MC SQUARE EDUCATION PVT.LTD

TEST DATE-05/04/2018 | TARGET: NEET 2018 EXAM | RESULT –FINAL ASSAULT: MOCK TEST 04

TOTAL MARKS-720

CUTOFF MARK: 450

SR	STUDENT NAME	PHYSICS		CHEMISTRY		BIOLOGY		MARKS
		CORRECT	INCORRECT	CORRECT	INCORRECT	CORRECT	INCORRECT	
1	PREETISH DEVADHE	8	3	9	13	42	21	199
2	MAHESHWARI NALE	0	0	0	0	0	0	ABSENT
3	VIGHNESH PATIL	14	7	19	10	58	25	322
4	AKSHATA CHEREKAR	0	0	0	0	0	0	ABSENT
5	RISHIKA TRIPATHI	18	16	30	7	61	20	393
6	PRATIKSHA DHOTARE	0	0	0	0	0	0	ABSENT
7	POOJA SINGH	0	0	0	0	0	0	ABSENT
8	MONIKA CHOUDHARY	21	8	33	11	72	10	475
9	PRIYANKA KADAM	15	11	18	14	61	13	338
10	ARUNDHATI GOTEKAR	14	7	21	15	54	24	310
11	SHAMLI KAMBLE	0	0	0	0	0	0	ABSENT
12	MANISH DESALE	17	14	18	13	38	37	228
13	PAYAL MUNDE	0	0	0	0	0	0	ABSENT
14	VAISHALI SHELKE	0	0	0	0	0	0	ABSENT
15	VIVEK ARBAN	14	9	10	7	44	29	227
16	DIVYA PANCHAL	0	0	0	0	0	0	ABSENT
17	BHAVESH JAISWAL	11	11	13	7	35	24	194
18	RUTUJA VIBHUTE	18	20	18	16	57	30	306
19	ADITI BORSE	2	3	13	15	47	26	204
20	AKSHADA GAGALE	0	0	0	0	0	0	ABSENT
21	CHANDRAMANI WAGH	5	7	6	22	34	40	111
22	DIVYANI PETARE	0	0	0	0	0	0	ABSENT
23	KIRTI DHAVANE	0	0	0	0	0	0	ABSENT
24	NILESH BHEGADE	11	34	10	6	50	22	222
25	JAHNAVI GUGALE	2	3	7	16	29	38	95
26	ABDULLA KHAN	0	0	0	0	0	0	ABSENT
27	AISHWARYA SURYAWANSHI	12	7	30	5	67	11	413
28	MRUNAL CHOUGULE	19	10	15	6	55	21	319
29	SNEHA BORATE	0	0	0	0	0	0	ABSENT
30	KARTIK JAIN	9	11	17	7	50	16	270
31	VYASGHAWATE	16	7	3	12	37	20	185
32	HARSHADA MALEKAR	0	0	0	0	0	0	ABSENT
33	MOHINI SONAWANE	7	6	3	14	40	33	147
34	DARSHANA HIPPARGI	7	8	21	13	58	21	302
35	AMIRTHESH PILLAI	29	13	15	14	51	31	322
36	REKHA CHOUDHARY	1	1	14	11	32	29	147
37	SANKET GAIKWAD	2	0	11	5	36	14	177
38	SAMIKSHA PANMAND	14	8	27	15	23	17	216
39	HITESH DHARMADHAKARI	3	4	16	19	20	14	119
40	VEDIKA BHOSALE	3	5	3	9	33	31	111
41	AKANKSHA GURV	0	0	7	2	30	8	138
42	MANSI DESHMUKH	1	5	7	9	28	28	102
43	DEEPALI PATIL	0	1	6	12	29	42	85
44	MAYURI MORE	2	2	2	2	14	20	48
45	ANIRUDHHA SALUNKHE	5	4	6	11	30	29	120
46	ISHA HULSURKAR	5	3	7	11	25	17	117
47	SONAM GHORPADE	1	1	10	1	28	15	139
48	APURVA WAGHMARE	2	0	2	4	14	11	57
49	SHARAYU SHINDE	0	0	0	0	0	0	ABSENT
50	KAVYA PATHAK	1	5	9	8	18	17	82
51	SANIKA MAHAJAN	0	0	0	0	0	0	ABSENT
52	KAUSTUBH AHIRRAO	0	0	0	0	0	0	ABSENT

