ANNEXURE -A

DAV PUBLIC SCHOOLS, ODISHA

PERIODIC ASSESSMENT-II (2023-24) CLASS: X SUBJECT: MATHEMATICS

BLUE PRINT OF QUESTION PAPER

SL NO.	CHAPTERS / UNITS	MARKS ALLOTTED IN SYLLABUS	1 MARK (MCQ/A&R)	2 MARKS (SA-I)	3 MARKS (SA-II)	5MARKS (LA)	4 MARK(CBQ)	TOTAL MARKS	TOTAL NO. OF QUESTIONS
1	Real number	10	1+1AR	…..	1	1	……	10	4
2	polynomial	9	1+1AR	…..	1*	…..	1	9	4
3	Linear equation in two Variable	10	2	….	1	1*	….	10	4
4	Triangle	9	2	1*	….	1	…..	9	4
5	Circle	7	2	1	1	---	….	7	4
6	Introduction to Trigonometry	10	3	1 + 1*	1*	….	….	10	6
7	Area related to circle	7	3	…	…	….	1	7	4
8	Statistics	10	2	…	1	1*	……	10	4
9	Probability	8	2	1	…	…..	1	8	4
G.TOTAL		**80**	**20**	**5**	**6**	**4**	**3**	**80**	**38**

(*) represents alternative choice questions.

ANNEXURE -B

DAV PUBLIC SCHOOLS, ODISHA

PERIODIC ASSESSMENT-II (2023-24) CLASS: X SUBJECT: MATHEMATICS

QUESTIONWISE ANALYSIS

Q .No.	Chapters / Units	Forms of Question (MCQ, AR, SA-I , SA-II, LA, CBQ)	Marks Allotted	Typology of Questions (Knowledge (K), Understanding (U), Applications (A),Hots(H)&Skils(S)etc.)
1	Real number	MCQ	1	**Applications (A)**
2	Linear equation in two Variable	MCQ	1	**Applications (A)**
3	Triangle	MCQ	1	**Understanding (U)**
4	circle	MCQ	1	**Skills(S)**
5	Linear equation in two Variable	MCQ	1	**Applications (A)**
6	Triangle	MCQ	1	**Hots(H)**
7	Area related to circle	MCQ	1	**Knowledge (K)**
8	Statistics	MCQ	1	**Knowledge (K)**
9	polynomial	MCQ	1	**Understanding (U)**
10	circle	MCQ	1	**Skils(S)**
11	Introduction to Trigonometry	MCQ	1	**Knowledge (K)**
12	Area related to circle	MCQ	1	**Understanding (U)**
13	Area related to circle	MCQ	1	**Hots(H)**

14	Statistics	MCQ	1	**Skils(S)**
15	Probability	MCQ	1	**Applications (A)**
16	Introduction to Trigonometry	MCQ	1	**Understanding (U)**
17	Probability	MCQ	1	**Hots(H)**
18	Introduction to Trigonometry	MCQ	1	**Skils(S)**
19	Real number	AR	1	**Understanding (U)**
20	polynomial	AR	1	**Knowledge (K)**
21	Triangle	SA-I	2	**Knowledge (K)**
22	Circle	SA-I	2	**Skills(S)**
23	Introduction to Trigonometry	SA-I	2	**Understanding (U)**
24	Probability	SA-I	2	**Knowledge (K)**
25	Introduction to Trigonometry	SA-I	2	**Applications (A)**
26	Real number	SA-II	3	**Hots(H)**
27	polynomial	SA-II	3	**Knowledge (K)**
28	circle	SA-II	3	**Understanding (U)**
29	circle	SA-II	3	**Understanding (U)**
30	Introduction to Trigonometry	SA-II	3	**Knowledge (K)**
31	Statistics	SA-II	3	**Understanding (U)**
32	Real number	LA	5	**Applications (A)**

33	Triangle	LA	5	**Understanding (U)**
34	Linear equation in two Variable	LA	5	**Skills(S)**
35	statistics	LA	5	**Applications (A)**
36	polynomial	CBQ	4	**Skills(S)**
37	Probability	CBQ	4	**Applications (A)**
38	Area related to circle	CBQ	4	**Applications (A)**

