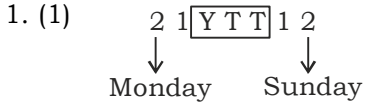# SSC MOCK TEST - 412 (SOLUTION)

1. (1)



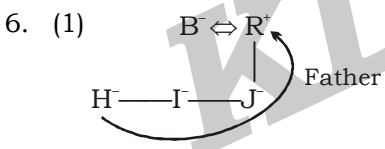Two days after tomorrow will be Sunday.

2. (2) Pen is used for writing, similarly, spade is used for digging.

3. (4)

4. (1) $96 \div 3 = 32$

   and $288 \div 8 = 36$

   Similarly,

   $408 \div 6 = 68$

5. (2) Interchanging, + and –

   I. $11 - 16 \times 3 \div 4 + 12 = 11$

   $11 + 16 \times 3 \div 4 - 12 = 11$

   $11 + 12 - 12 = 11$

   $11 = 11$

   II. $15 \times 3 - 45 \div 5 + 30 = 28$

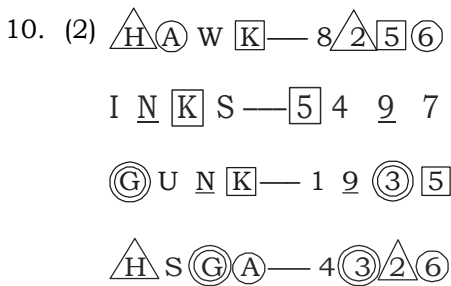   $45 - 9 + 30 = 28$

   $66 \neq 28$

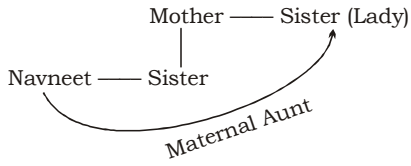   ∴ only I follows.

6. (1)



   R is the father of H.

7. (3)



8. (2)   9. (3)

10. (2)



   The code of 'G K A' is 3 5 6

11. (3)

Mother —— Sister (Lady)

Navneet —— Sister

Maternal Aunt

∴ The lady is the maternal aunt of Navneet

12. (3)

13. (3)

P   R   O   T   E   I   N   S
Opp. Place/Value — 11   9   12   7   5   9   14   19

and

R   E   F   L   E   C   T   S
9   22   21   15   5   3   20   19

Similarly,

S   C   E   N   A   R   I   O
8   24   22   13   1   18   9   15

∴ The code of 'SCIENCE' is 8242213118915

14. (1)
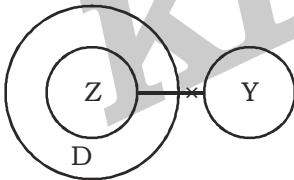


From the given figure, we can conclude all the conclusions follow.

15. (3) R A M E N

+4 +4 +4 +4 +4
R I Q E V

Similarly,

M O D E L

+4 +4 +4 +4 +4
P I H S Q
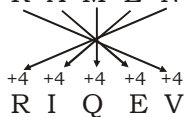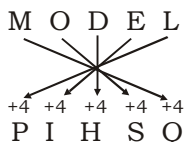
∴ The code of 'MODEL' is 'PIHSQ'

16. (1) BR - EW = 8 ⇒ (2 + 18) ~ (5 + 23) = 8

and

CA - LF = 14 ⇒ (3 + 1) ~ (12 + 6) = 14

Similarly,

DA - WN = 32 ⇒ (4 + 1) ~ (23 + 14) = 32

The code of DA - WN is 32

17. (3) 34 C 59 D 16 = –9

34 – 59 + 16 = –9

and,

61 C 32 D 14 = 43

61 – 32 + 14 = 43

Similarly,

58 C 7 D 11 = 62

58 – 7 + 11 = 62

18. (2)

19. (4) 40 @ 2 # 3 = 83 ⇒ 40 × 2

= 80 + 3 = 83

and

60 @ 2 # 5 = 125 ⇒ 60 × 2

= 120 + 5 = 125

Similarly,

39 # 13 @ 5 = 104 ⇒ 13 × 5

= 65 + 39 = 104

20. (1)



From the above figure, we can conclude only conclusion I follows.

21. (1)

22. (1) 18, 69, 279 ⇒ 18 × 12 ⇒ 216 + 69 = 285 – 6 ⇒ 279

and

12, 45, 183 ⇒ 12 × 12 = 144 + 45 = 189 – 6 ⇒ 183

Similarly,

32, 125, 503 ⇒ 32 × 12 ⇒ 384 + 125 ⇒ 509 – 6 ⇒ 503

23. (3) A ⇔ L (Opp.)

B ⇔ Y (Opp.)

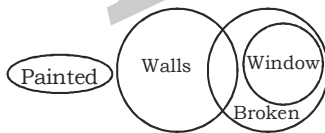N ⇔ X (Opp.)

