WvP-evsjv e¨vsK - c_g Av‡jv MwYZ Drme 2010

ঢাকা আঞ্চলিক গণিত অলিম্পিয়াড

Av‡qvRK: evsjv‡`k MwYZ Awj¤úqvW KwgwU

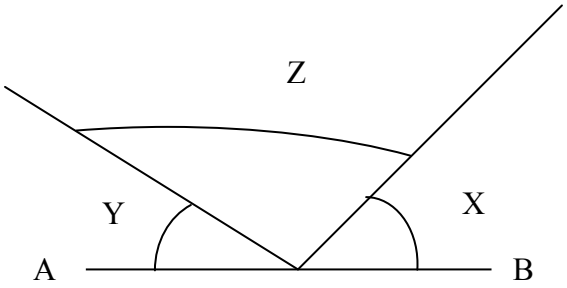
ক্যাটাগরি: প্রাইমারি (৩য়-৫ম শ্রেণী) **সময়: ১ ঘন্টা ১৫ মিনিট**

নাম(বাংলায়): **শ্রেণী(২০০৯ সাল):**

Name (In English): **Registration No:**

[এই উত্তরপত্রের নির্দিষ্ট স্থানে উত্তর লিখতে হবে। খসড়ার জন্য পৃথক কাগজ ব্যবহার করতে হবে এবং তা জমা দিতে হবে। সকল সংখ্যা ইংরেজীতে লেখা হয়েছে। সবাইকে নিজ নিজ উত্তরপত্র জমা দিতে হবে।]

bs	ck	DËi
1.	If one math book is sold from Subrata's store three roses are sold from Helal's store. If Helal sell one pen he also sell one rose. But if five pens are sold from Helal's store twenty chocolates are also sold from Subrata's store. If in one day Subrata sold sixty chocolates then how many math books were sold from his store? me‡Zi †`vKvb †_‡K GKwU MwY‡Zi eB wewµ n‡j †njv‡ji †`vKvb †_‡K wZbwU †Mvjvcdj wewµ nq| ‡njvj GKwU Kjg wewµ Ki‡j GKwU †Mvjvcdjl wewµ K‡i| wKš †njv‡ji †`vKvb †_‡K cvPwU Kjg wewµ n‡j me‡Zi †`vKvb †_‡K wekwU PK‡jU wewµ nq| †Kvb GKw`b me‡Zi †`vKvb †_‡K 60 wU PK‡jU wewµ n‡j H w`b MwY‡Zi KqwU eB wewµ n‡qwQj?	5
2.	3, 5, 7, 9, 11, 13, 15..... GB avivi c_g GKkwU c‡` KZ¸‡jv msL¨v Av‡Q hviv 6 w`‡q wefvR¨? How many of first 100 terms in the sequence 3, 5, 7, 9, 11, 13, 15..... are divisible by 6?	0
3.	300wU ev‡·i cwZ ZZxq ev‡· GKwU dj, cwZ cÂg ev‡· GKwU PK‡jU Ges cwZ `kg ev‡· GKwU eB ivLv Av‡Q| Ggb KZ¸‡jv ev· Av‡Q †h¸‡jv‡Z eB Ges GKwU dj Av‡Q wKš †Kvb PK‡jU †bB? Each third box contains a flower, each fifth box contains a candy and each tenth box contains a book. In a row of 300 boxes, how many boxes do contain a book and a flower and no candy?	0
4.	2, -3, 4, -5, 6 GB cvPwU msL¨v ‡_‡K cwZevi `BwU K‡i AsK wb‡q †gvU KqwU abvZ¥K AcKZ fMvsk ˆZwi Kiv hv‡e? How many positive improper fractions can be made using any two of the five digits 2, -3, 4,- 5, 6 at a time?	4
5.	*x, y, z* wfb wfb ‡gŠwjK msL¨v †hLv‡b $x - y = z$ Ges $z < y < x$; *z* Gi gvb¸‡jv wjL| If *x, y, z* are three different prime numbers satisfying $x - y = z$ and $z < y < x$ then what are the values z?	2
6.	‡mŠwg‡Îi Kv‡Q GKwU hv`i ev· Av‡Q| †KD G‡Z †e‡Rvo msL¨K ej XwK‡q w`‡j GUv †_‡K GKwU ej †ewk †ewi‡q Av‡m| wKš ‡Rvo msL¨K ej XwK‡q w`‡j GKwU ej ‡mLvb †_‡K Mv‡qe n‡q hvq| wgjb H ev‡· c_‡g cvPwU ej XwK‡q w`j| Gici †h ej¸‡jv †ewi‡q Avmj ‡m¸‡jv XwK‡q w`j| Gfv‡e evievi †m K‡i †h‡Z _vKj| 200 evi GiKg Kivi c‡i wgj‡bi Kv‡Q KqwU ej _vK‡e? Saumitra has a 'Magic Box'. If anyone inserts an odd number of balls in it, it returns one extra ball. But if anyone inserts an even number of balls, one ball disappears. Milon took five balls, inserted it in the box and again inserted the returned balls in the magic box. After doing this for 200 times, how many balls will be left with him?	5

