MET

sample papers

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Test
UG_Technical_Mock

Current Section
Mathematics-MCQ

Resources ▾

Q1. Consider three boxes, each containing 10 balls labelled 1, 2, 3, ..., 10. Suppose one ball is randomly drawn from each of the boxes. Denote by n_i, the label of the ball drawn from the ith box, $(i = 1, 2, 3)$. Then, the number of ways in which the balls can be chosen such that $n_1 < n_2 < n_3$ is _____

(Marks : 4.0)

- (A) 120
- (B) 240
- (C) 164
- (D) 82

Q2. Let $P(x)$ be a function defined on $\mathbb{R}$ such that $P'(x) = P'(1-x)$ for all $x \in [0,1]$, $P(0) = 1$ and $P(1) = 41$ then, $\int_0^1 P(x)dx =$

(Marks : 4.0)

○ (A) $\sqrt{41}$

○ (B) 41

○ (C) 42

○ (D) 21

Resources

Q3.

The value of $\left(\dfrac{1+\cos\left(\frac{\pi}{n}\right)+i\sin\left(\frac{\pi}{n}\right)}{1+\cos\left(\frac{\pi}{n}\right)-i\sin\left(\frac{\pi}{n}\right)} \right)^{n} =$ _____

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Q4. The standard deviation of a distribution is 30 and each item is raised by 3. Then the new standard deviation is

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Q5. Which of the following is a viable particulate?

○ **(A)** Smoke

○ **(B)** Moulds

○ **(C)** Dust

○ **(D)** Mist

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Q6. Which one of the following gives positive carbylamine test?

○ (A) 2,4-dimethylaniline

○ (B) N,N-dimethylaniline

○ (C) N-methyl-4-methylaniline

○ (D) N-methyl aniline

Resources

Q7. Calculate the equivalent conductivities at infinite dilution of potash alum. Given $\Lambda(K^+) = 71$ ohm^{-1} cm^{2}equiv^{-1}, $\Lambda(Al^{3+}) = 189$ ohm^{-1} cm^{2}equiv^{-1} and $\Lambda(SO_4^{2-}) = 160$ ohm^{-1} cm^{2}equiv^{-1}.

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3   4

Q8. When a sample of gas expands from 4.0L to 14.0L against a constant pressure of 1atm, the work involved in Joule is (1atm L=101.3J)

Resources

Q9. A simple pendulum of length L has a period of T on the surface of earth (radius = R). What should be the length of the pendulum, in order to have the same period at an altitude of R above the surface of earth?

- (A) 4L
- (B) L/4
- (C) L/2
- (D) 2L

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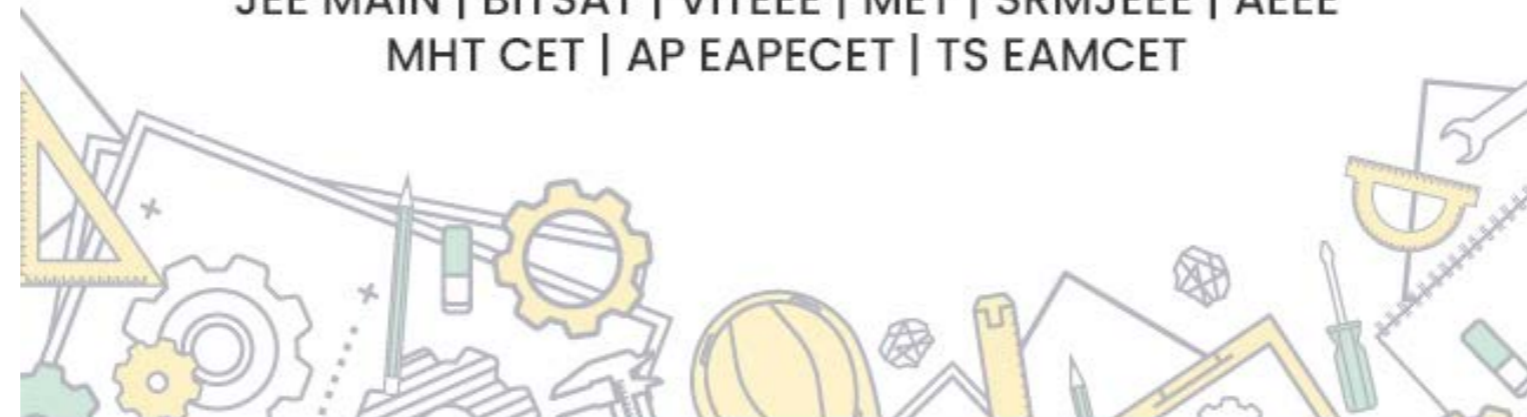
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Q10. A circuit connected to an ac source of emf $e = e_0 \sin(100\,t)$ with t in seconds, gives a phase difference of $\pi/4$ between the emf e and current I. Which of the following circuits will exhibit this?

○ **(A)** RL circuit with R = 1 kΩ and L = 1mH

○ **(B)** RC circuit with R = 1 kΩ and C = 1μF

○ **(C)** RC circuit with R = 1 kΩ and C = 10μF

○ **(D)** RL circuit with R = 1 kΩ and L = 10mH

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Q11.

A screen is placed 2 m away from a narrow slit which is illuminated with light of wavelength 600 nm. If the first minima lies at a distance of 5 mm on either side of central maximum calculate the slit width (in μm).

Resources

Q12. A stone is dropped from the top of a tower 96 m high. At the same time another stone is thrown upwards with a velocity of 24 m/s from the foot of the tower. When will the two stones meet (in seconds)?

Resources

Q13. Passengers are not allowed to use cell phones _____ airplanes.

- (A) across
- (B) on
- (C) in
- (D) over

Resources

13 14 15

Q14. Identify the grammatically correct sentence among the following:

○ **(A)** Despite the differences in their age, they were close friends.

○ **(B)** Despite of the difference in their ages, they were close friends.

○ **(C)** Despite the difference in their ages, they were close friends.

○ **(D)** In spite the difference in their ages, they were close friends.

MET Mock Test Series

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Q15. This exam is her best chance to prove her credentials. Everyone _____ and hoping for the best.

○ **(A)** is keeping their fingers crossed

○ **(B)** washing the dirty linen

○ **(C)** keeping their fingers closed

○ **(D)** washing their hands off