#### Mathon Go

#### JEE Main 2020 Sample Paper

#### 01

A tangential force of 20 N is applied on a cylinder of mass 4 kg and moment of inertia 0.02 kg m2 about its own axis. If the cylinder rolls without slipping, then linear acceleration of its centre of mass will be

- (a)  $6.7 \,\mathrm{m/s^2}$
- (b) 10 m/s<sup>2</sup>
- (c) 3.3 m/s<sup>2</sup>
- (d) None of these

# Tribes.

#### Q2

Two soap bubbles A and B are kept in a dased chamber where the air is maintained at pressure 8 N/m2. The radii of bubbles A and B are 2cm and 4cm, respectively. Surface tension of the soap-water used to make bubbles is 0.04 N/m. Find the ratio  $\eta_B/\eta_A$ , where  $\eta_A$  and  $\eta_B$  are the number of moles of air in bubbles A and B, respectively. [Neglect the effect of gravity!

(m) 4

(b) 6

(c) 5

640 9

#### 03

A bullet of mass 20g and moving with 600 m/s collides with a block of mass 4 kg hanging with the string. What is velocity of bullet when it comes out of block, if block rises to height 0.2 m after collision?

(a) 200 m/s(b) 150 m/s(c) 400 m/s(d) 300 m/s

#### 04

In the following circuit, the resultant capacitance between A and B is IµF. Then value of C is



(a)  $\frac{32}{11}\mu F$  (b)  $\frac{11}{32}\mu F$  (c)  $\frac{23}{32}\mu F$  (d)  $\frac{32}{23}\mu F$ 

The current through a bulb is increased by 1%, Assuming that the resistance of the filament remains unchanged the power of the bulb will

- (a) increase by 1%
- (b) decrease by 1%
- (c) increase by 2%
- (d) decrease by 2%

#### 06

Two straight long conductors AOB and COD are perpendicular to each other and carry currents i, and in-The magnitude of the magnetic induction at a point P at a distance a from the point O in a direction perpendicular to the plane ABCD is

- (a)  $\frac{\mu_0}{2\pi a}(i_1+i_2)$  (b)  $\frac{\mu_0}{2\pi a}(i_1-i_2)$ (c)  $\frac{\mu_0}{2\pi a}(i_1^2+i_2^2)^{1/2}$  (d)  $\frac{\mu_0}{2\pi a}(i_1+i_2)$

#### 07

Dimensions of magnetic flux are

(a) MI2T-2A-1

- (c) MOI-27-24-3

#### 08

Two block of mass 8kg and 4kg are connected by a string as shown in the figure below, Calculate their acceleration, if they are initially at rest on the floor, when a force of 100N is applied on the massless pulley in upward direction  $(c = 10 \text{ m/s}^{-2})$ 

- (a) 0m/s2, 0 m/s2
- (b) 0m/s<sup>2</sup>, 2.5 m/s<sup>2</sup>
- (c) 1.25m/s<sup>2</sup>, 2.5 m/s<sup>2</sup>
- (d) 2.5m/s<sup>2</sup>, 0 m/s<sup>2</sup>



OB

# <u>Jee Main Paper</u>

**Yi-Tong Ma** 

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