∴ Option (3) can't be made.

24. (1) $12 : 216 \Rightarrow \left(\dfrac{12}{2}\right)^3 = 216$

and

$24 : 1728 \Rightarrow \left(\dfrac{24}{2}\right)^3 = 1728$

Similarly,

$18 : 729 \Rightarrow \left(\dfrac{18}{2}\right)^3 = 729$

25. (4) I.  62 ÷ 2 × 8 + 3 – 1 = 17

Interchanging 3 and 8

62 ÷ 2 × 3 + 8 – 1 = 17

31×3 + 8 – 1= 17

93 + 8 – 1 = 17

100 ≠ 17

II. 9 + 3 – 6 ÷ 2 × 8 = 6

Interchanging 3 and 8

9 + 8 – 6 ÷ 2 × 3 = 6

9 + 8 – 3 × 3 = 6

9 + 8 – 9 = 6

8 ≠ 6

∴ Neither 1 not 2 follow.

26.(1) **Bhratnatyam** - Birju Maharaj, Rukmini Devi, Singhajit Singh, Uday Shankar, Mrinalini Sarabhai, Sonal Mansingh.

**Kathak** - Sitara Devi, Roshan Kumari, Sunayana Hazarilal, Rohini Bhate.

**Sattriya** - Jatin Goswami, Sharodi Saikia, Sunil Kothari,  Mohan Bhagawati

**Manipuri** - Yumlembam Gambhini Devi, Guru Bipin Sinha, Darshana Jhaveri, Nirmala Mehta.

**HkjrukVÓe** & fcjtwegkjkt] #fDe.kh noh] fla?gthr flag] mn; 'kadj] e`.kkfyuh LkjkHkkb] lkuy ekuflagA

**dRFkd** & flrkjk noh] jks'ku dekjh] lqu;uk gtkjhyky] jksfg.kh HkkVA

**Lkf=k;k** & tfru xkLokeh] 'kkjksnh lfcd;k] lquhy dkBjh] ekgu Hkxorh

**ef.kiqjh** & ;qeyFce xfHkuh noh] xq# fcfiu flUgk] n'kuk >kosjh] fueZyk egrkA

27.(4) **Physics** - Alain Aspect, John Clauser, Anton Zeilinger

**Chemistry**- Carolyn R. Bertozzi, Morten P. Meldal, Karl Barry Sharpless

**Physiology or Medicine**- Svante Pääbo

**Literature** - Annie Ernaux

Peace - Ales Bialiatski; **Memorial;Centre for Civil Economics** - Liberties Ben S. Bernanke;Douglas

W. Diamond;Philip H. Dybvig

Hkkfirdh & ,yu ,LiiDV] tkWu DykWUj] ,Vku ftfyaxj

jlk;u foKku & dSjksfyu vkj- cVkttth] ekVsZu ih- eSYMy] dkyZcSjh 'kkiZysl

fi0ft;ksykWth ;k efMflu & Lowrs ikcks

lkfgR; & ,uh vukDl

'kkfr & ,yl fc;kfy;kRLdh_Lekjd_ukxfjd vFkZ'kkL=k dsæ & fycVhtt cau ,l- cukUds_ Mxyl MCY;w Mk;eaM_ fi0fyi ,p-Mk;cfox

28. (2) Milam is a glacier. It is situted here in pithauragarh distric of Utarakhand./feyee ,d Xyf'k;j gSA tksmÙkkjk[k.M ofRkfiFkkjkx<+ftysaflLFkr gSA

29. (1)

30. (3) Point of light Award It is a prestigious award of Britain, which was given to Rajendra Singh Dhatt by Prime Minister Rishi Sunak for the year 2023.

Point of light Award fcVsu dk ifrf"Br iqjLdkj gSftlsjktsUnzflag èkÙk dkso"kZ2023 oQfy, iékuea=h ½f"k lqud }kjk fn;k x;kA

31. (4) The **85th Amendment** gave the Parliament the power to make laws prescribing criteria for the appointment and employment of backward people.

**87th Amendment** Act amended Eighth Schedule of the Indian constitution. Santhali, Bodo, Dogri, and Maithili were added in the 8th Schedule of Constitution.

**88th Amendment** added a new subject in the Union List called 'taxes on services'

85oaal lákks/u us lln dksfiNMs yksxkadh fu;qfUK0 vkSj jkstxkj dsfy, ekunaM fu/kZjr djusokysdkuwu cukusdh 'kfUK0 nhA

87oaal lákks/u vf/fu;e us Hkkjrh; lafoèku dh vkBohavuqlph es l lákks/u fd;kA lkFkyh] ckMkS] Mksxjh vkSj eSFkyh dkslafo/ku dh 8ohavuqlph esa tkWMk x;kA

88oaal lákks/u us l£k lphesa^lsokvkaij dj* uked ,d u;k fo"k; tkSMkA

32.(3)

33.(2) Neelamshetty Appanna was the coach of Karnam Malleswari.

