**PABSON, Kathmandu**

**MID TERM EXAM-2080**

**Subject: Compulsory Mathematics** Full Marks: 75

Class: 10 Time: 3 hours.

***Candidates are required to write their answers according to the instructions given.***

***Attempt all questions***.

1. 64 students in grade X are preparing for SEE in a school. Among them, 28 students are taking math additional class, some of them are taking science class,12 students taking math and science both class and 25% of students are not taking any additional classes.

a) If M and S be the set of students who want to take math and science additional class respectively, write cardinality notation to represent who like to take only one subject. [1]

b) Represent above information in Venn diagram. [1]

c) How many students are taking science additional class? Calculate. [3]

d) If the School collects Rs.500 per person monthly from the additional class’s students, how much amount will be collected in a month? [1]

2. Sulakshyana is planning to build a new house at Kathmandu. For this purpose, she wants to borrow Rs 10,00,000 loan for two years. The interest rates home loans of two financial institutions are as follows.

Provident Fund: 9% annual interest.

Rastriya Banijya Bank: 8% semi-annual interest.

a) Find the compound amount of ‘T’ years of Rs ‘P’ at ‘R’% quarterly interest rates. [1]

b) From which institution does she borrow the loan? Give reason with your calculation. [3]

c) If Sulakshyana will manage Rs.12,00,000 to clear the debt after 2 years, is it sufficient amount ? [1]

3. The population of a town increases every year by 10%. At the end of 2078, the population of the town was 30,000.

a) If ‘P’ be the initial population, ‘R’ be the growth rate and ‘T’ be time and what does $P\left(1+\frac{R}{100}\right)^{T}-P$ denote for? [1]

b) What would be the population of town at end of 2080 B.S.?

 [1]

c) If the population of 30,000 at end of 2078 includes 5800 population by in-migrants, find the population of end of 2076. [2]

4. Sagar purchased a car for Rs. 90,00,000 and land for Rs. 2,10,00,000. For 2 years, the price of the car has been decreasing at a compound rate of 5% per annum, while the price of land has been increasing at a certain compound rate.

a) Write the formula to find out the compound depreciation. [1]

b) What will be the price of a car after two years? Calculate. [1]

c) After 2 years the total value of car and land is Rs.3,73,62,900, what is the increase compound rate in the price of land? Calculate. [2]

5. Ansuna Nepal is planning to travel USA for CA course. She exchanged US $ 4,000 for her abroad study. The buying and selling rate of 1 US$ of Nepal Rastra Bank are Rs. 130.94 and Rs. 131.5 respectively.

a) At what rate did she buy US dollar? [1]

b) Find the exchange rate of Nepali currency after devaluation by 10%. [2]

c) If she cancelled her travel and again exchanged US dollars to Nepali rupee, how much did she gain or loss? [2]

6. There is a pillar with the base 6ft$×$6ft and height 8ft. A pyramid of height 4ft is placed on the top of the pillar.

a) Find the formula to find area of triangular faces. [1]

b) Find the slant height of pyramid. [1]

c) Find the cost of painting on pillar and pyramid of its’ faces at the rate of Rs.95 per square feet$.$ [2]

7. A birthday hat with conical shape is designed with circumference of base 44 cm and vertical height of 24 cm. A piece of elastic is attached along its diameter.

a) How long is the elastic? [1]

b) Find area of paper to make hat. [2]

c) How much cubic centimeters of air does it hold? [2]

8. In the given solid the upper part is a pyramid has a slant height 5cm and lower part is a prism of a side 8cm. If the volume of the solid is 448 cm3,

a) Find the volume of the prism. [2]

b) Find the height of solid. [2]

9. Agrima Dhungel is working in a company and her saving of last five months are given below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Baishakh | Jestha | Ashad | Shrawan | Bhadra |
| Rs. 200 | Rs 400 | Rs 800 | Rs 1600 | Rs 3200 |

a) Which sequence does the saving of Agrima denote? [1]

b) If her saving continues in same order in the coming months, what will be her total saving till the month of Mangsir month? [2]

c) Is it possible to save a total of Rs. 1,00,000 upto Poush? Write with reason. [2]

10. a) If aP=aX, then express $x$ in terms of m, n and p.[1]

b) If $x^{a}=y^{b}=z^{c}$and $y^{3}=xz,$ prove that $\frac{3}{b}=\frac{1}{a}+\frac{1}{c}$ [2]

c) Solve: $4^{x}-6×2^{x+1}+32=0 $ [3]

11. a) What value of y makes the expressions $\frac{x^{2}y}{2x-y}$ undefined? [1]

b) Simplify: $\frac{1}{x-1}-\frac{x}{x^{2}-1}-\frac{x^{2}}{x^{4}-1}$ [3]

12. In the figure alongside, parallelogram ABCD and $∆$DCE are on the same base DC and between same parallel lines CD and AE.

a) What is the relation between $∆DCE and ∆DCB$ ? [1]

b) If the area of $∆$ DCB is 15cm2, find the area of parallelogram ABCD. [1]

c) Prove that area of parallelogram is twice the triangle on the same base and between same parallel lines. [2]

13. O is the center of a circle. Central angle $∡ MON$ and inscribe angle $∡MAN $are standing on the same arc MN.

a) What is the relation between the central angle $∡ MON$and inscribed angle $∡MAN$ ? [1]

b) If inscribed angle and central angle on the MN arc are (7x)0 and (5x+18)0, find the actual value of $∡ MON$. [2]

c) Verify experimentally the relationship between the central angle $∡ MON$ and inscribed angle $∡MAN. $(At least two circles with radii more than 3 cm are necessary) [2]

14. In the given figure, O is the center of the circle, PQ the diameter and arc QR=arc RS.

a) Prove that: $PS ∥OR$. [2]

b) If the area of $∆$POR is 5 cm2, find the area $∆$SOR. [1]

15. A pillar AB is fixed at the center of circular pond. The circumference of pond is 88 m. A bird looks a man standing on the bank of pond and finds the angle $60^{0}.$



a) What is called $∡CAE$ ? [1]

b) Find the radius of the pond. [1]

c) What is the height of pole above the water level? [1]

d) If the bird changes its place 12.04 meter below top of pillar, how many more or less will angle of elevation be while observing the bird? [2]

16. The lower quartile of data given below is 25.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50 and above |
| No of students | 9 | 11 | $$x$$ | 20 | 30 | 16 |

a) What is determined by using formula . [1]

b) What is lower quartile class of above data? [1]

c) Find the value of $x$. [2]

d) If students’ scores less than 40 marks are marked as non- graded, find percentages of non-graded students. [2]

**PABSON, Kathmandu**

**MID TERMINAL EXAM-2080**

**Subject: Compulsory English** Full Marks: 75

Class: 10 Time: 3 hours.