bs	ck	DËi
7.	26 gvP evsjv‡`‡ki ¯vaxbZv w`em| 26/03/1971 Zvwi‡L evsjv‡`‡ki ¯vaxbZv †NvlZ nq| 26, 03 Ges 2010 Gi ¸Yd‡ji ‡gvÎvjK Drcv`K¸‡jv †_‡K †h‡Kvb `ÿwi ¸Ydj wb‡q me‡P‡q eo †h msL¨v MVb Kiv hvq †mwU KZ? 26th March is the Independence Day of Bangladesh. Independence of Bangladesh was declared on 26/03/1971. Find out the largest number that can be formed by taking multiplication of any two out of all the prime factors of the product of 26, 03 and 2010.	871
8.	Qvi‡cvKv R‡b¥i civ`b †_‡KB cwZw`b GKwU K‡i ev"Pv †`Iqv ïi K‡i| Qvi‡cvKv M‡elK wg: bv‡qj 2 ‡deqwi GKwU ev‡· m`¨ Rb¥ †blqv GKwU Qvi‡cvKv †i‡L w`‡jb| 5 ‡deqwi †k‡l H ev‡· 8 wU Qvi‡cvKv _vK‡j 7 ‡deqwi †k‡l H ev‡· KqwU Qvi‡cvKv _vK‡e? A bug starts breeding on the very next day of its birth. On 2nd February bug researcher Mr. Nayel kept a new born bug in a box. The number of bugs in that box after 5th February is 8. What is the number of bugs in that box after7th February?	32
9.	 $\angle Z = \angle X + 5^0$ Ges $\angle X = 3\angle Y$ n‡j $\angle X$ Gi cwigvc KZ? $\angle Z = \angle X + 5^0$ and $\angle X = 3\angle Y$. Then find the value of the $\angle X$.	75^0
10.	GKwU N‡i 4 Rb AwZw_ e‡m Av‡Q| G‡`i c‡Z¨‡K nq imgvjvB cQ› K‡i, bv nq ivR‡fvM cQ› K‡i| Z‡e AšÍZ GKRb ivR‡fvM cQ› K‡i| hw` †h‡Kvb `BR‡bi AšÍZ GKRb imgvjvB cQ› K‡i Zvn‡j AwZw_‡`i †gvU KZRb ivR‡fvM cQ› K‡i? 4 visitors are sitting in a room. Each one likes *ROSMALAI* or *RAJVOG*. At least one likes *RAJVOG*. Given that between any two students at least one likes *ROSMALAI*. How many visitors like *RAJVOG*?	1
11.	hw` *a* Ges *b* DfqB we‡Rvo msL¨v nq wb‡Pi †KvbwU Aek¨B we‡Rvo n‡e? If *a* and *b* are both odd numbers, which of the following must be an odd integer? *i)* $(a + b)^2 - 5$ *ii)* $3a^2 + 5b^2$ *iii)* $a^2 - (b + 2)^2$ *iv)* $(a - b^2 + 1) - 9b$ *v)* $(a + 3) \times (b + 4) - 2$	*i)* $(a + b)^2 - 5$
12.	MÖYZ Aÿwú¤úqv‡W gfv‡mi GKwU `j‡K mgvb m`m¨ wewkó 25wU `‡j fvM Kiv hvq, Avevi mgvb m`m¨ wewkó 35 wU `‡j fvM Kiv hvq| H `j †_‡K K‡qKRb‡K ev` w`‡j ewK‡`i‡K mgvb m`m¨ wewkó 15wU `‡j fvM Kiv hvq, Avevi mgvb m`m¨ wewkó 23 wU `‡j fvM Kiv hvq| b¨bZg KZ Rb‡K ev` †`Iqv n‡qwQj? A group of MOVers can be divided into 25 teams with an equal number of MOVers in each team or into 35 teams with an equal number of MOVers in each team. If some of the MOVers were left out, rest of them could be arranged in groups with 15 members in each and 23 members in each as well. What was the minimum number of left out MOVers ?	5