Saina Nehwal won Bronze in London 2012 Olympics.

Shakshi malik won Gold in 2022 Birmingham Commonwealth Games and bronze in 2016 Rio de JaneiroOlympics.

uhye'ksêh vliluk d.kZe eYys'ojh dsdkp FksA

lkbuk ugoky usyanu 2012 vksyfid eadkaL; ind thrkA

lk{kh efyd us2022 cfeZ?ke jk"VªeaMy •ykea eLo.kZvkSj 2016 fj;ksMh tufj;ksvksyfid eadkaL; ind thrkA

34.(1) The Young Bengal Movement (1826 –1832)-Henry Vivian Derozio

Dayanand Saraswati - Arya Samaj

Lala Hansrasj - Anglo-Vedic

Keshab Chandra Sen - Brahmo Samaj.

;ax caxky vkanksyu (1826&1832)& gyujh fofo;u Mjkft;ks

n;kun ljLorh & vk;Z lekt

ykyk gald jkt & ,Xyks&oSfnd

ds'ko pa< lu & cãã lekt

35.(4) Inner Planets - Earth, Venus, Mercury, Mars/Vkrfjd xg & iFoh] 'kØ] cq/] eaxy

36.(3) Asian Games 2023 was held in Hangzhou city of China. In the 19th Asian Games, India stood fourth with a total of 107 medals (28 gold, 38 silver and 41 bronze). Whereas China was at number one with 389 medals.

Aishwarya Pratap Singh won silver medal in men's 50m rifle 3P at the Asian Games 2023.

,f'k;u xse 2023 dk vk;kstu phu ofl gkax>w'kgj esa vk;kftr gqvkA 19osa ,f'k;u xse esaHkkjr usoffy 107 indkka (Lo.kZ28]38 flYoj vkSj 41 cat) offl lkFk pkFksuEcj ij jgkA tcfd phu 389 indkkoffl lkFk igysuEcj ij FkkA

,f'k;u xse 2023 esaiq #"kka dh 50 ehVj jkbiffy 3ih esa,S'o;Zirki flag usjtr (cat) ind thrkA

37.(2) **Archimedes' Principle** (law of buoyancy) states that a body immersed in a fluid experiences an upthrust equal to the weight of the fluid displaced, and this is fundamental to the equilibrium of a body floating in still water.

**Newton's First Law** states that every object will remain at rest or in uniform motion in a straight line unless compelled to change its state by the action of an external force.

**The second law** states that the acceleration of an object is dependent upon two variables - the net force acting upon the object and the mass of the object.

According to **Kepler's first law**, all the planets revolve around the Sun in elliptical orbits with the Sun as one of the foci.

vkfdZeMht dk fl¼kar (mRiykou dk fu;e) dgrk gSfd fdlh rjy inkFkZesaMwck gqvk fiaM foLFkkfir rjy dsotu ds cjkcj m0ij mBrk gSvuukko djrk gS vkSj ;g 'kkar ikuh esarSrsgq fiaM dslarqyu oQ cjkcj gSA

U;wVu dk igyk fu;e dgrk gS&fd çR;sd oLrqrc rd fLFkkj jgsxh ;k ,d lh/h js•k ea, dl leku xfr esajgsxh tc rd fd mlsfdlh ckgjh cy dh dkjokbZlsviuh fLFkkr cnyusdsfy, etcwj ughafd;k tkrk gSA

nwljsfu;e esadgk x;k gSfd fdlh oLrqdk Roj.k nkspjka ij fuHkZj djrk gS& oLrqij yxusokyk 'kq¼ cy vkSj oLrqdkæ0;ekuA

dsiyj dsigysfu;e dsvuq#kj] lHkh xg lw;Zdspkjkavksj nh?kZo`Ùkkdkj d{kk esapDdj yxkrsgS] ftlesalw;Z,d dsa fcanqij fLFkkr gSA

38.(1)  39.(3)

40.(4) The Digital India Programme was launched on July 1, 2015.

The programme has been enabled for several important Government schemes, such as BharatNet, Make in India, Startup India and Standup India, industrial corridors, etc.

Digital India week 2022 was from 4th july to 10th july.

fMftVy bafM;k çksxxke 1 tqykbZ2015 dksykWUp fd;k x;k FkkA dk;ZØe dksdbZegRoiw.kZljdkjh ;kstukvka¡ tSlsHkkjrusV]esd bu bafM;k] LVkVZvi bafM;k vkSJ LVSMvi bafM;k] vkS|ksfxd xfy;kjsvkfn dsfy, fd;k x;k gSA

fMftVy bafM;k lIrkg 2022 4 tqykbZlls10 tqykbZrd FkkA

41.(4) There are two names associated with the start of Kuka movement Baba Balak Singh and Bhagat Jawaharmal.

