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DIVISION: PRE-MEDICAL

Academic session: 2023-24

PERIODIC ASSESSMENT TEST (PAT)

STUDENT SUPPORT BOOKLET (SSB)

Answer Key (AK) | Standard Hints (SH) | Text Solutions (TS) | Weightage Sheet (WS)

CLASS	XII & XIII	COURSE NAME	SAMBHAV, SANKALP PLUS, SAMPOORN	COURSE CODE	MF, MPS, MD
PHASE CODE(S)	MF, MPS, 01MD, 02MD,03MD,04MD	TOTAL PAGES	1	BATCH CODE(S)	MF, MPS, 01MD, 02MD,03MD,04MD

Target Examination & Year:

NEET 2025

TEST PATTERN	TEST TYPE	TEST CODE & SEQUENCE
NEET	PART TEST	PT-6

DATE & DAY:
04TH February 2024 | Sunday

Duration & Time:
200 Minutes | 11:30 AM to 02:50 PM

Contents:

Scan QR Code for Video Solutions → Coming Soon

Resonance Eduventures Ltd.
Kota Study Centre & Registered Corporate Office:
CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) - 324005
Tel. No.: 0744-2777777, 2777700 | CIN: U80302RJ2007PLC024029 | www.resonance.ac.in

APPLY ONLINE

ANSWER KEY (AK)

PAPER											
PART-A : PHYSICS	Q.No.	1	2	3	4	5	6	7	8	9	10
	Ans.	2	4	2	1	1	2	4	4	1	2
	Q.No.	11	12	13	14	15	16	17	18	19	20
	Ans.	4	2	4	3	4	2	3	4	4	1
	Q.No.	21	22	23	24	25	26	27	28	29	30
	Ans.	1	2	3	3	1	1	3	1	1	3
	Q.No.	31	32	33	34	35	36	37	38	39	40
	Ans.	2	3	4	3	2	2	3	1	4	4
	Q.No.	41	42	43	44	45	46	47	48	49	50
	Ans.	2	1	4	4	2	4	4	1	1	1
PART-B : CHEMISTRY	Q.No.	51	52	53	54	55	56	57	58	59	60
	Ans.	1	3	1	1	1	1	2	1	1	2
	Q.No.	61	62	63	64	65	66	67	68	69	70
	Ans.	2	1	1	2	4	4	1	4	2	2
	Q.No.	71	72	73	74	75	76	77	78	79	80
	Ans.	3	4	4	2	3	4	1	1	2	2
	Q.No.	81	82	83	84	85	86	87	88	89	90
	Ans.	4	1	1	3	4	3	4	4	1	1
	Q.No.	91	92	93	94	95	96	97	98	99	100
	Ans.	1	1	2	2	3	3	3	3	3	1
PART-C : BIOLOGY	Q.No.	101	102	103	104	105	106	107	108	109	110
	Ans.	2	4	1	1	3	4	2	3	1	1
	Q.No.	111	112	113	114	115	116	117	118	119	120
	Ans.	1	1	1	1	4	4	3	2	4	4
	Q.No.	121	122	123	124	125	126	127	128	129	130
	Ans.	1	3	3	2	1	3	3	3	4	2
	Q.No.	131	132	133	134	135	136	137	138	139	140
	Ans.	2	4	4	3	3	2	1	1	3	4
	Q.No.	141	142	143	144	145	146	147	148	149	150
	Ans.	1	2	2	1	3	3	2	4	4	2
	Q.No.	151	152	153	154	155	156	157	158	159	160
	Ans.	3	4	2	2	2	3	1	4	1	4
	Q.No.	161	162	163	164	165	166	167	168	169	170
	Ans.	2	2	3	3	3	3	4	4	3	3
	Q.No.	171	172	173	174	175	176	177	178	179	180
	Ans.	1	3	4	1	2	2	2	3	1	4
	Q.No.	181	182	183	184	185	186	187	188	189	190
	Ans.	4	1	4	2	3	2	1	1	1	3
	Q.No.	191	192	193	194	195	196	197	198	199	200
	Ans.	1	4	4	4	3	3	3	2	3	4

STUDENT'S SPACE

TEXT SOLUTIONS (TS)

PAPER

PART-A: PHYSCIS

22. Size of image formed by a plane mirror is same as that of the object. Hence its magnification will be 1.

23. $n = \frac{360}{45} - 1 = 7$

24. In search lights, we need an intense parallel beam of light. If a source is placed at the focus of a concave spherical mirror, only paraxial rays are rendered parallel. Due to large aperture of mirror, marginal rays give a divergent beam.
But in case of parabolic mirror, when source is at the focus, beam of light produced over the entire cross-section of the mirror is a parallel beam.

25. m = ± 3 and f = – 6 cm

Now $m = \frac{f}{f-u} \Rightarrow \pm 3 = \frac{-6}{-6-u}$

For real image $-3 = \frac{-6}{-6-u} \Rightarrow u = -8\,cm$

For virtual image $3 = \frac{-6}{-6-u} \Rightarrow u = -4\,cm$

26. $\sin 45^o = \frac{1}{\mu} \Rightarrow \mu = \sqrt{2} = 1.41$

27. Total internal reflection occurs when light ray travels from denser medium to rarer medium.

28. $\mu = \frac{\sin\left(\frac{A+\delta_m}{2}\right)}{\sin(A/2)} = \frac{\sin 45^o}{\sin 30^o} = \sqrt{2}$

29. $\delta = (\mu - 1)A$

30. A lens shows opposite behaviour if $\mu_{medium} > \mu_{lens}$

31. Diamond glitters brilliantly because light enters in diamond suffers total internal reflection. All the light entering in it comes out of diamond after number of reflections and no light is absorb by it.