***Candidates are required to write their answers according to the instructions given.***

***Attempt all questions*.**

**1. Read the given poem and do as directed. 5**

High up in the apple tree climbing I go,

With the sky above me, the earth below.

Each branch is the step of a wonderful stair

Which leads to the town I see shining up there.

Climbing, climbing, higher and higher,

The branches blow and I see a spire,

The gleam of a turret, the glint of a dome,

All sparkling and bright, like white sea foam.

On and on, from bough to bough,

The leaves are thick, but I push my way through;

Before, I have always had to stop,

But to-day I am sure I shall reach the top.

Today to the end of the marvelous stair,

Where those glittering pinnacles flash in the air!

Climbing, climbing, higher I go,

With the sky close above me, the earth far below.

* Amy Lowell

**A. Fill in the gaps with correct information from the above poem. 5x1=5**

a) The poem is composed by \_\_\_\_\_\_\_\_\_\_\_\_\_.

b) The speaker is climbing up the \_\_\_\_\_\_\_\_\_\_\_\_.

c) The climber is determined to reach to \_\_\_\_\_\_\_ the apple tree.

d) Despite the thick leaves the speaker\_\_\_\_\_\_\_\_\_\_\_\_.

e) When she reaches at the top of the trees, she sees the \_\_\_\_\_\_ far below.

**2. Read the following text and do as directed. 10**

|  |
| --- |
| Pratap Malla was one of the most famous kings of Malla Dynasty. He constructed some magnificent and beautiful architectural structure around Kathmandu. The way he came to the throne is very interesting and controversial at the same time. He had the experience of administration even when his father was alive. When his father Laxmi Nara Singh’s madness grew worse, he imprisoned his father and he himself ruled as a regent of his father in Kantipur.He was an able administrator. Kantipur was highly developed during his reign. Trade with Lhasa (Tibet) was also going on well. By his tact he was making the kings of Lalitpur and Bhaktapur play against each other. Sometimes he sided with Bhaktapur and posed a threat to Lalitpur. On other occasions, he aligned with Lalitpur and fell upon Bhaktapur.Pratap Malla was a religious-minded person. He built a beautiful temple at Guhyeshwari and fenced it. He renovated the temple of Pashupatinath and raised a pinnacle over it. At Swayambhu he built Pratappur, Kabeendrapur and many other temples and also set up copper gilt ‘Bajra’. He also renovated the temples of Basuki Bhinsen, Taleju, and Degutale. With the view to warding off evils, he erected an image of Hanuman, the monkey god, by the side of his palace gate and called the palace Hanumandhoka. He erected the golden gate of the palace, set up an image of Nri Simha, Kal Bhairab, and Vishwaroop at Layaku Buhi. Inside the palace, he also set up Sundari Chowk and Mohan Chowk. A pond was dug at Bhandarkhal and filled with water brought from Budhanilakantha. He installed an image of Narayan lying in the pond, an exact replica from Budhanilakantha Temple. |

**A. Put the following sentences in the correct order. 5x1=5**

a) The trade with Lhasa flourished well during the reign of Pratap Malla.

b) He made and renovated many temples.

c) He was popular as an able administrator.

d) Hanumandhoka was his palace.

e) Pratap Malla’s rule was both interesting and controversial.

**B. Answer the following questions. 5x1=5**

a) Who was Pratap Malla?

b) How was Kantipur during his rule?

c) What did he build at Swayambhu?

d) How did he improve Hanumandhoka Palace?

e) Where did he bring water in the Bhandarkhal pond he had dug?

**3. Read the given piece of letter and do the tasks that follow. 10**

|  |
| --- |
| New Road, Kathmandu12th June 2022The Human Resource ManagerNational College, Bal Kumari, Lalitpur.Dear Sir,With reference to the advertisement published on 10 June 2022 in ‘The Kathmandu Post’, I wish to apply for the post of ‘A Student Counsellor’ that has fallen vacant in your college. Please find enclosed a copy of my C.V. here with.As you will see from my enclosed CV, I am a man of forty with a sound state of health. I have passed my Master’s degree with Psychology major from Trichandra Campus with good marks. In addition to my academic qualification, I have extensive experience in the field of counselling. I have worked in Nepal Ideal Campus as a counsellor for five years. I am responsible for motivating the students and treating them psychologically.I am committed to pursuing a career in counselling. As the previous student of the college, I would like to serve there too. I’m perfectly interested in your post as it will enrich my knowledge and experience so far I gained. Moreover, I want to be the part of your dynamic staff. In addition to my study, skills and experience as a counsellor, I would bring to the post a proven ability to deal with the students psychologically.I look forward to hearing from you soon. I’m available for interview for the next three weeks. Furthermore, I would be glad to supply you with further information regarding my previous works and experiences if needed.Yours Faithfully,Zeson Rana Magar |

**A. Fill in the blanks as per the below instructions. 5x1=5**

a) We can use the word…………. instead of ‘energetic’.

b) …………. is the antonym of ‘intensive’.

c) ………… gives the synonymous meaning of ‘upgrade’

d) ………… means ‘unoccupied’.

e) If you are trained to advice people, you are a ………..

**B. Answer the following questions. 5x1=5**

a) Who is the writer of the letter?

b) Why is the letter written?

c) Which post is fallen vacant in National College?

d) Who is the letter addressed to?

e) What is the commitment made by the author in the letter?

**4. Read the text below and do the tasks that follow. 15**

Newborn babies do not know if they are boys or girls, but it does not take them long to find out. They very quickly learn the way that their society expects males and females to behave and think. That is, they learn their gender roles.

From the moment of birth, babies are usually treated according to their gender. In many other countries, baby girls tend to be dressed in pink clothing and baby boys in blue. Baby girls are handled more gently than boys. Girls are cuddled and kissed while boys are bounced around and lifted high in the air. Girls are given dolls, whereas boys are given cars, trucks, and building blocks. Mothers think a lot about how pretty their girls should look, but they are less concerned about their little boys’ appearance.

