SSC COMBINED GRADUATE LEVEL TIER-I EXAM, 19-06-2011 (2ND SITTING) – PREVIOUS YEAR PAPER

GENERAL AWARENESS

1. Coronation of Shivaji took place in
   (1) 1627 A.D.
   (2) 1674 A.D.
   (3) 1680 A.D.
   (4) 1670 A.D.

   Solution : 2

2. The System of Dyarchy was introduced in India in
   (1) 1909
   (2) 1935
   (3) 1919
   (4) 1945

   Solution : 3

3. The Editor of `Young India' and 'Harijan' was
   (1) Nehru
   (2) Ambedkar
   (3) Mahatma Gandhi
   (4) Subash Chandra Bose

   Solution : 3

4. Who of the following attended all the Three Round Table Conferences ?
   (1) B.R. Ambedkar
   (2) M.M.Malavia
   (3) Vallabhbhai Patel
   (4) Gandhiji

   Solution : 1

5. Which is the largest living bird on Earth?
   (1) Emu
   (2) Ostrich

(3) Albatross
(4) Siberian Crane

Solution : 2

6. Rihand Dam Project provides irrigation to
(1) Gujarat and Maharashtra
(2) Orissa and West Bengal
(3) Uttar Pradesh and Bihar
(4) Kerala and Karnataka

Solution : 3

7. The Headquarters of MCF (Master Control Facility) – the nerve centre of the entire space craft operations-in India is at
(1) Hyderabad – Andhra Pradesh
(2) Thumba – Kerala
(3) Sdharikota – Andhra Pradesh
(4) Hassan – Karnataka

Solution : 4

8. Which Is the longest irrigation canal in India ?
(1) Sirhind Canal
(2) Yamuna Canal
(3) Indira Gandhi Canal
(4) East Kosi Canal

Solution : 3

9. Which one of the following minerals is found in Monazite sand ?
(1) Potassium
(2) Uranium
(3) Thorium
(4) Sodium

Solution : 3

10. In coriander, the useful parts are
(1) roots & leaves
(2) leaves & flowers
(3) leaves & dried fruits
(4) flowers & dried fruits

Solution : 3

11. Which plant is called 'Herbal Indian Doctor ?
(1) Amla
(2) Mango

(3) Neem
(4) Tulsi

Solution : 1

12. The pH of human blood is
(1) 7.2
(2) 7.8
(3) 6.6
(4) 7.4

Solution : 4

13. Which amongst the following is largest endocrine gland in the body ?
(1) Thyroid
(2) Parathyroid
(3) Adrenal
(4) Pituitary

Solution : 1

14. Which amongst the following is the largest mammal ?
(I) Elephant
(2) Whale
(3) Dinosaur
(4) Rhinoceros

Solution : 2

15. Which part becomes modified as the tusk of elephant ?
(1) Canine
(2) Premolar
(3) Second incisor
(4) Molar

Solution : 3

16. Optical fibres are based on the phenomenon of
(1) Interference
(2) Dispersion
(3) Diffraction
(4) Total Internal Reflection

Solution : 4

17. Now-a-days yellow lamps are frequently used as street lights. Which of the following gases is used in these lamps ?
(1) Sodium
(2) Neon

(3) Hydrogen
(4) Nitrogen

Solution : 1

18. 'Mirage' is an example of
(1) refraction of light only
(2) total internal, reflection of light only
(3) refraction and total internal reflection of light
(4) dispersion of light only

Solution : 3

19. The phenomenon of light associated with the appear-ance of blue colour of the sky is
(1) Interference
(2) Reflection
(3) Refraction
(4) Scattering

Solution : 4

20. In which of the following areas, a spreadsheet software is more useful ?
(1) Psychology
(2) Publishing
(3) Statistics
(4) Message sending

Solution : 3

21. A Group Ware is a
(1) Hardware
(2) Network
(3) Software
(4) Firmware

Solution : 3

22. Lens is made up of
(1) Pyrex glass
(2) Flint glass
(3) Ordinary glass
(4) Cobalt glass

Solution : 2

23. The element which is used for vulcanizing rubber
(1) Sulphur
(2) Bromine

Note: The Information Provided here is only for reference. It May vary the Original.