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ঢাকা আঞ্চলিক গণিত অলিম্পিয়াড

Av‡qvRK: evsjv‡`k MwYZ Awj¤úqvW KwgwU

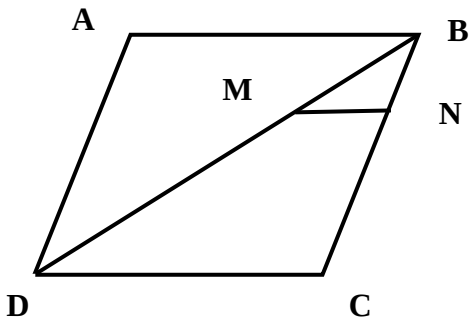
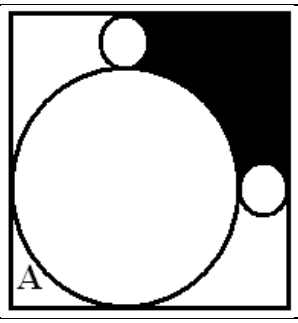
ক্যাটাগরি: জুনিয়র (৬ষ্ঠ-৮ম শ্রেণী) **সময়: ১ ঘন্টা ১৫ মিনিট**

নাম(বাংলায়): **শ্রেণী(২০০৯ সাল):**

Name (In English): **Registration No:**

[এই উত্তরপত্রের নির্দিষ্ট স্থানে উত্তর লিখতে হবে। খসড়ার জন্য পৃথক কাগজ ব্যবহার করতে হবে এবং তা জমা দিতে হবে। সকল সংখ্যা ইংরেজীতে লেখা হয়েছে। সবাইকে নিজ নিজ উত্তরপত্র জমা দিতে হবে।]