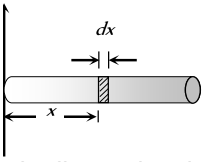
32. $P = \frac{1}{f} \Rightarrow f = \frac{1}{0.5} = 2m$

33. Number of images = (Number of materials)

34. $f_o + f_e$

35. $m = \frac{f_o}{f_e} \Rightarrow 10 = \frac{f_o}{20} \Rightarrow f_o = 200\,cm$

36.



The linear density of the rod changes with distance

$\frac{dm}{dx} = \lambda$ (Given) $\Rightarrow dm = \lambda\,dx$

position of center of mass

$x_{cm} = \frac{\int dm \times x}{\int dm}$

$= \frac{\int_0^3 (\lambda\,dx)\times x}{\int_0^3 \lambda\,dx} = \frac{\int_0^3 (2+x)\times x\,dx}{\int_2^3 (2+x)\,dx} = \frac{\left[x^2 + \frac{x^3}{3}\right]_0^3}{\left[2x + \frac{x^3}{2}\right]_0^3}$

$= \frac{9+9}{6+\frac{9}{2}} = \frac{36}{21} = \frac{12}{7}\,m$

37. In inverse ratio of masses of particles

38. As the fuel in rocket undergoes combustion, the gases so produced leave the body of the rocket with large velocity and give upthrust to the rocket. If we assume that the fuel is burnt at a constant rate, then the rate of change of momentum of the rocket will be constant. As more and more fuel gets burnt, the mass of the rocket goes on decreasing and it leads to increase of the velocity of rocket more and more rapidly.

39. Law of conservation of linear momentum is correct when no external force acts . When bullet is fired from a rifle then both should possess equal momentum but different kinetic energy. $E = \frac{P^2}{2m}$ ∴ Kinetic energy of the rifle is less than that of bullet because $E \propto 1/m$

40. Velocity of centre of mass

$V_{cm} = \frac{10\times 6 + 4\times(-10)}{10} = \frac{20}{10} = 2$ m/s

(RHS)

In frame of centre of mass

$P_{sym\ cm} = \frac{6\times 8 + 4\ \ (-12)}{10} = 0$

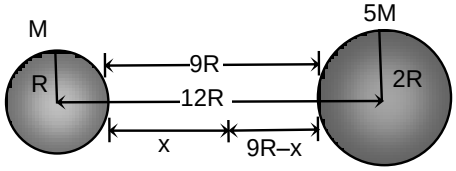
In ground frame of reference,
For A, $V_{max.}$ = 14 m/s, V_{min} = 10 m/s
For B, $V_{max.}$ = 10 m/s, V_{min} = 0 m/s

41. For a given mass $P \propto v$. If the momentum is constant then it's velocity must have constant.

42. Change in momentum = Impulse

$$\Rightarrow \Delta p = F \times \Delta t \Rightarrow \Delta t = \frac{\Delta p}{F} = \frac{125}{250} = 0.5 \text{ sec}$$

43. As the spherical bodies have their own size so the distance covered by both the body 12R – 3R = 9R , but individual distance covered by each body depends upon their masses



We know that bodies are moving under the effect of mutual attraction only, so their position of centre
of mass remains unaffected.
Let smaller body cover distance x just before collision From $m_1 r_1 = m_2 r_2$ we get

$$\Rightarrow Mx = 5M(9R - x) \Rightarrow x = 7.5R$$

44. $A \rightarrow s,t;\ B \rightarrow u;\ C \rightarrow p,q\ ;\ D \rightarrow r$

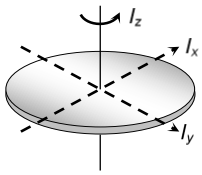
45. The acceleration of a rocket is given by

$$a = \frac{v}{m}\left(\frac{\Delta m}{\Delta t}\right) - g = \frac{400}{100}\left(\frac{5}{1}\right) - 10$$

$$= (20 - 10) = 10\ m/s^2$$

46. All of these

47.



$$I_z = I_x + I_y$$

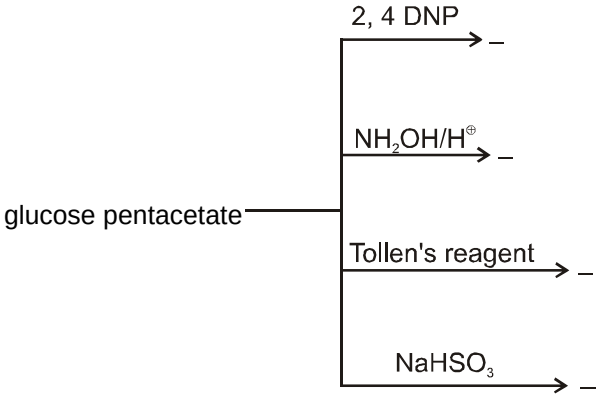
$$200 = I_D + I_D = 2I_D$$

$$\therefore I_D = 100\ gm \times cm^2$$

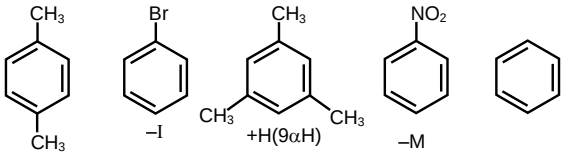
48. 43 kg-m^2

49. $4MR^2$

50. $\frac{M}{12}\left(l^2 + b^2\right)$



100.



---- TEXT SOLUTIONS (TS) END ----