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53	OMKAR BAKWAD	7	1	5	12	27	29	114
54	ADITI SHINDE	3	7	10	10	29	37	114
55	ANUJA KHOSE	3	3	8	10	29	17	130
56	AKASH NIKAM	0	0	0	0	0	0	ABSENT
57	SHRAVANI CHAVAT	17	28	20	23	55	32	273
58	SAHIL GAIKAR	3	8	9	22	24	28	86
59	SWAPNALI HANGE	13	6	13	11	26	22	129
60	MAHEFUZ PATHAN	4	5	9	7	20	19	101
61	ADITYA SASANE	0	0	0	0	0	0	ABSENT
62	RUTUJA SASANE	5	12	12	9	50	18	229
63	POTDAR PRADNYA PRADEEP	0	0	0	0	0	0	ABSENT
64	SIMRAN	16	16	29	8	7	10	440
65	RASHMI PURI	5	12	1	11	32	36	93
66	RASANE PURVA	3	9	12	17	41	29	169
67	SAKSHI CHOUDHARY	0	0	0	0	0	0	ABSENT
68	ROHINI PAWAR	0	0	0	0	0	0	ABSENT
69	SAMARAGI HATI	10	9	11	15	36	54	170
70	AISHWARYA BORHADE	1	4	16	10	39	18	192
71	RUSHALEE BANSODE	0	0	0	0	0	0	ABSENT

MC Square Education Pvt. Ltd .

DATE- 05 /04/2018 **NEET-UG-2018** **QUESTIONS-180**

ANSWER KEY-PRE TEST NO- 4

1	A	21	C	41	D	61	C	81	B	101	A	121	A
2	A	22	D	42	C	62	C	82	D	102	A	122	A
3	A	23	C	43	B	63	B	83	A	103	D	123	D
4	A	24	C	44	C	64	A	84	C	104	B	124	B
5	C	25	D	45	D	65	B	85	B	105	C	125	D
6	B	26	D	46	C	66	D	86	A	106	B	126	D
7	B	27	D	47	B	67	A	87	A	107	B	127	D
8	A	28	A	48	B	68	A	88	C	108	C	128	D
9	A	29	C	49	A	69	B	89	D	109	C	129	C
10	C	30	A	50	C	70	C	90	A	110	C	130	C
11	D	31	B	51	D	71	D	91	A	111	A	131	B
12	C	32	B	52	B	72	B	92	B	112	B	132	C
13	C	33	D	53	B	73	B	93	B	113	C	133	A
14	B	34	A	54	B	74	A	94	B	114	C	134	A
15	A	35	C	55	C	75	B	95	A	115	D	135	D
16	B	36	C	56	C	76	A	96	C	116	B	136	A
17	C	37	D	57	D	77	C	97	C	117	D	137	D
18	C	38	B	58	A	78	C	98	B	118	B	138	A
19	A	39	A	59	C	79	D	99	C	119	C	139	B
20	D	40	A	60	B	80	A	100	C	120	A	140	A

141	D	161	B
142	A	162	D
143	A	163	C
144	A	164	C
145	C	165	A
146	B	166	B
147	D	167	B
148	B	168	C
149	B	169	D
150	B	170	C
151	D	171	A
152	A	172	A
153	C	173	B
154	B	174	B
155	A	175	D
156	D	176	C
157	A	177	C
158	C	178	C
159	A	179	D
160	B	180	C

Q.1 $I_{av} = \frac{\int_0^{\pi/\omega} I\,dt}{\frac{\pi}{\omega}-0} = \frac{\omega}{\pi}\int_0^{\pi/\omega} I_0 \sin\omega t\,dt$

$= \frac{\omega}{\pi} I_0 \left[\frac{-\cos\omega t}{\omega}\right]_0^{\pi/\omega}$