bs	ck	DËi
1.	MwYZ Awj¤úqv‡W gfv‡mi GKwU `j‡K mgvb m`m¨ wewkó 25wU `‡j fvM Kiv hvq, Avevi mgvb m`m¨ wewkó 35 wU `‡j I fvM Kiv hvq| H `j †_‡K K‡qKRb‡K ev` w`‡j ewK‡`i‡K mgvb m`m¨ wewkó 15wU `‡j fvM Kiv hvq, Avevi mgvb m`m¨ wewkó 23 wU `‡j I fvM Kiv hvq| b¨bZg KZ Rb‡K ev` †`Iqv n‡qwQj? A group of MOVers can be divided into 25 teams with an equal number of MOVers in each team or into 35 teams with an equal number of MOVers in each team. If some of the MOVers were left out, rest of them could be arranged in groups with 15 members in each and 23 members in each as well. What was the minimum number of left out MOVers ?	5
2.	Pvi A‡¼i †h KqwU msL¨v Av‡Q hv‡`i †_‡K 6 we‡qvM Ki‡j Zv 6 w`‡q, 12 we‡qvM Ki‡j Zv 12 w`‡q, 13 we‡qvM Ki‡j Zv 13 w`‡q, 19 we‡qvM Ki‡j Zv 19 w`‡q, 26 we‡qvM Ki‡j Zv 26 w`‡q Ges 38 we‡qvM Ki‡j Zv 38 w`‡q fvM hvq †m msL¨v¸wj wbYq Ki| Find all the 4-digit numbers which are divisible by 6, 12, 13, 19, 26 and 38 if 6, 12, 13, 19, 26 and 38 are subtracted from the numbers respectively.	2964, 5928, 8892
3.	egeg ¯‹vDU‡`i m‡¤§j‡b wM‡q‡Q| †mLv‡b c‡Z¨K ¯‹vDU Ab¨ mevi mv‡_ Kig`b Kivi K_v| ‡KD †KD Avevi Kig`b K‡iwb| me‡gvU Kig`‡bi msL¨v 8 n‡j mewbg KZM‡jv Kig`b nqwb? Boomboom joined Scout Jamboree. Every scout was said to handshake with each other. Some of them did not do. The total number of handshakes was 2. Find the minimum number of handshakes which were not done?	2
4.	$1 + 5 + 6 = 2 + 3 + 7$; $1^2 + 5^2 + 6^2 = 2^2 + 3^2 + 7^2$ $2 + 6 + 7 = a + b + c$; $2^2 + 6^2 + 7^2 = a^2 + b^2 + c^2$. a, b, c=?	3, 4, 8
5.	Wvg X Gi A‡aK †Zj w`‡q cY| Wvg Y Gi g‡a¨ X Gi wØ¸Y †Zj a‡i Ges eZgv‡b †mwUi `B ZZxqvsk †Zj w`‡q cY| X Gi me †Zj Y G †X‡j w`‡j Gi KZ Ask AcY _vK‡e? Drum X is half full of oil and drum Y, which has twice the capacity of drum X, is two third full of oil. If all of the oil in drum X is poured into drum, then drum Y will be unfilled to what fraction of its capacity?	$^{11}/_{12}$
6.	$2x + z = 2y$ Ges $4x + 2y + 2z = 42$ n‡j y Gi gvb wbYq Ki| If $2x+z=2y$ and $4x + 2y + 2z = 42$, what is the value of y?	7
7.	Ggb †gŠwjK msL¨v N wbYq Ki †hb N+1 GKwU eM msL¨v nq| Find the prime numbers N for which N+1 is a perfect square.	3

bs	ck	DËi
8.	 ABCD GKwU mvgvšÍiwiK Ges DC I MN ci¯úi mgvšÍivj| BN= $\frac{1}{3}$ BC| Δ BNM I □ ABCD Gi ক্ষেত্রফলের AbcvZ KZ? ABCD is a parallelogram and MN is parallel to to DC. The length of BN is 1/3 of the length of BC. What is the ratio of the area of triangle BNM to the area of the parallelogram ABCD?	$\frac{1}{18}$
9.	 wP‡Îi eM‡¶ÎwUi †¶Îdj 49, **A** As‡ki †¶Îdj $9(1-\frac{\pi}{4})$	Kv‡jv AskwUi †¶Îdj KZ? The area of the square is 49, Area of the region **A** is $9(1-\frac{\pi}{4})$ Find the area of the dark region	$(16-\frac{5\pi}{2})$
10.	`wU msL¨vi mgwó 2 Ges ¸Ydj 3 n‡j msL¨v`wUi wecixZ msL¨vi mgwó KZ? [mvnvh¨: x Gi wecixZ msL¨v $\frac{1}{x}$] Sum of two numbers is 2 and their product is 3. Find the sum of the reciprocal of the numbers. [Hint: Reciprocal of x is $\frac{1}{x}$]	$\frac{2}{3}$
11.	1 †_‡K 13 chšÍ msL¨v¸‡jvi ¸Yd‡j †gvU KZ¸‡jv wfb †gŠwjK Drcv`K Av‡Q? How many distinct prime factors are there in the product of the integers from 1 to 13 inclusive?	6
12.	¸ej cwZw`b UvKvi ev‡· Av‡Mi `B w`‡bi mgvb cwigvb UvKv Rgv K‡i| c_g `B w`b ¸ej 1 UvKv K‡i ev‡· ‡i‡LwQj| Aóg w`b †k‡l ¸eji ev‡· †gvU KZ UvKv Rgv nj? ¸ej cwZw`b M‡o KZ UvKv K‡i Rgvj? Everyday Gublu saves money in her money bank. Every day he saves as much as he saved in last two days. Gublu saved taka 1 on first two days. What will be the total amount of money in his bank after eight days? What is the average amount of money that he saved every day?	54; $^{54}/_{8}$=6.75

