

MATHEMATICS

SUBJECT 9164

PAPER 3

GENERAL COMMENTS

The time set for the paper was adequate as all candidates completed the work. However, the overall performance of the candidates was not pleasing. The statistics section was not attempted at all by most candidates resulting in most of them scoring low marks.

It seemed the majority of the candidates did not complete the syllabus. For example on questions 1, 4 and 11, candidates were applying equations of motion with constant acceleration in straight line, something very strange.

Candidates are also encouraged to familiarize and utilize the "list of formulae" booklet provided.

COMMENTS ON INDIVIDUAL QUESTIONS

QUESTION 1

Most candidates did not identify all the 5 forces as required

Correct answer: (ii) $7g$

QUESTION 2

This question was attempted successfully by most candidates. Cartesian equation of trajectory was commonly used.

QUESTION 3

The law of conservation of momentum was applied successfully but most candidates but they failed to interpret the 2nd part of the question.

Correct answer: $\frac{9}{2} \text{ ms}^{-1}$

QUESTION 4

A common problem was failure to resolve force P. Most candidates were also tacking a perpendicular component of weight to the plane as the only force perpendicular to the plane.

QUESTION 5

Well done by most candidates except in part (c), where some failed to realize that the particle was moving under the force of gravity after moving for 5 metres.

Correct answer: (a) $\frac{3}{7}a$
 (b) 4,5849
 (c) 6,07

QUESTION 6

The graph was correctly plotted by most candidates.

Correct answer: (a) $6 \text{ ms}^{-1}; -12 \text{ ms}^{-1}$
 (b) 36 m

QUESTION 7

Very few candidates failed to realize that the centre of mass of a semi-circle from the centre is $\frac{2a}{3\pi}$.

Correct answer: (b) 13,75; 5,87

QUESTION 8

Most candidates failed to identify the force acting towards the centre, i.e. $T + T \cos \theta$ resulting in losing most of the marks.

QUESTION 9

The question was answered successfully by most candidates.

Correct answer: (b) $\frac{50}{13}g$

QUESTION 10

Part (b) was a problem to most candidates. They used 6 metres as distance instead of $\frac{6}{5}$ metres to calculate work done. The weight of the ear was also omitted.

Correct answer: (a) (i) $36,91 \text{ ms}^{-1}$
 (ii) $2,968 \text{ ms}^{-2}$
 (b) 23964 joules

QUESTION 11

Equations of motion in a straight line with constant acceleration were appearing in moist workings. Equations involving S.H.M. were expected to be used.

Correct answers: (a) (i) $\frac{3\pi}{10}$; (ii) $0,59 \text{ ms}^{-2}$
 (b) (i) 0,99 (ii) 1,1472

QUESTION 12

Was well done except for few candidates who were failing to express $\frac{v^2}{k-v}$ in partial fraction.

QUESTION 13

In part (c), Normal distribution was a popular answer by most candidates.

Correct answer:

(a)	X	2	3	4	5	6	7	8
	$P(X=x)$	$\frac{1}{16}$	$\frac{2}{16}$	$\frac{3}{16}$	$\frac{4}{16}$	$\frac{3}{16}$	$\frac{2}{16}$	$\frac{1}{16}$

(b) $E(X) = 5$

(c) Symmetric distribution

QUESTION 14

Binomial distribution or Normal approximation to binomial were two methods used successfully by most candidates.

Correct answers: 0,9688

QUESTION 15

In part (b) some candidates were integrating the first part or the second part but not both.

Correct answers: (a) $\frac{1}{6}$

(b) $\frac{2}{3}$

QUESTION 16

Was well done by most candidates particularly part (b).

Correct answers: (a) (i) $\frac{1}{6}$ (ii) $\frac{125}{1296}$ (iii) $\frac{36}{91}$
(b) $\frac{25}{91}$