ANNEXURE –C

DAV PUBLIC SCHOOLS, ODISHA

PERIODIC ASSESSMENT-II (2023-24) CLASS: X SUBJECT: MATHEMATICS

MARKING SCHEME SET-1

TIME ALLOWED: 3 HOURS MAX. MARKS: 80

Q. NO.	**VALUE POINTS**		**MARKS ALLOTTED**
1	(c) x^3y^3		1
2	(a) 3		1
3	(b) 4		1
4	(d) $\sqrt{3}$		1
5	(b) 1		1
6	(c)<B=<D		1
7	(b)8cm		1
8	(a)9		1
9	(a)-1		1
10	(a)11cm		1
11	(c)A=B=45°		1
12	(a) 8.4 cm		1
13	(a)10m		1
14	(b)24.5		1
15	(d)1/9		1
16	(b)3		1
17	(b) 1/4		1
18	(a) 0		1

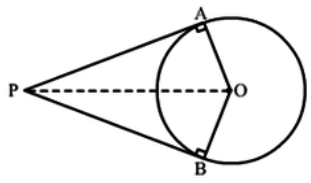
19	**(a)** Both A and R are true and R is the correct explanation of A.	1
20	**(a)** Both A and R are true and R is the correct explanation of A.	1

SEC-B

21	ΔACB~ΔADC (AA) $\frac{AC}{AD}=\frac{AB}{AC}$ $\frac{6}{3}=\frac{AB}{6}$ AB=12cm **OR** In ΔPQR, ∠1 = ∠2 ⇒ PR = PQ (In a triangle sides opposite to equal angles are equal) ΔPQS ~ ΔTQR (SAS criterion)	½ 1 ½ 1 1
22	Join OB , now in right angled ΔOMB , we have $OB^2 = 5^2+12^2=169$ OB=13cm In right ΔOBP , we have $OP^2=OB^2+BP^2$ $= 13^2+20^2=569$ OP= 23.66cm	1 1
23	$\text{Sin}\theta=\frac{a}{b}$ $\text{Cos}\theta=\sqrt{1-\frac{a^2}{b^2}}=\frac{\sqrt{b^2-a^2}}{b}$ $\text{Tan}\theta=\frac{sin\theta}{cos\theta}=\frac{a}{\sqrt{b^2-a^2}}$ **OR** $\text{Tan}\theta=\frac{3k}{4k}$ $\text{Sin}\theta=\frac{3k}{5k}=\frac{3}{5}$ $\cos\theta=\frac{4k}{5k}=\frac{4}{5}$ $\frac{1}{sin\theta}+\frac{1}{cos\theta}=\frac{5}{3}+\frac{5}{4}=\frac{35}{12}$	 1 1 1 1
24	Total outcome = 36 Possible outcome are = (1,2) , (1,3) , (1,5) , (2,1) , (3,1) , (5,1) No. of possible outcome = 6 P(E) = 6/36 = 1/6	 1 1
25	If sin x +cos y = 1 and if $x = 30^0$ and y is an acute angle, Sin 30^0+ cosy = 1 $\frac{1}{2}$ + cos y =1 Cosy = ½ Y =60^0	1 1

SEC-C

26	Let us assume that $\sqrt{5}$ is a rational number. so it can be expressed in the form of $\frac{p}{q}$, p and q are co-prime integers , q≠ 0	 1

	$\frac{p}{q}=\sqrt{5}$ $p^2=5q^2$---------(1) p^2 is a multiple of 5 P is a multiple of 5 Let p=5m $p^2=25m^2$ $5q^2=25m^2$ $q^2=5m^2$ q^2 is a multiple of 5 q is a multiple of 5 as p and q have common factor 5 ,this is a contradiction to our assumption, so $\sqrt{5}$ is not a rational number it is an irrational number	1 1
27	p(x) = x²-px-p-c α+β = p and αβ = (-p-c) (α+1)(β+1)=0 αβ+α+β+1=0 -p-c+p+1 = 0 c=1 **OR** p(x)=4x²+4x+1 α+β=$\frac{-b}{a}=\frac{-4}{4}$ = -1 αβ = $\frac{c}{a}=\frac{1}{4}$ Zeros are 2α and 2β Sum = 2(α+β) = 2(-1) = -2 Product = 2α.2β = 4αβ = 4× 1/4 = 1 Polynomial is k(x²+2x+1).	1 1 1 1 1 1
28	<A+<C=180° x+y=83 ------(1) <B+<D=180° 4x+y=182 --------(2) x=33°y=50° so <A=70°,<B=53°,<C=110°,<D=127°	1 1 1
29	 In ΔOPA and ΔOPB OA=OB(Radii) $< A =< B$ (Radius perpendicular to tangent) OP=OP (common side) $\Delta OPA \cong \Delta OPB$ $(by\ RHS\ congrunce\ rule)$ PA=PB (by CPCT)	1 1 1