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ঢাকা আঞ্চলিক গণিত অলিম্পিয়াড

Av‡qvRK: evsjv‡`k MwYZ Awj¤úqvW KwgwU

ক্যাটাগরি: সেকেন্ডারি(৯ম-১০ম শ্রেণী) **সময়: ১ ঘন্টা ১৫ মিনিট**

নাম(বাংলায়) **শ্রেণী(২০০৯ সাল):**

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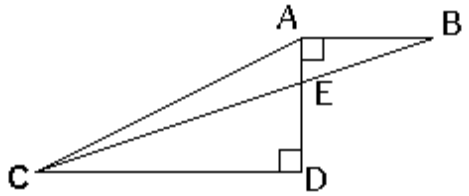
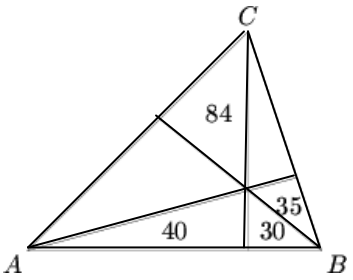
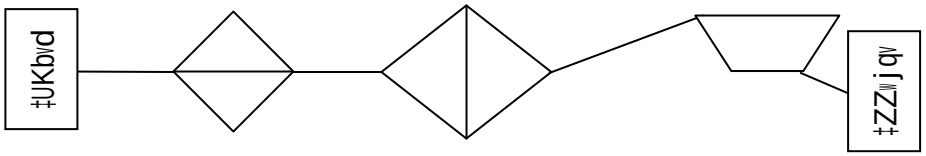
[এই উত্তরপত্রের নির্দিষ্ট স্থানে উত্তর লিখতে হবে। খসড়ার জন্য পৃথক কাগজ ব্যবহার করতে হবে এবং তা জমা দিতে হবে। সকল সংখ্যা ইংরেজীতে লেখা হয়েছে। সবাইকে নিজ নিজ উত্তরপত্র জমা দিতে হবে।]

bs	ck	DËi
1.	`wU msL¨vi mgwó 2 Ges ¸Ydj 3 n‡j msL¨v`wUi wecixZ msL¨vi mgwó KZ? [mvnvh¨: x Gi wecixZ msL¨v $\frac{1}{x}$] Sum of two numbers is 2 and their product is 3. Find the sum of the reciprocal of the numbers. [Hint: Reciprocal of x is $\frac{1}{x}$]	$\frac{2}{3}$
2.	$2^{1024} + 5^{1024} + 1$ †K 9 Øviv fvM Ki‡j KZ Aewkó _vK‡e? What is the remainder when $2^{1024} + 5^{1024} + 1$ is divided by 9?	0
3.	N Ges P, 1 Gi †P‡q eo †Kvb cYmsL¨v| P, N+4 Ges N+14 Gi Drcv`K| P Gi gvb¸‡jv wbYq Ki? If N and P are integers greater than 1 and if P is a factor of both N+4 and N+14, what are the values of P?	2, 5,10
4.	4wU wfb msL¨v‡K Ggb KZfv‡e ‡jLv †h‡Z cv‡i †hb Zviv eo †_‡K †QvU wKsev †QvU †_‡K eo AvKv‡i wjLv _vK‡e bv? In how many ways can four different numbers be arranged so that they are not arranged in increasing or decreasing order?	4!-2=22
5.	x Le Le Le †QvU n‡j $\sin x \approx x$ n‡q _v‡K| GKwU Acv‡iUi S_n msÁwqZ Kiv nj †hb $S_n(x)$= sin sin sin .... x nq (GLv‡b n msL¨K sin Av‡Q)| n Gi gvb h‡_ô eo n‡j $S_n(x) \approx S_{n-1}(x)$ nq| †m‡¶‡Î cos ($S_n(x)$) Gi gvb wbKUZg gj` msL¨vq cKvk Ki| If x is very very very small $\sin x \approx x$. An operator S_n is defined such that $S_n(x)$= sin sin sin .... x (a total of n sin operators are included here). For sufficiently large n, $S_n(x) \approx S_{n-1}(x)$. In that case, express cos ($S_n(x)$) as the nearest rational value.	1
6.	Ggb KqwU †gŠwjK msL¨v N Av‡Q †hb N+1 GKwU eM msL¨v nq| For how many prime numbers N for which N+1 is a perfect square.	1
7.	 wP‡Î AD = 4, AB = 3 Ges CD = 9| Δ AEC Gi ক্ষেত্রফল KZ? In the figure above AD = 4, AB = 3 and CD = 9. What is the area of triangle Δ AEC?	4.5