(3) Silicon
(4) Phosphorus

Solution : 1

24. Which of the following is responsible for the extra strength of pyrex glass ?
(1) Potassium Carbonate
(2) Lead Oxide
(3) Borax
(4) Ferric Oxide

Solution : 3

25. The noble gas used for the treatment of cancer is
(1) Helium
(2) Argon
(3) Krypton
(4) Radon

Solution : 4

26. Vasundhara Summit was held in
(1) USA
(2) UK
(3) Brazil
(4) Australia

Solution : 3

27. 'Loktak' is a
(1) Valley
(2) Lake
(3) River
(4) MouritainRange

Solution : 2

28. Which city receives the highest cosmic radiation amongst the following ?
(1) Chermai
(2) Mumbai
(3) Kolkata
(4) Delhi

Solution : 1

29. The common tree species in Nilgiri hills is
(1) Sal
(2) Pine

Note: The Information Provided here is only for reference. It May vary the Original.

(3) aicalyptus
(4) Teak

Solution : 3

30. Which of the following statements on Railway Budget for 2011-12 is correct ?
(1) There would be 10% increase in fares for long distance train travel both by airconditioned and non-airconditioned classes.
(2) There would be 15% increase in freight rates on all goods other than foodgrains.
(3) There would be 15% increase in passenger fares for all classes for long distance travel as well as in freights.
(4) There would be no increase in fares for both suburban and long distance train travel.

Solution : 4

31. The nuclear reactors which were damaged heavily due to a strong Earthquake-cum-Tsunami that hit Japan on March 11, 2011 causing radiation leakage were at
(1) Fukushima
(2) Kyoto
(3) Tokyo
(4) None of the above

Solution : 1

32. The maximum limit on poll expenditure for Assembly Constituencies has been raised in February, 2011 to
(1) 16 lakhs
(2) 18 lakhs
(3) 20 lalchs
(4) 25 lalths

Solution : 1

33. First Indian Prime Minister to visit Siachen has been
(1) Rajiv Gandhi
(2) Inder Kumar Gujaral
(3) Man Mohan Singh
(4) None of the above

Solution : 3

34. Which of the following books has been written by Kishwar Desai ?
(1) The Red Devil
(2) Witness the Night
(3) Tonight This Savage Rite
(4) Earth and Ashes

Solution : 2

Note: The Information Provided here is only for reference. It May vary the Original.

35. Which of the following folk/ tribal dances is associated with Karnataka?
(1) Yakshagana
(2) Veedhi
(3) Jatra
(4) Jhora

Solution : 1

36. Who of the following received Sangeet NatalcAlrademi's Ustad Bismillah Khan Yuva Puraskar for 2009 in Theatre ?
(1) Omkar Shrikant Dadarkar
(2) Raglni Chander Sarkar
(3) Abanti Chakravorty & Sukracharya Rabha
(4) K. Nellai Manikandan

Solution : 3

37. Which of the following countries did not win any of the "FIFA World Cup" in 2002, 2006 & 2010 ?
(1) Brazil
(2) Argentina
(3) Spain
(4) South Africa

Solution : 4

38. Who invented vaccination for 'Small Pox'?
(1) Sir Fredrick Grant Banting
(2) Sir Alexander Fleming
(3) Edward Jenner
(4) Louis Pasteur

Solution : 3

39. Who was the first Indian to become member of British Parliament ?
(1) BankimChander Chatterjee
(2) W.C. Bannerjee,
(3) Dadabhai Naoroji
(4) None of the above

Solution : 3

40. The purchase of shares and bonds of Indian companies by Foreign Institutional Investors is called
(1) Foreign Direct Investment
(2) Portfolio Investment
(3) NRI Investment
(4) Foreign Indirect Investment

Note: The Information Provided here is only for reference. It May vary the Original.