When they start to talk, children are taught the difference between the words ‘he’ and ‘she’ and between ‘him’ and ‘her’. There are also differences in the way parents talk to their children. Parents use words about feelings and emotions more with girls than with boys, and, by age 2, girls use these words more than boys do. Furthermore, mothers and fathers talk differently, because of their socialization. Mothers tend to talk more politely (‘Could you turn off the T.V., please?’) and fathers tend to use more direct language (‘Turn off the T.V?’). By age 4, girls and boys have learned to imitate these conversational styles. Girls are generally taught to be ‘ladylike’-polite and gentle and boys as taught to be ‘macho man’-tough and strong.

**A. Write ‘True’ or ‘False’ against the following appropriate statements. 5x1=5**

a) It takes babies a long time to find out if they are boys or girls.

b) Babies are generally treated according to their gender from their birth.

c) Mothers are more concerned about the appearance of their daughters than their sons.

d) Parents talk to their children in the same way irrespective of their gender.

e) Newborn babies have conscience about their sex.

**B. Complete the following sentences using the appropriate words from the text. 5x1=5**

a) Children quickly learn the way that their society expects males and females to think and ………………..

b) In many countries, baby boys tend to be dressed in ……….clothing.

c) Children are taught the differences between ‘he’ and ‘she’ when they ……….to talk.

d) Polite and ……….. are the features of being ‘ladylike’.

e) Because of their socialization……….. talk differently.

**C. Answer the following questions. 5x1=5**

a) What is meant by gender role?

b) What sorts of words do parents use with their girl child?

c) How do mothers tend to talk to their children?

d) When do the newborn babies identify their sex?

e) When do the girl and boys learn to copy conversation style?

**5. Interpret the following table about the average grades of Madi Madhyamik Vidhyalaya, Chitwan obtained in English and Maths in grade ten. Write in about 100 words. 5**

|  |  |  |
| --- | --- | --- |
| **Year** | **Average grades** **in English** | **Average grades** **in Maths** |
| 2010 | A | B+ |
| 2011 | A | B |
| 2012 | A+ | A |
| 2013 | B+ | A |
| 2014 | A | B+ |
| 2015 | A+ | A |
| 2016 | A+ | A+ |

*Clues: About the table…….highest grades in……..lowest grades in………….overall.*

**6. Develop a readable story with the help of the following outlines. Write approximately 100 words. 5**

A lazy donkey ……. master kind ……. donkey falls in water with salt bags ……. salt dissolves ……. donkey realize the weight lessened ……. uses it as a trick of some days regularly ……. master faces a great loss ……. loads donkey with cotton ……. donkey uses the same trick ……. feels the cotton load unbearably heavy ……. can’t walk properly ……. master beats ……. donkey realizes his mistake ……. moral.

**7. There are a lot of people all around hanging on Social Media. Write a couple of paragraphs expressing your views on Social Media in approximately 150 words. 6**

**8. A newspaper has asked its readers for their views on physical punishment at school. Now write an article to the newspaper expressing your opinion in approximately 200 words. 8**

**9. Reproduce the following sentences as instructed in the brackets.**

 **6x1=6**

a) Pragya loves to drink milk,……..? (Add a suitable Tag)

b) They watch teleserial daily. (Change into Negative sentence)

c) Hemant did not have a bath this morning. (Into ‘Who’ question)

d) This car ……(belong) ….... to my friend. He wants to sell it. (Use correct tense)

e) The teacher said, “The moon revolves round the earth.” (Into Indirect Speech)

f) They lived a happy life. (Into Passive Voice)

**10. Choose and copy the best answer for the numbered blanks below. Rewriting is not compulsory. 10x0.5=5**

A man came into …….**(a)**……. (a, an, the, no article) wood one day with an axe in his hand. He …….**(b)**……. (begs, begged, was begging, had begged) a tree, …….**(c)**……. (please give me, to give him, that give him, whether give him ) a small branch. He wanted the branch …….**(d)**……. (because, so that, although, since) he could make a walking stick from it. The tree was …….**(e)**……. (with, of, by, on) kind nature. He thought the man …….**(f)**……. (will, may, might, must) make good use of the branch. Hence, he gave the man one of his branches, …….**(g)**……. (did he, didn’t he, hadn’t he, wouldn’t he)? The woodcutter had the branch …….**(h)**……. (fix, to fix, fixed, fixing) into his axe head.

Soon the woodcutter was set to work. He cut down branch after branch. The tree had never been …….**(i)**……. (foolish, as foolish as, more foolish, the most foolish) this in giving his enemy the means of destroying himself. Had the tree not permitted the man to cut a branch, he …….**(j)**……. (doesn’t probably fell, won’t probably fell, wouldn’t probably fell, wouldn’t have probably felled) so many branches.

**✍🕊🖎**

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wfld{s Pjd\ P]ltxfl;s dxTj af]s]sf] /fi6« g]kfn k|fs[lts 56fx¿n] el/k"0f{ Ps :jtGq /fi6« xf] . o:tf] cg'kd b]zsf gful/s ePsf x}l;otn] o; b]zsf] ;'/Iff u/]/ lrgf/L sfod /fVg' xfdL ;a} /fi6«jf;Lsf] k|d'v st{Jo x'g cfpF5 .

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xfdLn] u/]sf ;;fgf sfo{x¿af6 7"N7"nf kl/0ffdn] xfdLnfO{ pTk|]l/t u/fpF5 / o;af6 cfk"mnfO{ /fi6«;]js agL efOnfO{ df/f k|j[lQnfO{ lgd"{n kf/L x/]s avt cf-cfˆgf] hLjgwg /fi6«sf] k|]ddf pT;u{ ug{ cu|;/ u/fpF5f}F .

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s\_ d}n] u'?nfO{ b]v]/ gd:sf/ u/]F . -jfSo ljZn]if0f\_

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s\_ cg'R5]bdf ePsf] …cfhsf w]/} h;f] dflg;n] sDKo"6/ / OG6/g]6sf] ;xL ;b'kof]u u/]sf] b]lvFb}gÚ jfSonfO{ s/0fdf kl/jt{g ug'{xf];\ M

v\_ cg'R5]bdf ePsf] …o;af/]df xfdLn] ;dod} ;r]t x'g'kg]{ cj:yf b]lvG5Ú jfSoaf6 Pp6f p2]Zo / Pp6f ljw]o klxrfg u/L n]Vg'xf];\ M

u\_ cg'R5]bdf /]vfª\sg ul/Psf] …xfdLn]Ú zAbsf] sf/s / ljelQm klxrfg u/L n]Vg'xf];\ .

3\_ cg'R5]baf6 Pp6f cfuGt's zAb / Pp6f tT;d zAb klxrfg u/L n]Vg'xf];\ .