$= -\frac{I_0}{\pi}[-1-1] = \frac{2I_0}{\pi}$

Q.2 The velocity v acquired by the parachutist after 10 sec. Is

v = u + gt = 0 + 10 × 10 = 100 m/s

Let s_1 be height of fall for 10 sec. then,

$s_1 = ut + \frac{1}{2}gt^2 = 0 + \frac{1}{2} \times 10 \times 100 = 500\,m$

The distance travelled by the parachutist under retardation,

s_2 = 2495 – 500 = 1995 m

Let v' be his velocity on reaching the ground then $v'^2 - v^2 = -2as_2$

Or $v'^2 - (100)^2 = -2 \times 2.5 \times 1995$

Solving, we get, v' = 5 m/sec

Q.3 Kx = 3mg

After cut the string

$a = \frac{F_{net}}{2m} = \frac{kx - 2mg}{2m}$

$a = \frac{3mg - 2mg}{2m} = \frac{g}{2}$

Q.4 $w = \int_{(0,0)}^{(1,2)} (2x\hat{\imath} + y\hat{\jmath}).(dx\hat{\imath} + dy\hat{\jmath}) = 3$

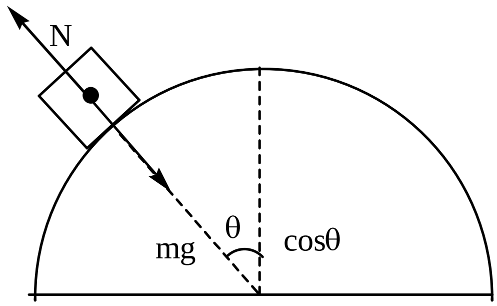
Q.6 $y = \sqrt{3^2 + 4^2} = 5$

Q.7 In the portion OA, slope (= velocity) of the curve is +ve; at the point A, slope of the curve is zero; while in the portion AB, slope of the curve is –ve. Hence (v – t) curve will be as shown in fig.

Q.8 $F_{max} = \frac{\mu mg}{(\cos\theta - \mu\sin\theta)}$

$F_{max} = \frac{\frac{1}{2\sqrt{3}} \times \sqrt{3} \times 10}{\left(\frac{1}{2} - \frac{1}{2\sqrt{3}} \times \frac{\sqrt{3}}{2}\right)} = 20\,N$

Q.9 $F_C = N - mg\cos\theta$



$N = mg\cos\theta - \frac{mv^2}{R}$

As θ ↓ cos θ ↑ N ↑

Q.11 Here (2πct/λ) as well as (2πx/λ) are dimensionless. So, unit of ct is same as that of λ. Unit of x is same as that of λ.

Since, $\left[\frac{2\pi ct}{\lambda}\right] = \left[\frac{2\pi x}{\lambda}\right] = [M^0L^0T^0]$

Hence, $\frac{2\pi c}{\lambda} = \frac{2\pi x}{\lambda t}$

In the option (d) is unit less. It is not the case with c/λ.

Q.12 $H = \frac{1}{2}gt^2$

$\left(H - \frac{7}{16}H\right) = \frac{1}{2}g\,(t-1)^2$.......... (1)

$\frac{9}{16}H = \frac{1}{2}g(t-1)^2$............ (2)

Eq^n. (1)/ (2)

$\frac{16}{9} = \frac{t^2}{(t-1)^2}$

$\frac{4}{3} = \frac{t}{t-1}$

⇒ t = 4 sec

Q.13 $t = \sqrt{\frac{2S_{rel}}{a_{rel}}} = \sqrt{\frac{2\times 6}{a_{rel}}}$

$a_{rel} = 2a = \frac{2(m_2 - m_1)}{m_1 + m_2} g$

$= \frac{2 \times 3}{5} \times 10 = 12\, m/\, s^2$

t = 1sec

Q.14 $a_C = \frac{4}{r^2}$

$\frac{v^2}{r} = \frac{4}{r^2}$

$v = \frac{2}{\sqrt{r}}$

P = mv = $\frac{2m}{\sqrt{r}}$

Q.15 Moment of inertia of solid sphere of mass M and radius R about an axis passing through the centre of mass is: $I = \frac{2}{5}MR^2$. Let the radius of the disc is r.