30	$\frac{5sin^2 30 + cos^2 45 + 4tan^2 60}{2sin30.cos60 + tan45}$ $=\frac{5.(\frac{1}{2})^2 + \frac{1}{\sqrt{2}}^2 + 4.\sqrt{3}^2}{2.\frac{1}{2}.\frac{1}{2}+1} = \frac{55}{6}$ **OR** $\frac{1}{cot^2 30} + \frac{1}{sin^2 60} - cos^2 45$ $=\frac{1}{3}+\frac{4}{3}-\frac{1}{4}=\frac{13}{6}$	2 1 2 1
31	Modal class =40-50 Mode=l+$(\frac{f_1-f_0}{2f_1-f_0-f_2})$xh =40+$(\frac{28-12}{2.28-12-20})$x10 =40+$\frac{20}{3}$=46.666	1 1 1

SEC-D

32	$336=2^4 \times 3 \times 7$ $240=2^4 \times 3 \times 5$ $96=2^5 \times 3$ HCF of 336,240,96=48 Now number of room for participatent in mathematics =$\frac{336}{48}$=7 number of room for participatent in physics =$\frac{240}{48}$=5 number of room for participatent in biology=$\frac{96}{48}$=2 total room=7+5+2=14	1 1 1 1 1
33	For correct statement Correct proof	1 2 1

	In a trapezium ABCD AB // DC // EF, WE have to prove, $\frac{AE}{ED} = \frac{BF}{FC}$ Join AC which intersects EF at G Proof IN $\triangle CAB$, GF // AB $\therefore \frac{FC}{BF} = \frac{CG}{AG}$ (Using Thales Theorem) $\Rightarrow \frac{BF}{FC} = \frac{AG}{CG}$....(ii) (Taking reciprocals) $\triangle ADCEG$ // DC $\therefore \frac{AE}{ED} = \frac{AG}{GC}$ ....(ii)(By Thales Theorem) From (i) and (ii) we get $\frac{AE}{ED} = \frac{BF}{FC}$	1
34	Let the CP of the table be Rs x and that of the chair be Rs y. Case I: 110x + 125y = 105000 .....(i) Case II: 125x + 110y = 106500 .....(ii) From (i) and (ii), we have 235(x + y) = 211500 ⇒ x + y = 900 .....(iii) Subtracting (i) from (ii), we have 15(x − y) = 1500 ⇒ x − y = 100 .....(iv) Solving (iii) and (iv), we get x = 500 and y = 400 Thus, CP of table = Rs 500 and CP of chair = Rs 400. **OR** Let the cost of full and half first class fare be Rs. x and Rs. x/2 respectively and reservation I charges be Rs. Y per ticket. Case I The cost of one reserved first class ticket from the stations A to B= Rs 2530 ⇒ x + y = 2530 Case II The cost of one reserved first class ticket and one reserved first class half ticket from stations A to B = Rs. 3810 ⇒ 3x +4 y = 7620 ⇒ x = 2500 and y = 30 Hence, full first class fare from stations A to B is Rs. 2500 and the reservation for a ticket is Rs. 30	1 1 1 1 1 1 1 1 1
35	Correct table Median = 32.5 The median class = 30 – 40 L = 30, h = 10, f = 12, C.F = 14 + f_1 Median=L+$(\frac{\frac{n}{2}-cf}{f})\times h$ ⇒32.5=30+(20−(14+f1))/12×10 2.5×12=(6−f_1)×10 30=(6−f_1)×10	2 1