**!!= lbOPsf] uBf+z k9L ;f]lwPsf k|Zgsf pQ/ n]Vg'xf];\ M $**

lzIff r]tgfsf] k'~h xf], ;Eotfsf] ;+jfxs xf] . of] dfgjLo pGglt, ljsf; / k|ufltsf] d"n sf/s tTj klg xf] . c1fg ¿kL cGwsf/df ?dlNnP/ a;]sf dflg;nfO{ 1fgsf] zfZjt bLlKt 5/L ltgsf] r]tgf, a'l4 / ljj]snfO{ Jojxf/f]kof]uL Pjd\ ;dfhf]kof]uL dfu{tkm{ plrt 9ª\un] nDsfpg] ;fwg g} lzIff xf] . …ljBf ljxLg+ kz'Ú eGg] ;+:s[tsf] plQmn] ljBf dfgjLo vfFrf]sf] ckl/xfo{ ljifo /x]sf] s'/f k'li6 ub{5 . lzIff k|fKt ug'{ ;Dk"0f{ gful/ssf] g};lu{s clwsf/ xf] . lzIffljgf dfgjLo ;+j]bgf, efjgf, ;b\ljrf/, ;[hgf tyf cGttM k|1fsf] phf{ klg k|sl6t x'g cToGt ufx|f] 5 . 1fg cgGt 5 / 1fgsf] zfZjt /lZdn] g} hLjg / hut\ cfnf]lst Pjd\ ultzLn t'Nofpg ;Sg] s'/fdf sxLFst} zª\sf 5}g . bof, dfof, s?0ff, dfgjtf, stJo{h:tf cfbz{ efjgfsf] pbo klg c;n lzIffaf6 dfq} k|fKt ug{ ;lsG5 .

 **k|Zgx¿ M**

s\_ lzIff eg]sf] s] xf] <

v\_ lzIff / dfgj hLjgsf] ;DaGw s:tf] x'G5 <

u\_ lzIffn] dfgj hLjgdf s;/L kl/jt{g NofpF5 <

3\_ lzIffaf6 s] s:tf s'/fsf] pbo x'G5 <

**!@= s'g} …PsÚ k|Zgsf] pQ/ n]Vg'xf];\M $**

**s\_ lbOPsf a'Fbfsf cfwf/df 5f]6f] syf n]vL pko'Qm zLif{s lbg'xf];\ M**

Psfb]zdf Pp6f cN5L ljBfyL{ x'g' ===========p;nfO{ k9\g dg gnfu]/ Ps lbg 3/ 5f]8]/ lx+8\g' ==========hfFbfhfFbf cFWof/f] x'g' ==========pm ToxfFs} Ps j/sf] ?vd'lgsf] kmn}Frfdf af; a:g' ==========/flt Pp6f sldnf] d'vdf vfg]s'/f] af]s]/ j/sf] ?vdfly r9\g] k|of; ug'{ ========== hlt k|of; u/] klg sldnf] ¿vdfly r9\g g;Sg' ==========t/ sldnfn] ?v r9\g] k|of; ug{ g5f]8\g' ==========w]/} ;dosf] lg/Gt/ k|of;kl5 sldnf] ?vsf] dfly xfFufdf agfPsf] uf]nf]df k'Ug ;kmn x'g' ========== of] b[Zo x]l//x]sf] To; ljBfyL{n] s'g} s'/fsf lglDt lg/Gt/ k|of; ug'{kg]{ a'‰g' ==========pm ljxfg p7]/ k'gM 3/ kmls{P/ /ftlbg kl/>d u/]/ k9\g yfNg' ==========cGTodf p;n] /fd|f] cª\s NofP/ ;kmn eO{ cfˆgf] nIo k"/f ug'{ ==========kl/>dsf] kmn ld7f] x'g] ;Gb]z =========== .

**v\_ …clwsf/eGbf st{Jo 7"nf]Ú eGg] ljifosf] kIfdf cfˆgf uxlsnf ts{x¿ k]z u/L jfbljjfb n]Vg'xf];\ .**

**!#= s'g} …PsÚ k|Zgsf] pQ/ n]Vg'xf];\ M $**

s\_ cfˆgf] ljBfno jl/kl/ cToflws dfqfdf e':ofxf s's'/ ePsf / w]/} dflg;x¿nfO{ tL s's'/n] 6f]s]kl5 /]lah ePsf sf/0f tL e':ofxf s's'/sf] plrt Joj:yfkg ul/lbg cg'/f]w ub}{ cfˆgf] j8fsf j8f cWoIfnfO{ n]lvg] lgj]bg n]Vg'xf];\ .

v\_ tkfO{Fsf] ljBfnon] cfof]hgf u/]sf] s'g} Ps ljz]if sfo{qmdsf] ;dfrf/ tof/ kf/L n]Vg'xf];\ .

**!$= lbOPsf] cg'R5]baf6 rf/cf]6f a'Fbf l6Kg'xf];\ M @**

k|ljlwsf] k|of]un] l;sfO k|0ffnLnfO{ ;/n, k|fof]lus, dgf]/~hs / lr/:yfoL agfpF5 . ljBfnosf] sIffsf]7fsf] rf}3]/fn] jf Pslbgdf x'g] k|ltljifo Ps 306fsf] k9fOn] dfq} ljBfyL{df l;sfOsf] ef]s, ltvf{ / tntn d]6\g ;Sb}g . k|ljlwn] sIff sf]7fsf] lzIf0f l;sfOnfO{ ;xh / rfvnfUbf] agfpF5 . o;n] ljBfyL{df cg';Gwfg / vf]h u/]/ gofFgofF s'/f l;Sg] afgLsf] ;d]t ljsf; u5{ . k|ljlwn] ljBfyL{sf] nflu kl/of]hgf sfo{ ug{ ;d]t ;xh agfpF5 . o;sf nflu ljBfyL{x¿n] OG6/g]6 tyf cGo If]qaf6 gofFgofF ljifoj:t' vf]h]/ kl/of]hgf sfo{ ug{ ;xof]u u5{ . clxn] lstfasfkLsf] 7"nf] emf]nfsf] ;§f Pp6f Nofk6k eP k'Ug] ePsf] 5 . s]xL ljBfnodf Od]nåf/f g} ljleGg sfo{ lbg] / ljBfyL{n] klg Od]naf6 g} tL sfo{ a'emfpg] klg u/]sf 5g\ . To;}n] t cfhef]ln ljBfyL{x¿df k|ljlw df]x a9\b} hfg yfn]sf] 5 .