Moment of inertia of circular disc of radius r and mass M about an axis passing through the centre of mass and perpendicular to its plane= $\frac{1}{2}Mr^2$. Using theorem of parallel axes, moment of inertia of disc about its edge is:

$I' = \frac{1}{2}Mr^2 + Mr^2 = \frac{3}{2}Mr^2$

Given: I = I'

Or $\frac{2}{5}MR^2 = \frac{3}{2}Mr^2$

Or $r^2 = \frac{4}{15}R^2$

Or $r = \frac{2R}{\sqrt{15}}$

Q.16 $[v] = [T^{-1}]$

$[l] = [L^1]$

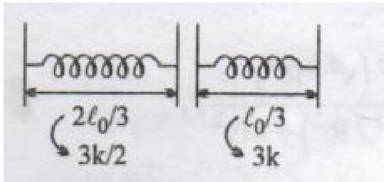
$[F] = [M^1L^1T^{-2}]$

$m = \frac{\rho^2 F}{4V^2 l^2}$

$[m] = \frac{[F]}{[v^2][l^2]} = \frac{[M^1L^1T^{-2}]}{[T^{-2}][L^2]}$

$[m] = [M^1\, L^{-1}]$

Q.18 When a spring is cut into two parts each part has spring constant more than that of original spring. If k = spring constant and l_0 = natural length, then for cut parts



If they are stretched by same amount the work done in shorter part will be double than that in the case of longer part.

Q.19 For equilibrium

$\mu \geq \tan\theta$

$\mu \geq \tan\alpha$

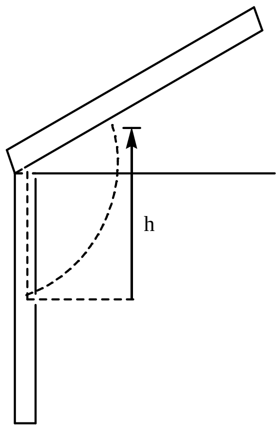
$\frac{1}{3} \geq \tan\alpha$

$\frac{1}{3} \geq \frac{1}{\cot\alpha}$

Cot α ≤3

Q.20 $TE_i = TE_f$

$\frac{1}{2}I\omega^2 = mgh$



$\frac{1}{2} \times \frac{1}{3}ml^2\omega^2 = mgh$

Or $h = \frac{1}{6}\frac{l^2\omega^2}{g}$

Q.21 Percentage error

$= \frac{\Delta V}{V} \times 100 = \left[\frac{\Delta L}{L} + \frac{2\Delta d}{d}\right] \times 100$

$= \left[\frac{0.1}{5.0} + \frac{2 \times 0.01}{2.00}\right] \times 100 = 3\%$

Q.23 W = $\vec{F}.\vec{S}$

W = R.S. $\cos 0^o$

= M(g + a) $\times S \times 1$

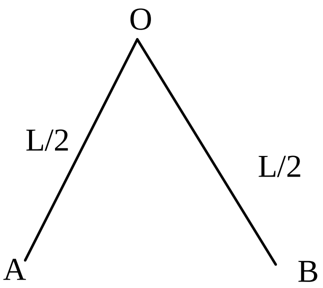
= M(g + a) $\times \left(\frac{1}{2}aT^2\right)$

Q.24 $a_t = 3$ m/s^2

$a_C = \frac{v^2}{r} = \frac{1600}{400} = 4$

$a = \sqrt{a_c^2 + a_t^2} = 5m/s^2$

Q.25



Total mass = M, total length = L

Moment of inertia of OA = OB about Q

$= MI_{total} = 2 \times \left(\frac{M}{2}\right) \times \left(\frac{L}{2}\right)^2 . \frac{1}{3} = \frac{ML^2}{12}$

Q.26 Let $\bar{c} = 3\lambda\hat{\imath} + 4\lambda\hat{\jmath}$

Now $(3\lambda)^2 + (4\lambda)^2 = 7^2 + 24^2$

$\Rightarrow \lambda = 5$

$\therefore \bar{c} = 15\hat{\imath} + 20\hat{\jmath}$

Q.27 $y = 16x\left(1 - \frac{5x}{64}\right)$

So, R = $\frac{64}{5} = 12.8\, m$

Q.28 W = $\vec{F}.\vec{S}$

$\Rightarrow (S) = \frac{W}{F} = \frac{300}{50} = 6$

S= |x| + |y| + |z|

And ∵ |x| = |y| = |z|

Final coordinate of point is (2, 2, 2)

Q.30 For pure translationary motion of object, the force should act at the centre of mass.