12th April 1872 is usually known as the official day when the movement was started, though in real essence the foundations of the movement were being laid down by Satguru Ram Singh Ji a few years before.

There are two names associated with the start of this movement Baba Balak Singh and Bhagat Jawar (or Jawahar) Mal.

dqdk vkanksyu dh 'kq#vkr ls tqM+s nks uke gS&ckck ckyd flag vkSj Hkxr tokgjeyA

12 vçsy 1872 dks vkerkSj ij vkf/kdkfjd fnu ds: i esa tkuk tkrk gS&tc vkanksyu 'kq: fd;k x;k FkkA] gkykafd okLrfod : i ls vkanksyu dh uhao dN lky igys lrxq#jke flag th }kjk j•h xbZ FkhA

bl vkanksyu dh 'kq#vkr ls tqM+s nks uke gS&ckck ckyd flag vkSj Hkxr tokgjeyA

42. (3) White phosphorus is represented by Ch4.

'There are many forms of phosphorus: white, red and black.

There is talk of white phosphorus being used in the current war between Israel and Hamas.

liSn iQkLiQksjl dks $P_4$ ls minf'kZr djrsgSA

* iQkLiQksjl oSQ dbZ vi:i liSn] yky vkSj dkyk gSA

* liSn iQkLiQksjl dk iz;ksx orZeku esa btjkby ,oa gekl oSQ e/; gq, ;q¼ esa iz;ksx fd;s tkus dh ppkZ gSA

43.(2)

44.(4) The mouth is the beginning of the digestive system.

**Esophagus** - Located in your throat near your trachea (windpipe), the esophagus receives food from your mouth when you swallow.

**Stomach** - The stomach is a hollow organ, or "container," that holds food while it is being mixed with stomach enzymes. These enzymes continue the process of breaking down food into a usable form.

**Small Intestine** - Made up of three segments — the duodenum, jejunum, and ileum — the small intestine is a 22-foot long muscular tube that breaks down food using enzymes released by the pancreas and bile from the liver.

**Pancreas** - The pancreas secretes digestive enzymes into the duodenum that break down protein, fats and carbohydrates. The pancreas also makes insulin, passing it directly into the bloodstream. Insulin is the chief hormone in your body for metabolizing sugar.

**Gallbladder** - The gallbladder stores and concentrates bile from the liver, and then releases it into the duodenum in the small intestine to help absorb and digest fats.

**Colon** - The colon is responsible for processing waste so that emptying your bowels is easy and convenient. Rectum

**The rectum** is a straight, 8-inch chamber that connects the colon to the anus.

**The anus** is the last part of the digestive tract.

eqg ikpu ra=k dh 'kq#vkr gSA

vluç.kkyh & vkids'okluyh ('olu uyh) dsikl vkidsxysesafLFkr] tc vki fuxyrsgSa¡rksvluç.kkyh vkidseqg lsHkkstu çkIr djrh gSA

iV & iV ,d •ks•yk vax] ;k ^dWVsuj* gS] tksiV ds,tkbekol lkFk fefJr gksusij Hkkstu dksj•rk gSA ;s ,tkbe Hkkstu dksmi;ksxh : i esarksM+usdh çfØ;k dks tkjh j•rs gSA

NkWh vkr & rhu •WkalscuhgkrhgS& xg.kh] tstqe] vkjbfy;eA NkWh vkr ,cl 22 i0V/ ychekdiśkh VÔwc gkrhgŞ tks vXU;k'k; }kjk tkjh ,atkbekavkj ;Ñr IsfiÙk dk mi;kx djclsHkkstu dksrkWfrh g&

vXU;k'k; & vXU;k'k; xg.kh eaikpu ,atkbeka dk Iko djrk gŞtksçkVhu] olk vkj dkckgkbMjV/ dksrkWfrsg& vXU;k'k; Hkh balfŕyu cukrk g& bIsIhèksjjÙkUQçokg eaçokfkfgr djrk g& balfŕyu vkids'kjhj ea'kdjjk dsp;kip; dsfy, e([; gkeksu g&

fiÙkk'k;&fiÙkk'k; ;Ñr IsfiÙk dksIxfgr vkj IacÆr djrk gŞ vkj fiÜj olk dksvo'kfk"kr vkj ipkuseaenn djusdsfy, bIsNkWh vkr eaxg.kh eaNkMfrk g&

dksyu & dksyu vif'k"kV çlLdj.k dsfy, ftEenkj gŞrkfxd vkidh vkrkadks•kyh djuk vkIku vkj Ifo/ktudk gks