bs	ck	DËi
8.	Φ:A→A, A = {0,1,2,...} GKwU dvskb †hvU‡K msÁvwqZ Kiv n‡q‡Q Gfv‡e: $\Phi(x) = 0$ x GKwU †gŠwjK msL¨v $= \Phi(x-1)$; x GKwU †gŠwjK msL¨v bq| $\sum_{x=1}^{x=2010}\Phi(x)$ Gi gvb KZ? Assume, Φ:A→A, A = {0,1,2,...} is a function, which is defined as, $\Phi(x) = 0$ if x is a prime $= \Phi(x-1)$ if x is not a prime. Find $\sum_{x=1}^{x=2010}\Phi(x)$	0
9.	 As shown in the figure, triangle ABC is divided into six smaller triangles by lines drawn from the vertices through a common interior point. The areas of four of these triangles are as indicated. Find the area of triangle ABC. wb‡Pi wP‡Î ΔABC Gi kxl©q n‡Z AvKv wZbwU mgwe›`Mvgx †iLv Øviv mó QqwU †QvU wÎf‡Ri gv‡S Pviwi †¶Îdj †`Lv‡bv Av‡Q| ΔABC Gi †¶Îdj KZ?	315
10.	GKwU e‡Mi wZbwU evûi Dci wZbwU K‡i we›` †bIqv nj| Ab¨ evûwUi Dci KZ¸‡jv we›` wbevPb Ki‡j H we›`¸‡jv w`‡q †gvU 45 wU mij‡iLvsk AvKv hv‡e? Three points are taken on each of any three sides of a square. What is the total number of points taken on the other side given that a total of 45 distinct straight lines can be drawn using these points?	2
11.	 mij‡iLv Øviv GB Qwe‡Z †UKbvd t_‡K †ZZwjqv hvIqvi mKj c_ †`Lv‡bv n‡q‡Q| Rbve Bewmg Lwjjlah bex †UKbvd t_‡K †ZZwjqv hv‡e, †mLv‡b wM‡q †m GKwU iwUi UKiv ci¯vi wn‡m‡e cv‡e| cwZevi hvIqvi mgq GKB RvqMvq `Bevi bv G‡m †m †gvU KZfv‡e †UKbvd t_‡K †ZZwjqv †h‡Z cvi‡e? The diagram above shows the various paths along which Mr. Ibrahim Khalilullah Nobi can travel from point Teknaf, where it is released, to point Tetulia, where it is rewarded with a food pellet. How many different paths from Teknaf to Tetulia can Nobi take if it goes directly from Teknaf to Tetulia without retracting any point along a path?	24
12.	1 t_‡K 300 chš Í Ggb KqwU cYmsL¨v Av‡Q hv 2 wKsev 3 Gi ¸wYZK wKš 8 Gi ¸wYZK bq? From 1 to 300, how many integers are multiples of 2 or 3 but not of 8?	163