$Y_{CM} = \frac{m \times 2l + 2m \times l}{3m} = \frac{4l}{3}$

Q.31 $\vec{v} = |\vec{v}|\hat{v}$

$= 6\left(\frac{2\hat{\imath} + 2\hat{\jmath} - \hat{k}}{3}\right)$

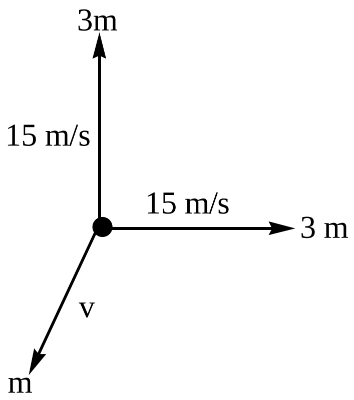
$= 4\hat{\imath} + 4\hat{\jmath} - 2\hat{k}$

Q.33 W = $(\text{Area})_1 - (\text{Area})_2$

$W = \frac{1}{2} \times (3 + 1) \times 10 - \frac{1}{2} \times (2 + 1) \times 10$

= 5 J

Q.34



$mv = \sqrt{(3m \times 15)^2 + (3m \times 15)^2}$

$mv = 45m\sqrt{2}$

$v = 45\sqrt{2}\, m/s$

Q.35 $a = \frac{g \sin\theta}{\beta} = \frac{g \sin\theta}{1 + \frac{I}{MR^2}}$

For a solid sphere: $I = \frac{2}{5}MR^2$

$\therefore a = \frac{g \sin 30°}{1 = \frac{2}{5}} = \frac{10 \times \frac{1}{2}}{\frac{7}{5}}$

$= \frac{5}{7} \times 5 = \frac{25}{7}\ m\,s^{-7}$

Q.38 The only force which can provide horizontal acceleration to m block is normal force.

W = $\Delta\, KE$

$W = \frac{1}{2}mv^2 = \frac{1}{2}m\,(at)^2 = 50J$

Q.39 $\vec{r}_{cm} = \frac{m_1\vec{r}_1 + m_2\vec{r}_2}{m_1 + m_2}$

Q.40 Required fraction

$= \frac{K_R}{K_R + R_T} = \frac{\frac{1}{2}I\omega^2}{\frac{1}{2}I\omega^2 + \frac{1}{2}Mv^2}$

$= \frac{\frac{1}{2}MR^2\omega^2}{\frac{1}{2}MR^2\omega^2 + \frac{1}{2}Mv^2}$

$= \frac{MR^2(V^2/R^2)}{MR^2(V^2/R^2) + Mv^2}$

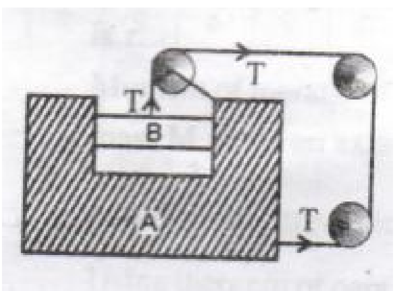
$= \frac{Mv^2}{Mv^2 + Mv^2} = \frac{1}{2}$

Q.41 s = $kt^{1/2}$

$\frac{d^2s}{dt^2} = -\frac{1}{4}kt^{-3/2}$

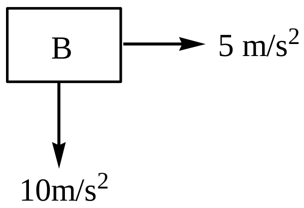
As t increases, the retardation decreases