	$3=6-f_1$ $f_1=3$ Given Sum of frequencies = 40 $f_1 + 5 + 9 + 12 + f_2 + 3 + 2 = 40$ $3 + 5 + 9 + 12 + f_2 + 3 + 2 = 40$ $34 + f_2 = 40$ $f_2 = 40 - 34 = 6$ $f_1 = 3$ and $f_2 = 6$	1 1

Or

Class interval	xi	di	Fi	fidi
0-10	5	-40	3	-120
10-20	15	-30	5	-150
20-30	25	-20	7	-140
30-40	35	-10	10	-100
40-50	45	0	12	100
50-60	55	10	15	150
60-70	65	20	12	240
70-80	75	30	6	180
80-90	85	40	2	80
90-100	95	50	8	400
			$\sum fi$=80	$\sum xifi$=540

3

Mean = $a+\frac{€fidi}{€fi}$ 1

$=45+\frac{540}{80}$ =45+6.75=51.75 1

SEC-E

36	(i) parabola (ii) initially, at t = 0 ,h=48 k=48. OR	1 2

	When annie touches the pool , h=0ft $-16t^2+8t+48=0$ $\Rightarrow 2t^2-t-6=0$ => t=2 or t=-3/2(not possible) Hence, t=2second (iii) $Q(t) = k(t^2 - t - 6)$	1
37	(i)RR,RB,RG,GR,GB,GG,YR,YB,YG (ii)Rs.330 **OR** Rs. 385 (iii)1/9	1 2 1
38	(i)200mm (ii)77mm² **OR** 4 revolution (iii)20π = 62.8mm	1 2 1

ANNEXURE –C

DAV PUBLIC SCHOOLS, ODISHA

PERIODIC ASSESSMENT-II (2023-24) CLASS: X SUBJECT: MATHEMATICS

MARKING SCHEME SET-1I

TIME ALLOWED: 3 HOURS MAX. MARKS: 80

Q. NO.	**VALUE POINTS**		**MARKS ALLOTTED**
1	(a)11cm		1
2	(d) No solution		1
3	(b) 4		1
4	(c)55°		1
5	(b) 1		1
6	(c)<B=<D		1
7	(a)9		1

8	(a)-1	1
9	(a)3,140	1
10	(c)A=B=45°	1
11	(b)8cm	1
12	(a) 8.4 cm	1
13	(a)10m	1
14	(b)12	1
15	(d)1/9	1
16	(b)3	1
17	(b) 1/4	1
18	() 5/12	1
19	**(a)** Both A and R are true and R is the correct explanation of A.	1
20	**(a)** Both A and R are true and R is the correct explanation of A.	1

SEC-B

21	Q23 OF SET-1	2
22	Q21 OF SET-1	2
23	Q22 OF SET-1	2
24	SAME AS Q24 OF SET-1	2
25	$a\cos\theta+b\sin\theta=m$ $a^2\cos^2\theta+b^2\sin^2\theta+2ab\cos\theta=m^2$....(1) $a\sin\theta-b\cos\theta=n$ $a^2\sin^2\theta+b^2\cos^2\theta-2ab\cos\theta\sin\theta=n^2$....(2) Add (1) and (2) $a^2\cos^2\theta+b^2\sin^2\theta+2ab\cos\theta\sin\theta+a^2\sin^2\theta+b^2\cos^2\theta-2ab\cos\theta\sin\theta$ $=m^2+n^2$	1 1

SEC-C

26	Now, As Per Question, $x+y=10$ ---(1) $0.5x+0.25y=0.4(10)$ $\Rightarrow 0.5x+0.25(10-x)= 4$ $\Rightarrow x=6, y=4$ Therefore Required Amount of solutions of acid to make a 40% acid solution will	1 1 1

	be for 50%= 6 litres for 25%= 4litres.	
27	SAME AS Q26 OF SET-1	3
28	SAME AS Q27 OF SET-1	3
29	SAME AS Q29 SET-1	3
30	SAME AS Q30 OF SET-1	3
31	SAME AS Q31 OF SET-1	3

SEC-D

32	SAME AS Q34 OF SET-1	5
33	SAME AS Q32 OF SET-1	5
34	SAME AS Q33 OF SET-1	5
35	SAME AS Q35 OF SET-1	5

SEC-E

36	SAME AS Q36 OF SET-1	4
37	SAME AS Q37 OF SET-1	4
38	SAME AS Q38 OF SET-1	4