Solution : 4

41. BT seed is associated with
(1) Rice
(2) Wheat
(3) Cotton
(4) Oil seeds

Solution : 3

42. The Headquarters of International Atomic Energy Agency is in
(1) Geneva
(2) Paris
(3) Vienna
(4) Washington

Solution : 3

43. In the Budget Estimates for 2011-12, an allocation of T 400 crore has been made to bring in a green revolution in the East in the rice-based cropping system of
(1) Assam & West Bengal only
(2) Assam, West Bengal, Orissa & Bihar only
(3) Assam, West Bengal, Orissa, Bihar &Jharkhand only
(4) Assam, West Bengal, Orissa, Bihar, Jharkhand, Eastern Uttar Pradesh & Chhatisgarh

Solution : 4

44. In the Budget for 2011-12 presented by the Finance Minister on 28-2-2011, the income-tax exemption limit for senior citizens (60 years to less than 80 years) has been increased to
(1) It 2.50 lakh
(2) 2.60 lakh
(3) 2.80 lakh
(4) 3.00 lakh

Solution : 1

45. If the Anglo-Indian community does not get adequate representation in the Lok Sabha, two members of the community can be nominated by the
(1) Prime Minister
(2) President
(3) Speaker
(4) President in consultation with the Parliament

Solution : 2

46. For the election of President of India, a citizen should have completed the age of
(1) 25 years

(2) 30 years
(3) 35 years
(4) 18 years

Solution : 3

47. Who said,"A good citizen makes a good State and a bad citizen makes a bad State' ?
(1) Plato
(2) Rousseau
(3) Aristotle
(4) Laski

Solution : 3

48. A member of Parliament will lose his membership of Parliament if he is continu-ously absent from Sessions for
(1) 45 days
(2) 60 days
(3) 90 days
(4) 365 days

Solution : 2

49. In India, the Residuary Powers are vested with
(1) Union Government
(2) State Government
(3) Both the Union Government and the State Government
(4) Local Government

Solution : 1

50. Mention the place where Buddha attained enlightenment.
(1) Sarnath
(2) Bodh Gaya
(3) Kapilavastu
(4) Rajgriha

Solution : 2

Note: The Information Provided here is only for reference. It May vary the Original.

ENGLISH COMPREHENSION

Directions (1 – 5) : In the following questions sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four.

1. The company let me _____time off work.
   (1) take
   (2) taking
   (3) to take
   (4) took

   Solution : 1

2. I assume_____ with me.
   (1) every one agreeing
   (2) that every one agrees
   (3) every one to agree
   (4) that every one to agree

   Solution : 2

3. _____the rain forests is very important, if we do not want the flora and fauna found there to become extinct.
   (1) Reserving
   (2) Destroying
   (3) Preserving
   (4) Maintaining

   Solution : 3

4. If I had helped him, he_____.
   (1) will not be drowned
   (2) would not be drowned
   (3) will not have drowned
   (4) would not have drowned

   Solution : 4

Note: The Information Provided here is only for reference. It May vary the Original.

5. When will you hand _____your assignment ?
(1) in
(2) back
(3) down
(4) into

Solution : 1

Directions (5 – 10) : In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

6. **Barren**
(1) good
(2) wholesome
(3) unproductive
(4) profitable

Solution : 3

7. **Infamy**
(1) notoriety
(2) glory
(3) integrity
(4) familiarity

Solution : 1

8. **Intrepid**
(1) hesitant
(2) fearless
(3) extrovert
(4) rash

Solution : 2

9. **Prodigal**
(1) exclusive
(2) productive
(3) lavish
(4) carefree

Solution : 3

Note: The Information Provided here is only for reference. It May vary the Original.

10. **Perspicuous**
(1) relevant
(2) precise
(3) brief
(4) clear

Solution : 2

Directions (11-15) : In the following questions, choose the word opposite in meaning to the given word,

11. **Liberty**
(1) serenity
(2) slavery
(2) serfdom
(4) subordination

Solution : 2

12. **Disorderly**
(1) chaotic
(2) organized
(3) adjusted
(4) arranged

Solution : 4

13. **Elevation**
(1) reduction
(2) humiliation
(3) depression
(4) debasement

Solution : 3

14. **Glossy**
(1) dull
(2) shining
(3) weary
(4) tired

Solution : 1

Note: The Information Provided here is only for reference. It May vary the Original.

15. **Appropriate**
(1) dissimilar
(2) incomparable
(3) unsuitable
(4) disparate

Solution : 3

Directions (16-20) : In the following questions, four alternatives are given for the given idiom/phrase in bold. Choose the alternative which best expresses the meaning of the given idiom/phrase.