eyk'k;&

eyk'k; ,cl Ih/k] 8 bap dk d{k gŞtkscMÄ vkr dksxqnk Is tkMÄrk g&

xqnk ikpu rak dk vfre Hkkx g&

45.(2) Andaman and Nicobar Islands - 1 November 1956

Chandigarh – 1 November 1966

Dadra and Nagar Haveli and Daman and Diu – 26 January 2020

Puducherry – 16 August 1962

vMeku vkj fudkckj }hi leg & 1 uorj 1956

pMhx<+& 1 uorj 1966

nknjk vkj uxj gosyh vkj neu vkj nho & 26 tuojh 2020

iMpjh & 16 vxLr 1962

46.(1) Article 12 - Defination of states

Article 51 (A): Fundamental duties

395 has been repealed from the Indian constution.

vuPNn 12 & jkT;ka dh ifjHkk"kk

vuPNn 51 (,)% ekSfyd drR;

Hkkjrh; Ifo/ku Is /kjk 395 dksfujLr dj fn;k x;k g&

47.(4) **Amir Khusro** (1253-1323) was a great poet, musician and follower of Sheikh Nizamuddin Auliya.

He is frequently credited with creating the Khaliq Bari, a poetry vocabulary that includes phrases from Arabic, Persian, and Hindavi. Khusrao has been referred to be the "founder of Urdu literature," and Khadi boli the "voice of India," or the "Parrot of India" (Tuti-e-Hind). Khusrao is credited as being the "founder of qawwali".

**Tansen** was the title given to him by Raja Vikramjit of Gwalior.

Akbar gave the title of Kanthabharan Vanivilas to Tansen. He was the court poet of Raja Ramchandra Singh of Rewa and also Akbar. He specialized in the Dhrupad style of singing. He invented the night raga Darbari Kanhra, morning raga Mian Ki Todi, mid-day raga, Mian ki Sarang, seasonal raga Mian ki Malhar. He composed many Dhrupads on Hindu gods and goddesses like Ganesha, Shiva, Parvati and Rama.

**Kalidas**

Meghadutam, Raghuvansham, Kumar Samvam, Abhigyan Sakuntalam, The loom of time.

vehj •qjks (1253&1323) ,d egku dfo] lghrdkj vk§ 'k• futkesjïhu vkfsy;k ds vuqq;h FkA

mUgsa[kfyd ckjh ([kMh-cksyh) cukusdk Js] fn;k tkrk g¡ tks,d dkO; 'kCnkoyh g¡Sftlesavjch] iQkjlh vk§ fgmoh dsokD;kÙk 'kfeny g¡ •qjksdks^mniiIkfgR; dk llFkkid*] ^Hkkjr dh vkokt* ;k^Hkkjr dk rksrk* (mrh&,&fgmn) dgk x;k g¡ •qjksdks^cd0okyh dsllFkkid* gksusdk Js fn;k tkrk g¡

rkuisu dh mikf/ mUgaXokfy;j dsjktkrks foØethr usnh FkhA

vdcj usrkuisu dksdkBkHkkj.k ok.khfoykl dh mikf/ nhA og jhok dsjktkjkeplæ flag vk§ vdcj dsnjckjh dfo Fk\A mUghkus xk;u dh èkqin 'kSyh esafo'ks"kKRk gkfly dhA mUghkusjkf=kjkx njckjh dkUgM\ çkr% jkx fe;ka dh rksMh] eè;kÉ jkx fe;ka dh lkjax] eksl eh jkx fe;ka dh eYgkj dk vkfo"dkj fd;kA mUghkusx.ksk f'ko] ikoZrh vk§ jke tS sfgmnwnoh&nsorkvkai j dbZèkqinkadh jpuk dhA

e?kmure] oßekj lUskoe] jk?kwpkmke] vfHkkKku 'kkwiÖrye] le; dk rk.Mo vkfn dh jpuk dhA

**48.(4)** Metallurgical coal, a type of bituminous coal, is specially used for smelting iron in blast furnaces.//kmçdeZ dksoyk] ,d çdkj dk fcVqfeul dksoyk] fo'ks"k : i IsCykLV iQuil esaykgs dksxykus dsfy, mi;kx fd;k tkrk g¡

**49.(4)** The Intensified Mission Indradhanush 5-0 campaign was launched on August 3, 2023 by Madhya Pradesh's Additional Chief Secretary (Health) Mohammad Suleman through video conferencing.

It has been introduced for vaccination of children aged 0-5 years and pregnant women.

I?ku fe'ku bUnzèkuqk 5-0 vfHk;ku dh 'kq vkr 3 vxLr 2023 e-iz os¨ vij eq[; Ifpo (LokLF;) eksgEen lqyeku usohfM;ks dkWUiQ£lx oß ek¡;e Is fd;kA

;g 0&5 o"kZ os¨ cPpka ,oaxHkZorh efgykvkas os¨ Vhdkdj.k g\ rqyk;k x;k g¡

**50.(3)** GI tag means is a geographical indication by which the objects of a particular area are given special importance and disseminated.