**!%= lbOPsf] cg'R5]baf6 Ps t[tLof+zdf ;f/f+z n]Vg'xf];\ M #**

;fOa/ ck/fwsf] l;sf/af6 hf]lug cfˆgf] sDKo"6/ Nofk6k / df]afOndf rnfOg] ;fdflhs ;~hfn nufotsf kf;j8{ s;}nfO{ lbg'x'Fb}g . ;do ;dodf kf;j8{ kl/jt{g ul//xg'k5{ . ckl/lrt JolQm jf ;+:yfaf6 cfPsf Od]n vf]Ng'x'Fb}g . Od]ndf sfd ul/;s]kl5 ;fOg cfp6 jf nucfp6 ug'{k5{ . Od]n tyf ;fdflhs ;~hfndf cfpg ;Sg] cfsif{s pkxf/ jf lr¶fsf] e|ddf kg'{x'Fb}g . o:tf Od]n tyf Dof;]hdfly zª\sf nfu]df glhssf] k|x/L sfof{nodf ;Dks{ ug'{k5{ . s'g} klg Od]n jf Dof;]Gh/df lnª\s cfPdf klxnf lnª\s ;xL xf] jf xf]Og kQf nufP/ dfq lnª\sdf lSns ug]{ ug'{k5{ . To;} u/L u}/sfg'gL ?kdf c?sf] jfOkmfO k|of]u gug]{, cfˆgf] df]jfOn x/fPdf glhssf] b"/;~rf/ ;]jf k|bfosnfO{ t'?Gt} hfgsf/L u/fO{ cfˆgf] l;d Ans ug{ nufpg'k5{ .

**!^= lbOPsf k|Zgsf pQ/ lbg'xf];\ M $±$Ö\***

**s\_ lbOPsf] syf+z k9L ;f]lwPsf] k|Zgsf pQ/ n]Vg'xf];\ M**

zq'tfsf] klg s:tf] Jofks ;DaGw /x]5 < b'lgofFdf sf]xL klg ldq x'Fb}gg\ ;a} zq', ;a} a}/L g} x'G5g\ . s;n] eG5 csf/0f g} sf]xL zq' x'Fb}g < dfg]F sf]xL csf/0f s;}sf] zq' x'Fb}g t/ emu8fsf] lgx'F slt ;lhn} kfOG5 < s:tf] crDd, lgbf]{if s'/fdf klg ljiffn' ;fFk h:tf] a}/L agfpg] ;fwg n'ls/x]sf] b]lvG5 .

**k|Zgx¿M**

s\_ dflysf] syf+zsf] d"nefj s] xf] <

v\_ …lgbf]{if s'/fdf klg ljiffn' ;fFk h:tf] a}/L agfpg] ;fwg n'ls/x]sf] b]lvG5 .Ú o; egfOsf] cfzo s] xf] <

**v\_ lbOPsf] lgaGwsf] c+z k9L ;f]lwPsf k|Zgsf pQ/ n]Vg'xf];\ :**

b]jsf]6fn] h] n]v] / h'g–h'g lhDd]jf/L kfP, k|foM tL ;a}df pgn] /fi6«sf] lxtdf sfd u/]/ cfˆgf] cAantf k|bz{g u/] . b]jsf]6f cfk"mn] xft xfn]sf x/]s If]qdf Ps c;n JolQmTjsf ?kdf lrlgP . pgsf r]nf cfh klg pgL h:tf] lzIfs / k|fWofks;Fu t'ngLo JolQm e]6\g g;s]sf] s'/f u5{g\ . lzIffdGqL x'Fbf g]kfnL efiffnfO{ k7gkf7gdf clgjfo{ ljifosf ?kdf nfu' ug]{ u/fpg] sfo{df pg}sf] ljz]if kxnsbdL /x\of] . tTsfnLg g]kfn /fhsLo k|1f k|lti7fgsf] :yfkgfdf ;lqmo ;+nUg eP/ ;+:yfut ?kdf ;flxTo / ;+:s[ltsf] ljsf;sf] 9f]sf vf]Ng] sfo{df pgsf] of]ubfg lr/:d/0fLo /x]sf] 5 .

**k|Zgx¿:M**

s\_ dxfslj nIdLk|;fb b]jsf]6f s:tf JolQm lyP <

v\_ b]jsf]6fsf of]Ufbfgx¿ n]Vg'xf];\ .

**!&= lbOPsf] k|Zgsf] tfls{s pQ/ n]Vg'xf];\ M $**

cfo'j]{b lrlsT;f k4ltn] pkrf/sf] If]qdf lrlsT;f lj1fgnfO{ r'gf}tL, lbg ;Snf t < …lrlsT;f lj1fg / cfo'j]{b lrlsT;fÚ kf7sf cfwf/df ts{;lxt k|i6 kfg'{xf];\ .

**!\*= s'g} …PsÚ p4/0fsf] JofVof ug'{xf];\ M $**

s\_ aflx/L zq'nfO{ p7\g lbgfsf] d'n sf/0f 3/ emu8f xf] .

v\_ cflzif b]pm Ps} / km]l/ kl;gf aufpFm .

 g]kfnL xfd|f] >d / l;k :jb]zd} nufpFm .

**!(= s'g} …PsÚ k|Zgsf] ;ldIffTds pQ/ n]Vg'xf];\ M &**

**s\_ lbOPsf] lgaGwsf] c+z k9L ;f]lwPsf] k|Zgsf] ;ldIffTds pQ/ n]Vg'xf];\ M**

g]kfnL df6fdf ;'g kmnfpg] u/L Jofj;flos / cfw'lgs s[lif lzIff lbg d]/f] b]zsf] lzIffdf cem} nufgL / kx'Fr lj:tf/df hf]8 lbg'k5{ . d'n'ssf pTkfbgnfO{ ljZjahf/df k:sg] u/L xfd|f ljBfyL{ pTkfbgnfO{ ;+;f/df lrgfpg ;Ifd x'g] kl/l:ylt k}bf ug'{ h?/L 5 . ;'b"/ ljutb]lv ef]hkq, w'nf}6] kf6L, v/L, rs, 8:6/ / dfs{/ o'uaf6 u'h|]sf] d]/f] b]zsf] lzIffdf ;"rgf / k|ljlwsf] ;xh kx'Fh k'Ub}5 . o;f] ePdf d]/f] b]zsf] lzIffsf] cfˆgf] df}lnstf ;lxtsf] o'u ;'xfpFbf] j}1flgs o'udf yk km8\sf] dfg]{5 . o;/L d]/f] b]zdf k|frLg 1fg / cfw'lgs lj1fg;lxtsf] lzIff / 1fgsf] gofF ;u/dfyf v8f x'g]5 .