Q.42



2T $(a_A)_x$ = T $(a_B)_y$

$(a_B)_y = 10$ m/s^2



$a_B = \sqrt{5^2 + 10^2} = 5\sqrt{5}\, m/s^2$

Q.43
$\frac{1}{2}MV^2 - Mg\frac{L}{2} =$
$-\frac{M}{2}.g.\frac{L}{4}$ $(energy\ conservation)$

Q.44 $\vec{v}_{cm} = \frac{m_1\vec{v}_1 + m_2\vec{v}_2}{m_1 + m_2}$

Q.48 For ideal solution

$\Delta H_{mix} = 0, \Delta V_{max} = 0$

Q.52 $K_P = \frac{\alpha^2}{1-\alpha^2}P \approx \alpha^2 P$

So, $\alpha \approx \sqrt{\frac{K_P}{P}}$

Q.53 pH = 2

(H^+) = 0.01 M = Cα = 0.1 × α

α = 0.1

i = 1 – α + nα

= 1 – 0.1 + 2 × 0.1

= 1.1

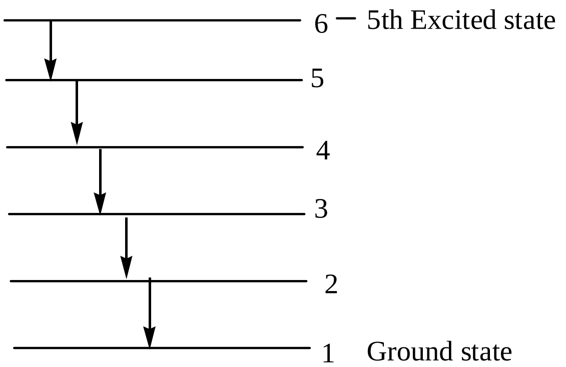
π = i× CRT

Q.58 $M_1V_1 + M_2V_2 = M_3(V_1 + V_1)$

0.1V + 0.5 ×200 = 0.25 (200 + V)

V = 333.33 ml

Q.61



Q.62 $K_p = K_c (RT)^{\Delta n}$

$\Delta n = -1$

$\therefore K_p = \frac{K_c}{RT}$

Q.65 For tetrahedral void $\longrightarrow \frac{r^+}{r^-} = 0.225$

For octahedral void $\longrightarrow \frac{r^+}{r^-} = 0.414$

Q.67 $K_c = [H_2O]^2$. Solid phases are not to be reported

Q.68 H_2O = 2 mole; CO = 1 mole

C_2H_5OH = 1 mole, N_2O_5 = 1/2 mole

Q.70 For X, $6 \times \frac{1}{8} = \frac{3}{4}$

For Y, $6 \times \frac{1}{2} = 3$

So $X_{3/4}\ Y_3$ or $X_3\ Y_{12}$ or $X\ Y_4$

Q.73

A	+2B	⟶C
5	8	0
(5 – 4)	0	4

Q.75 Equal number of cations and anions are missing

Q.78 Meq. Of $HNO_3 = 25 \times 3 = 75$

Meq. Of $HNO_3 = 75 \times 4 = 300$

$\therefore$ Total Meq. = 375

Thus 375 = N $\times$100

$\therefore$ N = 3.75

Q.83 Meq. Of metal = Meq. Of oxygen

$\frac{60}{E} = \frac{40}{8}$;

$\because$ E = 12

Q.85 For f.c.c. structure

Radius of atom $= \frac{a}{2\sqrt{2}} = \frac{361}{2\sqrt{2}} = 127.56\ pm$

Q.87 $P_{N_2} = 0.8 \times 5 = 4$ atm $= K_H . X_{N_2}$

Q.88 Given that, mass % of H_2SO_4 = 29%

i.e., 100 g solution contains 29 g H_2SO_4

Let the density of solution (in g/ mL) is d

Molarity of solution

$$= \frac{Moles\ of\ H_2SO_4}{Volume\ of\ solution\ (in\ mL)} \times 1000$$

$$= \frac{29/98}{100/d} \times 1000 = 3.60\ (\because M = 3.60)$$

Or d = 1.22 g mL^{-1}

Q.90 $r_c + r_a = \frac{\sqrt{3}a}{2}$

$\therefore r_c + r_a = \frac{\sqrt{3}\times 4.3}{2} = 3.72 Å$