1+x^2)} \text{ and } y(0) = 0$$

then find area bounded by $f(x) = y \cdot e^{\frac{-1}{1+x^2}}$ and $y - x = 4$.

21.

20Ω Resistance is divided into 10 equal parts, they are connected in parallel, the overall resistance is

22.

Wavelength of longest line from Lyman series is 965 Å then find shortest wavelength of Balmer series.

23.

fundamental frequency = 400Hz at tension T of length 90 cm then find length 'l' at tension 'T' of fundamental frequency = 900Hz