**k|Zg M**

c\_ tkfO{nfO{ g]kfnsf] efjL lzIff s:tf] x'g'k5{ eGg] nfU5 < æd]/f] b]zsf] lzIffÆ lgaGwsf cfwf/df ;ldIffTds pQ/ n]Vg'xf];\ .

**v\_ lbOPsf] sljtf+z k9L ;f]lwPsf] k|Zgsf] ;ldIffTds pQ/ n]Vg'xf];\ M**

h;sf sd{n] lnG5g\, pRr hLjgsf ky

ltg}sf kydf lxF8\5g\ dfG5]x¿ ;uf}/j .

h'6]sf 1fgn] hf] 5g\ kfb}{ wtL{ dgf]x/

p7]sf sd{n] hf] 5g\ ub}{ lgdf{0f ;'Gb/ .

**k|Zg M**

c\_ pHofnf] ofqfsf nflu dfgj sd{sf s]–s:tf e"ldsf /xG5g\ < …pHofnf] ofqfÚ sljtfsf cfwf/df ;ldIffTds pQ/ n]Vg'xf];\ .

**@)= s'g} …PsÚ zLif{sdf sDtLdf !%) zAb;Ddsf] lgaGw n]Vg'xf];\ M &**

s\_ d]/f] b]z d]/f] uf}/j

v\_ g]kfnsf] cfly{s ljsf;df s[lifsf] e"ldsf

u\_ o'jf zlQm ljb]z knfogsf r'gf}lt / ;dfwfg

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**PABSON, Kathmandu**

**MID TERM EXAM-2080**

**Subject: Opt. I Mathematics** Full Marks: 100

Class: 10 Time: 3 hours.

***Candidates are required to write their answers according to the instructions given.***

***Attempt all questions***.

**Group A [5 x (1 + 1) = 10]**

1. a) What is the y intercept of y = Cos x?

 b) If (x - m) is a factor of polynomial p(x), what is the value of p(m)?

2. a) What does ‘n’ represents in the formula d = $\frac{b-a}{n+1}$ , where the symbols have their own usual meanings.

 b) Under what condition, the inverse of a matrix is possible?

3. a) Convert: cos2p in terms of sinp.

 b) Express: 2SinA.SinB in the sum or difference.

4. a) If $θ$ be the angle between two straight lines having slope a and b, what is tan$ θ$ ?

 b) What is the single equation of pair of lines perpendicular to $ax^{2}+ 2hxy+ by^{2}$ = 0 and passing through origin?

5. a) Write the equation of a circle if two ends of diameter are (a, b) and (c, d).

 b) Write the formula to calculate coefficient of variation.

**Group B (13 x 2 = 26)**

6. a) If the polynomial $x^{3}+ 6x^{2}+ kx+10$ is divided by (x + 2), the remainder is 4. Find the value of k using the remainder theorem.

b) If f(x + 2) = 2x + 3, then find $f^{-1}(4)$.

c) If k, $k^{2}+ 1$ and k + 6 are in A.P, find the value of k.

7. a) For what value of x, the matrix $\left(\begin{matrix}x+2&x\\3&5\end{matrix}\right)$ has no inverse? Find it.

 b) Prove that: 

8. a) If Sin $\frac{α}{3}$ = $\frac{1}{2}$, find the value of $Cos^{2}α$.

 b) Prove that: $Sin 42^{0}+ Cos72^{0}$ = $Cos12^{0}$

9. a) If A + B + C = $π^{c}$ and Cos B = Cos A . Cos B, prove that tanB= tanA + tanC.

b) Solve: $\frac{\sqrt{2}}{Cosθ}$ + 2 = 0 ($0^{0} \leq θ \leq 180^{0})$

c) If the lines kx - 3y - 31=0 and 3x+4y+5=0 are perpendicular to each other, find the value of k.

10. a) Write the single equation representing the pair of equations mx = ny and nx = -my.

 b) Find the value of m when the centre of a circle with equation

 $x^{2}+ y^{2}- mx+6y-12=0$ is (-2, -3).

c) In a data, value of first quartile is ‘2a’ and quartile deviation is ‘a’. Find the third quartile and coefficient of quartile deviation.

 **Group C (11 x 4 = 44)**

11. If f(x) = $\frac{x+3}{2}$ and g(x) = 2x - 3, prove that $f^{-1}\_{0}$f(x) = $f\_{0}g(x)$.

12. Optimize p = 5x + 4y under the given constraints:

 x - 2y $\leq $ 1, x + y $\leq $ 4 , x $\geq $ 0 , y $\geq $ 0.

13. There are n arithmetic mean between 2 and 14. If the ratio of third mean to last mean is 2:3, then find the number of terms in the series.

14. Solve by matrix method.

 x = $\frac{2}{3} y$ , 4x - 3y = 1

15. Prove that: $\frac{1}{8} (5+3Cos 4θ)$ = $Cos^{6}θ$ + $Sin^{6}θ$

16. Prove that:

 $\left(1 + Cos\frac{π^{c}}{8} \right)$ $\left(1 + Cos\frac{3π^{c}}{8} \right)\left(1 + Cos\frac{5π^{c}}{8} \right)\left(1 + Cos\frac{7π^{c}}{8} \right)$ = $\frac{1}{8}$

17. If A + B + C = $π^{c}$ , prove that :

 2SinA.CosA + 2SinB.CosB -2SinC.CosC=4CosA.CosB.SinC

18. Solve: $Cot^{2}x$ + $\left(\sqrt{3}+ \frac{1}{\sqrt{3}}\right)$ Cotx = -1 ($0^{0} \leq x \leq 360^{0})$

19. A(3, 2) , B(1, -1) and C(5, -5) are the vertices of a triangle ABC. Find the equation of a straight line passing through the centroid of $∆ABC$ and parallel to the side BC.

20. Compute the mean deviation from mean.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class | less than20 | less than30 | less than40 | less than50 | less than10 |
| Frequency | 6 | 10 | 15 | 20 | 3 |

21. Find the standard deviation of the following data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks  | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 |
| No. of students | 5 | 4 | 6 | 7 | 3 |

**Group D (4 x 5 = 20)**

22. If $x^{3}+ ax^{2}+ bx+6$ has x - 2 as a factor and leaves a remainder 3 when divided by x - 3, find the value of a and b.