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Av‡qvRK: evsjv‡`k MwYZ Awj¤úqvW KwgwU

ক্যাটাগরি: হায়ার সেকেন্ডারি (একাদশ-দ্বাদশ-এইচএসসি) **সময়: ১ ঘন্টা ১৫ মিনিট**

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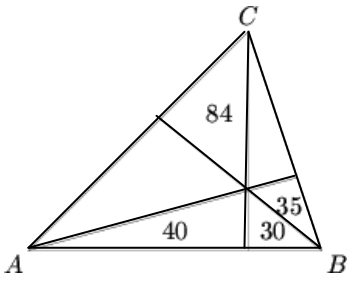
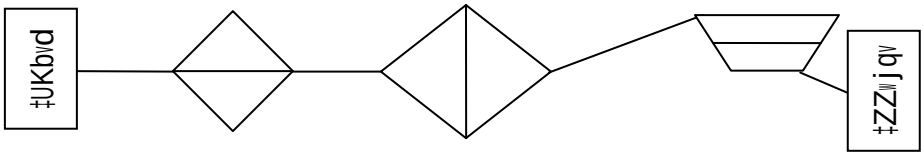
[এই উত্তরপত্রের নির্দিষ্ট স্থানে উত্তর লিখতে হবে। খসড়ার জন্য পৃথক কাগজ ব্যবহার করতে হবে এবং তা জমা দিতে হবে। সকল সংখ্যা ইংরেজীতে লেখা হয়েছে। সবাইকে নিজ নিজ উত্তরপত্র জমা দিতে হবে।]

bs	ck	DËi
1.	Φ:A→A, A = {0,1,2,...} GKwU dvskb †hvU‡K msÁvwqZ Kiv n‡q‡Q Gfv‡e: $\Phi(x) = 0$ x GKwU †gŠwjK msL¨v $= \Phi(x-1)$; x GKwU †gŠwjK msL¨v bq| $\sum_{x=1}^{x=2010}\Phi(x)$ Gi gvb KZ? Assume, Φ:A→A, A = {0,1,2,...} is a function, which is defined as, $\Phi(x) = 0$ if x is a prime $= \Phi(x-1)$ if x is not a prime. Find $\sum_{x=1}^{x=2010}\Phi(x)$	0
2.	 As shown in the figure, triangle ABC is divided into six smaller triangles by lines drawn from the vertices through a common interior point. The areas of four of these triangles are as indicated. Find the area of triangle ABC. wb‡Pi wP‡Î ΔABC Gi kxl Îq n‡Z AvKv wZbwU mgwe›`Mvgx †iLv Øviv mó QqwU †QvU wÎf‡Ri gv‡S PviwUi †¶Îdj †`Lv‡bv Av‡Q| ΔABC Gi †¶Îdj KZ?	315
3.	x Le Le Le †QvU n‡j $\sin x \approx x$ n‡q _v‡K| GKwU Acv‡iUi S_n msÁvwqZ Kiv nj †hb $S_n(x)$= sin sin sin .... x nq (GLv‡b n msL¨K sin Av‡Q)| n Gi gvb h‡_ô eo n‡j $S_n(x) \approx S_{n-1}(x)$ nq| †m‡¶‡Î cos ($S_n(x)$) Gi gvb wbKUZg gj` msL¨vq cKvk Ki| If x is very very very small $\sin x \approx x$. An operator S_n is defined such that $S_n(x)$= sin sin sin .... x (a total of n sin operators are included here). For sufficiently large n, $S_n(x) \approx S_{n-1}(x)$. In that case, express cos ($S_n(x)$) as the nearest rational value.	1
4.	1 †_‡K 1000 chšÍ Ggb KqwU cYmsL¨v Av‡Q hv 3 wKsev 6 Gi ¸wYZK wKš 5 Gi ¸wYZK bq? From 1 to 1000, how many integers are multiples of 3 or 6 but not of 5?	378
5.	5 Gi †P‡q eo Ggb mKj †gŠwjK msL¨v wbYq Ki hviv $11x^{36} - 21x^{10} + 26\ x^2 = 48$ mgxKiY‡K wm× K‡i? Find primes greater than 5 satisfying the equation: $11x^{36} - 21x^{10} + 26\ x^2 = 48$	No primes exist
6.	$2^{1024} + 5^{1024}$ †K 3 Øviv fvM Ki‡j KZ Aewkó _vK‡e? What is the remainder when $2^{1024} + 5^{1024}$ is divided by 3?	2