GI Vˆx vFkkr (Geographical Indication) Hkk£xfyd I¨or ftl Is{kwk fo'ks{k dh oLrqvka dksfo'ks{k egRo nsdj mlsizlkfjr fd;k tkrk g¡

**51. (1)** 
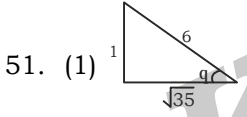


$$\sqrt{x\sqrt{x\sqrt{x---}}} = x$$

$\sin\theta = \dfrac{1}{6}$

$\tan\theta + \cot\theta = \dfrac{1}{\sqrt{35}} + \dfrac{\sqrt{35}}{1}$

$= \dfrac{36}{\sqrt{35}}$

**52. (3)** A can complete a work in (x+8) days

B can complete a work in (x+8) days

∴ A and B do the same work in ($\sqrt{18 \times 8}$ = 12) days

A and B do 1 unit work in 12 days

∴ A and B do $\dfrac{5}{6}$ unit work in $\left(\dfrac{5}{6}\times 12\right)$= 10 days

53. (3) Let,

S$_1$ = Speed of A

T$_1$ = Time taken by A to reach Q

S$_2$ = Speed of B

T$_2$ = Time taken by B to reach P

We know,

$$\dfrac{S_1}{S_2} = \sqrt{\dfrac{T_2}{T_1}}$$

or, $\dfrac{S_1}{16.8} = \sqrt{\dfrac{8}{\dfrac{49}{8}}} = \sqrt{\dfrac{64}{49}} = \dfrac{8}{7}$

or, S$_1$ = $\dfrac{8}{7}$ ×16.8

or, S$_1$ = 19.2

∴ Speed of A is 19.2 km/h

54. (4) Amount = 3120

Principal = 2000

∴ Interest = 1120

∴ Interest in 1 year = $\dfrac{1120}{2}$

$\qquad\qquad\qquad$ = 560

∴ Interest rate = $\dfrac{560}{2000}$ ×100

$\qquad\qquad\qquad$ = 28%

55. (1) Cost price of mixture

= 53.10× $\dfrac{100}{118}$ = 45

$\qquad$ Type 1 : Type 2

$\qquad\quad$ 42 $\quad$ : $\quad$ 50

$\qquad\qquad$ 45

$\qquad$ 5 $\quad$ : $\quad$ 3
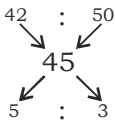
3 ≡ $\dfrac{15}{2}$

$$5 \equiv \frac{25}{2}$$

$\therefore$ 12.5 kg of the rice costing Rs. 42 per kg should be mixed.

56. (2)



Science    Math
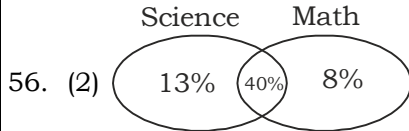
13%  (40%)  8%

$\therefore$ % of students passed in both subjects = 100–(13+40+8)

= 39%

57. (3) Let cost price = 100

$\therefore$ Marked price = 135

and selling price = 120

$\therefore$ % discount

$$= \left( \frac{135 - 120}{135} \times 100 \right) = 11\frac{1}{9}\%$$

58. (2) a + b + c = 0

$a^3 + b^3 + c^3 - 3abc = 0$

59. (2) $\dfrac{1+x^2}{1-x} \div \dfrac{1-x^4}{x-1} \times \dfrac{x(1-x)}{1+x}$

$= \dfrac{1+x^2}{1-x} \times \dfrac{x-1}{1-x^4} \times \dfrac{x(1-x)}{1+x}$

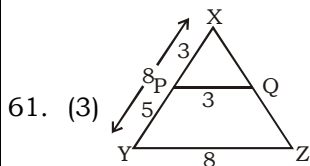$= \dfrac{1+x^2}{1-x} \times \dfrac{-(1-x)}{(1+x^2)(1-x)(1+x)} \times \dfrac{x(1-x)}{1+x}$

$= -\dfrac{x}{(1+x)^2}$

60. (4) Let numbers are

x, x +2, x + 4, x + 6, x + 8, x + 10, x + 12, x + 14, x + 16

As total numbers are odd, middle term is always average of given series.