23. Prakrit borrows Rs.4368 which he promises to pay in 6 annual installments, each installment being treble of the preceding one. Find the first and the last installment.

24. At what condition, the graph of a quadratic equation opens downward? Solve graphically, $x^{2}- 2x-15=0$.

25. Find the equation of the circle whose centre lies on the line x-4y=1and which passes through the points (3, 7) and (5, 5). Also find the perimeter of the circle.

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**PABSON, Kathmandu**

**MID TERMINAL EXAM-2080**

**Opt II Accountancy**

Class: 10 Full Marks: 75

Time: 3 hours.

***Candidates are required to write their answers according to the instructions given.***

***Attempt all questions*.**

**Group A - [5×1=5]**

1. Write the full form of SWIFT.

2. When was Nepal Rastra Bank established?

3. How is the gross profit determined?

4. Which institution does the final audit of government offices?

5. Write the budget head number of Local Allowances and Recurrent contingent expenses.

**Group B - [8×5=40]**

6. Being an office assistant, which points do you considered while drafting Tippani?

7. What is filling? Mention any four of its objectives.

8. What is World Trade Organization (WTO)? Mention any four major functions of it.

9. Write any five modes of payment used in modern trade with examples.

10. Mention five differences between internal audit and final audit.

**11. Prepare a trial balance of GPS company from the following particular as on 31stAshadh 2076**

|  |  |  |  |
| --- | --- | --- | --- |
| **Particulars** | **Rs.** | **Particulars** | **Rs** |
| Current Assets  | 5000 | Pension fund  | 30000 |
| Sale of scrap  | 10000 | Live stock | 20000 |
| Bond  | 40000 | Unearned income  | 20000 |
| Establishment charge | 50000 | Debtors  | 25000 |

**12. From the following transactions calculate net profit or net loss of Namaste Enterprises, Chitwan at 31stashad 2078**

|  |  |  |  |
| --- | --- | --- | --- |
| **Particulars**  | **Rs.** | **Particulars** | **Rs** |
| Gross profit  | 75000 | Discount on purchase  | 12000 |
| Free sample  | 6000 | Commission paid  | 5000 |
| Interest on investment | 21000 | Insurance premium  | 5000 |
| Carriage outward  | 1000 | Interest received  | 8000 |

**13. Prepare a Balance Sheet of a trader as on 31stAshadh 2079 from the following particulars**

|  |  |  |  |
| --- | --- | --- | --- |
| **Particulars**  | **Rs.** | **Particulars** | **Rs** |
| Capital  | 560000 | Business premises  | 342000 |
| Stock  | 128000 | Cash and bank  | 40000 |
| Bank overdraft  | 75000 | Debtors  | 120000 |
| Net loss  | 30000 | Advance income  | 25000 |

**Group C - [10×3=30]**

**14. Introduce bank and describe any six functions of Nepal Rastra bank.**

**15. Prepare AGF NO. 203 (Goshwara Voucher) of Tax Office Janakpur on the basis of following transactions.**

a) 2076-05-03 Telephone charge Rs.2,500 of the month of shrawan was paid through chaque no 05164

b) 2076-05-07 Petty cash fund of Rs.5,000 was created

c) 2076-05-13 Section officer Mr. Ramesh was paid Rs.1,50,000 in advance for the purchase of motorcycle.

d) 2076-05-17 Paid Rs.50,400 to distribute salary for the month after deducting Provident fund of Rs.12,000, social security tax of Rs.600,income tax of Rs.2,000 and Provident fund loan of Rs.1,000

e) 2076-05-27 Bought dress for staff of Rs.5,000

**16. District Education Office, Kavre performed the following transactions during the month of baisakh, office submitted payment order to DTCO and budget release at the end of baisakh:**

a) Baishakh 5 Opening bank balance as per bank cash book Rs.3,00,000

b) Baishakh 13 Advance given to Mr. Biku to handle petty expenses with the amount Rs.1,000

c) Baishakh 17 Issued a payment order for purchasing computer Rs.50,000

d) Baishakh 21 Employee remuneration of Rs.1,10,000 and local allowance of Rs.40,000 were distributed after deducting PF Rs.20,000, income tax of Rs.10,000 and social security tax Rs 1,000.

e) Baishakh 26 Mrs. Geeta Pathak presented the bill of Rs.45,000 and bank voucher of Rs.5,000 against the advance of Rs.50,000 for training program and her advance was cleared.

**Required : Bank Cash Book**

**PABSON, Kathmandu**

**MID TERMINAL EXAM-2080**

**Compulsory Science and Technology**

Class: 10 Full Marks: 75

Time: 3 hours.

***Candidates are required to write their answers according to the instructions given.***

***Attempt all questions*.**

**Section A**

**Multiple choice question: 10 × 1 = 10**

**1. Circle the correct alternative of the following questions.**

a. A digital signal is represented by ….. wave.

i) sine ii) square iii) saw-tooth iv) triangular

b) Juniper is kept in sub-division gymnosperm because it

i) is a coniferous shrub or tree with naked seed and needle like leaves

ii) cannot produce seed, bears cone instead of flower and roots are spread far

iii) bears flower with seed enclosed in fruits and has fibrous root

iv) is a herb with well-developed vascular tissues and complete flower

c) ‘X’ and ‘Y’ are two worms. ‘X’ is unisexual with developed digestive system but absence of respiratory and circulatory system while ‘Y’ is hermaphrodite with no organ system. Which of the following may represent ‘X’ and ‘Y’ respectively.

i) Earthworm and Tapeworm

ii) Leech and Ascaris
iii) Hookworm and Tapeworm

iv) Hookworm and Earthworm

d) Which of the following is not true about Holy Basil (Tulasi)?

i) Its scientific name is *Ocimum tenuifiorum.*

ii) All of its parts can be used as medicine.

iii) It possesses antimicrobial properties.

iv) Its excessive consumption reduces sugar level in the blood.

e) What will be the value of acceleration due to gravity (g) of the moon if its radius is halved keeping its mass same? (gmoon=1.6m/s2)

i) 0.8 m/s2 ii) 1.6 m/s2 iii) 3.2 m/s2 iv) 6.4 m/s2

f) At what condition does the balloon filled with hydrogen gas fly upward in the air?

i) weight of balloon = weight of air displaced
ii) weight of balloon > weight of air displaced
iii) weight of balloon < weight of air displaced
iv) weight of balloon = volume of air displaced

g) In which of the following instruments and processes does the total internal reflection of light take place?

i) Endoscope, spectacles, and mirage

ii) Dispersion of light, rainbow, and lens

iii) Optical fibre, mirage, and rainbow

iv) Optical fibre, endoscope, and mirage

h) In which galaxy, is Saturn located?

i) Solar system ii) Milky Way

iii) Andromeda iv) NGC 292

i) What does ‘X’ denote in the given reaction?

$$2KClO\_{3}\begin{matrix}X\\\rightarrow \\Δ\end{matrix} 2KCl+3O\_{2}\uparrow $$

i) Heat ii) Promotor iii) Catalyst iv) Light

j) Which of the following is not correct?

i) The food preservatives obtained from natural sources are first class preservatives.

ii) ‘Reetha’ plant is found in Nepal, India, and China.

iii) A seed of Sajiban consists about 30 to 48% of oil.

iv) Sodium lauryl sulphate is an example of soap.