bs	ck	DËi
7.	egeg ¯‹vDU‡`i m‡¤§j‡b wM‡q‡Q| †mLv‡b c‡Z¨K ¯‹vDU Ab¨ mevi mv‡_ Kig`b Kivi K_v| ‡KD †KD Avevi Kig`b K‡iwb| me‡gvU Kig`‡bi msL¨v 7 n‡j mewbg KZM‡jv Kig`b nqwb? Boomboom joined Scout Jamboree. Every scout was said to handshake with each other. Some of them did not do. The total number of handshakes was 7. Find the minimum number of handshakes which were not done?	3
8.	N Ges P, 1 Gi †P‡q eo †Kvb cYmsL¨v| P, N+4 Ges N+12 Gi Drcv`K| P Gi gvb¸‡jv wbYq Ki? If N and P are integers greater than 1 and if P is a factor of both N+4 and N+12, what are the values of P?	2, 4, 8
9.	1, 2, 3, 4, 5 AsK¸‡jv †_‡K †h‡Kvb wZbwU K‡i wb‡q Ggb KZ¸‡jv msL¨v MVb Kiv nj †hb cwZwU msL¨v‡ZB AsK¸‡jv ‡QvU †_‡K eo A_ev AvKv‡i mvRv‡bv _v‡K| †gvU KZ¸‡jv msL¨v nj? `B †¶‡Î ˆZwi nIqv msL¨v¸‡jvi gv‡S GKwU K‡i msL¨v wbevPb Kiv nj †hb Zv‡`i †hvMdj m‡ev”P nq| †mB †hvMdj KZ? Out of the digits 1, 2, 3, 4, 5, three are chosen to form numbers so that their digits are either in increasing or decreasing order. What is the total number of numbers formed? If one number is chosen from each category so that the sum of those two numbers is maximum, what is that sum?	40, 888
10.	 mij‡iLv Øviv GB Qwe‡Z †UKbvd †_‡K †ZZwjqv hvIqvi mKj c_ †`Lv‡bv n‡q‡Q| Rbve Bewmg Lwjjbxh bex †UKbvd †_‡K †ZZwjqv hv‡e, †mLv‡b wM‡q †m GKwU iwUi UKiv ci¯‹vi wn‡m‡e cv‡e| cwZevi hvIqvi mgq GKB RvqMvq `Bevi bv G‡m †m †gvU KZfv‡e †UKbvd †_‡K †ZZwjqv †h‡Z cvi‡e? The diagram above shows the various paths along which Mr. Ibrahim Khalilullah Nobi can travel from point Teknaf, where it is released, to point Tetulia, where it is rewarded with a food pellet. How many different paths from Teknaf to Tetulia can Nobi take if it goes directly from Teknaf to Tetulia without retracting any point along a path?	48
11.	GKwU m f‡Ri cwZwU evûi Dci n wU K‡i we›` †bIqv nj| H we›`¸‡jv w`‡q †gvU KZ¸‡jv mij‡iLvsk AvKv hv‡e?(m f‡Ri evû¸‡jv Qvov) n points are taken on each side of a regular m gon. What is the total number of straight lines that can be drawn using all those points?(except the sides of m gon)	${}^{m}C_2 \times n^2$ $= \frac{m(m-1)n^2}{2}$
12.	$\frac{x+2}{8}$, 2 Gi †P‡q eo GKwU cYmsL¨v| x ‡K 8 Øviv fvM Ki‡j KZ Aewkó _vK‡e? If $\frac{x+2}{8}$ is an integer greater than 2, find the remainder when x is divided by 8.	6