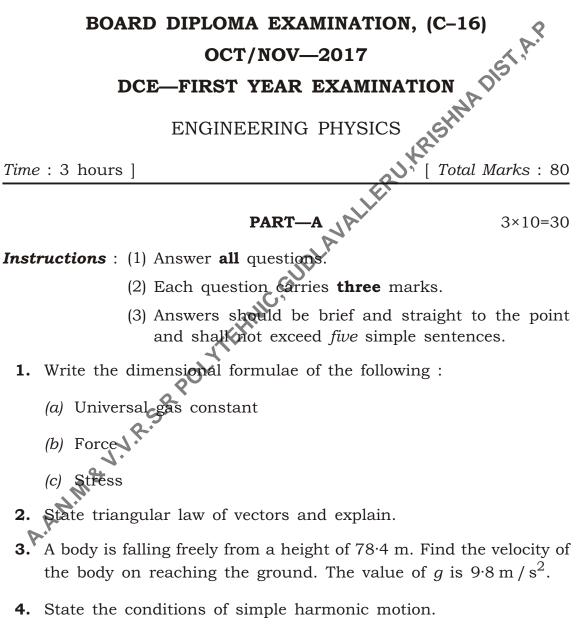


$c_{16-C/CM-103}$

6018



- **5.** Write any three differences between isothermal process and adiabatic process.
- **6.** Write any three applications of Doppler effect.
- * /6018

[Contd...

- 7. Write the Poiseulle's equation for the coefficient of viscosity and name the symbols involved.
- 8. Define the terms 'stress' and 'strain'.
- 9. State Kirchhoff's laws.
- **10.** Write three properties of superconductors.

Instructions : (1) Answer any five questions.

- Answer any five questions.
 (2) Each question carries ten marks.
 (3) Answers should be comprehend. for valuation is the the answer

11.	(a)	Define dot product.	2
	(b)	Mention any four properties of dot product.	4
	(c)	Find the area of parallelogram formed by two vectors $P \hat{i} 2\hat{j} 3\hat{k}$ and $Q \hat{i} \hat{j} \hat{k}$ as two adjacent sides.	4
12.	(a)	Define projectile and give one example.	2
	(b)	Show that the path of a projectile is a parabola in the case of oblique projection.	5
D	(c)	The range of projectile is equal to maximum height reached, find the angle of projection.	3
13.	(a)	Explain any three methods of reducing friction.	3
	(b)	Derive the expression for the acceleration of a body slides down on a rough (with friction) inclined plane.	4
	(C)	Find the force of friction on a body of mass 100 kg when it is just start sliding on horizontal surface if 0 5. The value of g is 9 8 m / s ² .	3
/601	18	2 [Conto	ł

- **14.** (*a*) State the law of conservation of energy and prove it in the case of freely falling body.
 - (b) An engine is used to lift water from a well 60 m deep to fill a tank of dimensions 5 m 5 m 10 m in 40 minutes. Find the power of the engine if 30% energy is wasted. Take *g* as 9 8 m / s².

15. (a) Derive the equation for time period of a simple pendulum

(b) The displacement of a particle executing SHM is given by

x 4 cos 0 2 t $-\frac{1}{4}$ All values are in S.I units.

Find *(i)* amplitude *(ii)* angular velocity, *(iii)* maximum velocity and *(iv)* epoch.

- (b) 15000 J of heat is given to a gas when its volume increased by 0.025 m^3 at a constant pressure 5 10^5 Pa. Calculate increase in the internal energy of the gas.
- 17. (a) Write any three differences between musical sound and noise.

(b) White any three effects of noise pollution and write any four measures to be taken to minimise the noise pollution.

- **18.**[•] (a) Derive an expression for magnetic induction field strength at a point on the axial line of a bar magnet.
 - (b) In the meter bridge experiment, if the resistance in the left and right gaps is in the ratio 3 : 4, find where the balancing point is obtained.

3

AA7(A)—PDF

6

4

3

7

6

4

6

4

6

4