**Section B**

**2. Very short answer type questions. (9 × 1 = 9)**

a) Why is $a=\frac{u+v}{2}×t$ not a valid relation?

b) State Pascal’s Law.

c) Jack cannot see after sunset. What is main cause of this problem?

d) A student cannot see the board properly from last bench but can see clearly from first bench. What type of lens will you suggest for him/her?

e) Mention the application of keyhole surgery.

f) Define open universe.

g) State the principle of laboratory preparation of the gas which is used as fire extinguisher.

h) Why is the roasting of ores done?

i) Samyog wants to extract aluminium from Argentite ore. Is this possible? Justify.

**Section C**

**Short answer type questions. (14 × 2 = 28)**

3. In the experiment “effect of protein in the height of a person”, identify dependent, independent and controlled variable.

4. Write two characteristics of class Mammalia.

5. A beekeeper shifted his bee farm from village ‘A’ to ‘B’ then the mustard production of the other farmers in village ‘B’ is increased. Based on this, explain the relationship between beekeeping and agricultural production.

6. Explain the process of sex determination in humans with the help of chart.

7. What will happen if meiotic cell division does not occur in the reproductive cell of an organism? Explain.

8. Write any two differences between autosomes and sex chromosomes.

9. The Himalayan musk deer is on the verge of extinction. What can be done to protect it? Write in two points.

10. State Newton’s law of gravitation. Write the formula to calculate ‘g’.

11. The mass of the Sun and the Earth are $2×10^{30}kg$ and $5.972×10^{24}kg$ respectively. If a force of $3.54×10^{22} N$ is exerted between them, find the distance between them.

12. State the laws of refraction of light.

13. Mention any two advantages of contact lens over traditional glasses.

14. Kritisha put some pieces of granulated zinc in Woulfe’s bottle and poured a little amount of dil. Hydrochloric acid but she observed that the production of bubble is very slow. Suggest any two ideas to conduct the chemical reaction in the normal rate.

15. “The taste of soft drink is sour due to the formation of acid due to a gas present here.” Justify the statement with necessary chemical equation.

16. “Traditionally people used to ripen fruits using asuro in sac. Nowadays, calcium carbide is used as easier and cheaper method.”

 What are the consequences on the health of humans of the traditional as well as current method?

**Section D**

**Long answer type questions. (7 × 41 = 28)**

17. Read the given article and answer the questions that follows:

Good digital citizenship for students engages them and shows them how to connect with one another, empathize with each other, and create lasting relationships through digital tools.
Bad digital citizenship, on the other hand, entails cyberbullying, irresponsible social media usage, and a general lack of knowledge about how to safely use the Internet.
Fortunately, almost all of the requirements to be a good digital citizen can be taught in the classroom. …..

i) What idea does the article reveal? (1)

ii) How can you apply the above concept in your daily internet usage? (2)

iii) How can a netizen have an online reputation? (1)

18. A blog post addressed in <https://www.sciencelearn.org.nz/resources/1999-mendel-s-experiments> writes:….. Mendel cross-bred peas with 7 pairs of pure-bred traits. First-generation (F1) progeny only showed the dominant traits, but recessive traits reappeared in the self-pollinated second-generation (F2) plants in a 3:1 ratio of dominant to recessive traits….

i) Define dominant traits. (1)

ii) Show the results of monohybrid cross between yellow seeded (YY) and green seeded (yy) pea plants upto F2 generation in chart. (2)

iii) Write the percentage ratio for phenotype in F2 generation of a monohybrid cross. (1)

19. List out any two advantages and any two disadvantages of selective breeding.

20. Study the adjoining table and answer the following questions:

|  |  |
| --- | --- |
| Substances | Specific heat capacity |
| A | 910 J/kg 0C |
| B | 4200 J/kg 0C |
| C | 130 J/kg 0C |

i. What do you mean by specific heat capacity of substance ‘A’ is 910 J/kg0C? (1)

ii. When equal masses of these substance are heated up to 1000C and kept at the wax slab of uniform thickness, which will penetrate to the maximum depth and why? (2)

iii) Which substance will gain more temperature when equal amount of heat is supplied to each, if all of them were in same initial temperature? (1)

21. The following questions are based on the convex lens with focal length 4cm.

i) Draw the ray diagram when object is kept at 4cm along with a characteristic of image formed. (2)

ii) What will be the magnification of lens in above case and why? (2)

22. Answer the following questions are based on the part of modern periodic table given below.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Group 1 | Group 2 | Group 13 | Group 14 | Group 15 | Group 16 | Group 17 | Group 18 |
| Period 2 | Li | Be | B | C | N | O | F | Ne |
| Period 3 | Na | Mg | Al | Si | P | S | Cl | Ar |

i. Sketch atomic structure of the most reactive non-metal in the table. (1)

ii. Write balanced chemical reaction between a metal having valency 3 and number of shells 3 with a non-metal having valency 1 and number of shells 3. (2)

iii. Arrange the metals of period 3 in descending order of their electro positivity. (1)

23. The following chemical changes are based on the properties of ammonia and carbon dioxide. Write the balanced chemical reactions for each of the following: (1+1+1+1)

i) Burning of a metal producing white and black powder

ii) The milky white colour of a solution disappears when a gas is passed continuously.

iii) Formation of urea fertilizer (with necessary conditions)

iv) Preparation of food by green plants

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sIffM !) ;do M # 306f

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!^= tkfOFsf] ldNg] ;fyLn] nfu' kbfy{sf] pkof]u ug{ bafalbPdf tkfO{ s;/L k|ltjfb ug'{x'G5 < cfˆgf] ts{ k|:t't ug'{xf];\ .

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