So, average = 27

61. (3)



From basic proportion theorem,

$(3 + 5) \equiv 88$

$1 \equiv 11$

$3 \equiv 33$

$5 \equiv 55$

$\therefore$ Length of XP = 33 cm

62. (2) $(14)^{\frac{1}{3}}, (12)^{\frac{1}{2}}, (16)^{\frac{1}{6}}, (25)^{\frac{1}{12}}$
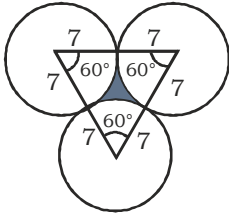
Multiplying power of each term with LCM of 3, 2, 6, 12.

$\Rightarrow (14)^{\frac{12}{3}}, (12)^{\frac{12}{2}}, (16)^{\frac{12}{6}}, (25)^{\frac{12}{12}}$

$\Rightarrow (14)^{4}, (12)^{6}, (16)^{6}, (25)^{1}$

$\therefore$ Smallest is $(25)^{\frac{1}{12}}$.

63. (4) Radius of each circle makes an equilateral triangle.



$\therefore$ Area of triangle $= \dfrac{\sqrt{3}}{4} \times (14)^2 = 49\sqrt{3}$ cm²

Area of all three sectors

$= 3 \times \dfrac{22}{7} \times 49 \times \dfrac{60°}{360°}$ cm²

$= 3 \times 22 \times 7 \times \dfrac{1}{6}$ cm² = 77 cm²

$\therefore$ Area of shaded portion

$= 49\sqrt{3} - 77$ cm²

64. (1)

|  | **Previous** |  | **Present** |
|---|---|---|---|
| Ratio of price $\rightarrow$ | 100 | : | 75 |
|  | 4 | : | 3 |
| Ratio of consumption $\rightarrow$ | 3 | : | 4 |
|  |  | 1 |  |

$1 \equiv 20$

$3 \equiv 60$

$\therefore$ Earlier consumption = 60 kg

65. (4)
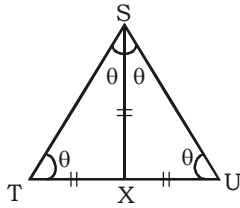


From figure, We have

$4\theta = 180°$

$\theta = 45°$

$\therefore \angle TSU = 2 \times 45°$

$= 90°$

66. (2) Speed of boat in upstream

$= \dfrac{\text{Distance in upstream}}{\text{time}}$

$= \dfrac{36}{9} \text{km/h} \Rightarrow 4\text{km/h}$

Speed of boat in downstream $= \dfrac{\text{Dsitance in downstream}}{\text{time}}$

$= \dfrac{36}{3} \text{km/h} \Rightarrow 12 \text{ km/h}$

$\therefore$ Speed of boat in still water $= \dfrac{12+4}{2} \text{km/h} \Rightarrow 8 \text{ km/h}$

67. (3) If n = number of terms

a = first term

d = common difference

In arithmetic progression,

Sum of n terms $(S_n)$

$= \dfrac{n}{2}\big[2a+(n-1)d\big]$

$= \dfrac{n}{2} [2\times(-9)+(n-1)\times3] = \dfrac{n}{2}[3n-21]$

ATQ,

$45 = \dfrac{n}{2}[3n-21]$

$90 = -21n + 3n^2$

$3n^2 - 21n - 90 = 0$

$3n^2 - 30n + 9n - 90 = 0$

$3n (n - 10) + 9 (n - 10) = 0$

$(3n + 9) (n - 10) = 0$

Either $3n + 9 = 0$

$n = -\dfrac{9}{3}$

(It is not possible)

Or $n - 10 = 0$

$n = 10$

$\therefore$ There are 10 terms

68. (4) Let, radii of two cylinders are $r_1$, $r_2$ unit and height of two cylinders are 1 unit and 6 unit.

Volumes of cylinders = $(\pi r_1^2 \times 1)$, $(\pi r_2^2 \times 6)$ unit$^3$

ATQ, $\dfrac{\pi r_1^2}{6\pi r_2^2} = \dfrac{6}{1}$

Or, $\left(\dfrac{r_1}{r_2}\right)^2 = (6)^2 \Rightarrow \dfrac{r_1}{r_2} = 6$

$r_1 : r_2 = 6 : 1$

$\therefore$ The required ratio is 6 : 1

69. (4) **Divisibility rule of 9** $\rightarrow$ Sum of digits must be divisible by 9.

The sum of digits

$5 + 7 + 2 + X + 4 + 1 = 19 + X$

For X = 8, the sum digits is divisible by 9

70. (1) According to the question

The ratio of the number of

boys & girls = 1 : 2

The average weight of all students = $\dfrac{30 \times 2 + 36 \times 1}{3}$ = 32

71. (1) Total number of students = 2 + 2 + 12 + 25 + 9 = 50

Total number of students who get more than 60% marks

= 25 + 9 $\Rightarrow$ 34

Required percentage of total students who scored more than 60%

= $\dfrac{34}{50} \times 100$ = 68%

72. (3) $\left(\dfrac{1+\sec^2 A}{1+\cos^2 A}\right)\left(\dfrac{1+\sin^2 A}{1+\cosec^2 A}\right)$

$\Rightarrow \left(\dfrac{1+\dfrac{1}{\cos^2 A}}{1+\cos^2 A}\right)\left(\dfrac{1+\sin^2 A}{1+\dfrac{1}{\sin^2 A}}\right)$

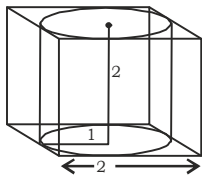$\Rightarrow \dfrac{1}{\cos^2 A} \times \sin^2 A \Rightarrow \tan^2 A$

73. (4) 50% A = 80% B

Or, A : B = 80 : 50

A : B = 8 : 5

74. (2) Total surface area $=2\pi r(h+r)$

% Change = $\dfrac{6 \times \pi r^2 \times 100}{2\pi r(h + r)}$

$=\dfrac{3 \times 9}{25} \times 100 = 108\%$

75. (2) 

Let,

Length of side of the cube = 2 unit

$\therefore$ Radius of the base of the cylinder = 1 unit

and height of the cylinder = 2 unit

Ratio of volume of the cube and cylinder

$= 2^3 : \pi.1^2 \times 2$

$4 : \pi.$

$4 : \dfrac{22}{7}$

28 : 22

$\therefore$ Required percentage of waste solid $=\dfrac{6}{28} \times 100 = \dfrac{150}{7}$

$= 21.42\%$

76. (4) Replace 'on' with 'in'. 'Good' is followed by 'at'.
77. (4) 'In broad daylight' is the correct phrase , means-during the day, when everyone can see.
88. (3) 'To+ $V_{bf}$' is the correct structure.
90. (2) Replace 'extends' with 'extend' Plural subject(Atmospheric rivers) takes a plural verb (extend)
95. (1) Replace 'run' with 'ran'.Past indefinite Tense is required to get a meaningful sentence.

# MEANINGS IN ALPHABETICAL ORDER

| WORD | MEANING IN ENGLISH | MEANING IN HINDI |
|------|---------------------|------------------|
| Amiss | Wrong; not as it should be | xyr |
| Amalgamate | Used especially about organizations, groups, etc. | (lLFkvkা lxBuka vkfn dks) |
|  | To join together to form a single organization, group, etc. | feykdj ,d dj nuk |
| Efficacy | The power to produce an effect | çHkko |
| Quandary | A state of not being able to decide what to do; a difficult situation | vlednl] my>u |
| Timorous | Showing or suffering from nervousness or a lack of confidence, | dk;j |

# SSC MOCK TEST - 412 (ANSWER KEY)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. | (1) | 26. | (1) | 51. | (1) | 76. | (4) |
| 2. | (2) | 27. | (4) | 52. | (3) | 77. | (4) |
| 3. | (4) | 28. | (2) | 53. | (3) | 78. | (1) |
| 4. | (1) | 29. | (1) | 54. | (4) | 79. | (1) |
| 5. | (2) | 30. | (3) | 55. | (1) | 80. | (4) |
| 6. | (1) | 31. | (4) | 56. | (2) | 81. | (3) |
| 7. | (3) | 32. | (3) | 57. | (3) | 82. | (4) |
| 8. | (2) | 33. | (2) | 58. | (2) | 83. | (3) |
| 9. | (3) | 34. | (1) | 59. | (2) | 84. | (3) |
| 10. | (2) | 35. | (4) | 60. | (4) | 85. | (3) |
| 11. | (3) | 36. | (3) | 61. | (3) | 86. | (2) |
| 12. | (3) | 37. | (2) | 62. | (2) | 87. | (1) |
| 13. | (3) | 38. | (1) | 63. | (4) | 88. | (3) |
| 14. | (1) | 39. | (3) | 64. | (1) | 89. | (1) |
| 15. | (3) | 40. | (4) | 65. | (4) | 90. | (2) |
| 16. | (1) | 41. | (4) | 66. | (2) | 91. | (3) |
| 17. | (3) | 42. | (3) | 67. | (3) | 92. | (3) |
| 18. | (2) | 43. | (2) | 68. | (4) | 93. | (2) |
| 19. | (4) | 44. | (4) | 69. | (4) | 94. | (1) |
| 20. | (1) | 45. | (2) | 70. | (1) | 95. | (1) |
| 21. | (1) | 46. | (1) | 71. | (1) | 96. | (2) |
| 22. | (1) | 47. | (4) | 72. | (3) | 97. | (4) |
| 23. | (3) | 48. | (4) | 73. | (4) | 98. | (2) |
| 24. | (1) | 49. | (4) | 74. | (2) | 99. | (1) |
| 25. | (4) | 50. | (3) | 75. | (2) | 100. | (2) |