16. **a damp squib**
(1) rainy weather
(2) a disappointing result
(3) a skirt in a laundry
(4) None of the above

Solution : 2

17. **in cold blood**
(1) angrily
(2) deliberately
(3) excitedly
(4) slowly

Solution : 1

18. **to take someone for a ride**
(1) to give a ride to someone
(2) to deceive someone
(3) to be indifferent
(4) to disclose a secret

Solution : 2

19. **to move heaven and earth**
(1) to cause an earthquake
(2) to try everything possible
(3) to pray to all Gods
(4) to travel in a rocket

Solution : 2

Note: The Information Provided here is only for reference. It May vary the Original.

20. **to smell a rat**
(1) to smell foul
(2) to see a rat
(3) to chase a rat
(4) to be suspicious

Solution : 4

Directions (21-25) : In th following questions, a sentence is giv en which/a part of which may need improvement. Alternatives are given at (1), (2) and (3) which may be a better option. In case no improvement is needed your answer is (4).

21. What do you for go to school ?
(1) For what do you go to school?
(2) What do you go for to school?
(3) What do you go to school for?
(4) No improvement

Solution : 3

22. He pleased the directors and this completed his report in good time.
(1) He pleased the directors in good time and this completed his report.
(2) He completed his report in good time and this pleased the directors.
(3) He pleased the directors and completed his report and this in good time.
(4) No improvement

Solution : 2

23. The courtiers used to tell the King how efficient an administrator he was all day long.
(1) The courtiers all day long used to tell the King how efficient an administrator he was.
(2) The courtiers used all day long to tell the King how efficient an administrator he was.
(3) The courtiers used to tell the King all day long how efficient an administrator he was.
(4) No improvement

Solution : 3

24. Every Saturday I go out for **shopping**
(1) for shops.
(2) to shopping
(3) for shop
(4) No improvement

Solution : 4

25. We had a grand party and we enjoyed very much.
(1) We had a grand party and enjoyed very much.
(2) We had a grand party to enjoy very much.
(3) We had a grand pa?ty and we enjoyed ourselves very much.
(4) No improvement

Solution : 3

Directions (26 – 30) : In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/ sentence.

26. An inscription on a tomb
(1) espionage
(2) epilogue
(3) epitaph
(4) elegy

Solution : 3

27. Feeling inside you which tells you
what is right and what is wrong :
(1) cleverness
(2) conscience
(3) consciousness
(4) fear

Solution : 2

28. Release of a prisoner from jail on certain terms and condition
(1) Parole
(2) Parley
(3) Pardon
(4) Acquittal

Solution : 1

29. Loss of memory
(1) Ambrosia
(2) Amnesia
(3) Insomnia
(4) Forgetting

Solution : 2

Note: The Information Provided here is only for reference. It May vary the Original.

30. To struggle helplessly
(1) Flounder
(2) Founder
(3) Fumble
(4) Finger

Solution : 1

Directions (31-35) : In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

31. (1) gestalt
(2) imbrolios
(3) ampasse
(4) recondite

Solution : 2

32. (1) hindrance
(2) corespondence
(3) insurence
(4) assurence

Solution : 1

33. (1) adversery
(2) adultary
(3) advisory
(4) arbitary

Solution : 3

34. (1) rogeu
(2) colleague
(3) diluge
(4) alege

Solution : 2

35. (1) malignant
(2) impertinant
(3) independant
(4) neglegent

Solution : 1

Directions (36 – 45) : In thefollowing passage, some of the words have been left out. First read the passage over and try to understand what it is about . Then fill in the blank with the help of the alternative given.

Almost every full moon night. the officials in Andaman and Nicobar Islands take part in a cautious ritual. The tribesmen watch from a safe distance as the officials (36) the island in a boat (37) gifts for them. The islander come (38) hesitantly only after the officials (39) dumped the coconuts brought (40) them onto the beach and begin (41) away from their small island. On some nights the tribals even (42) up enough courage to swim upto a few feet (43) from the boat. The officials maintain that they do (44) want to interfere with the way of life of the tribals. The island (45) heavily on the mainland for most goods.

36. (1) approach
(2) depart
(3) present
(4) absent

Solution : 1

37. (1) coming
(2) leaving
(3) carrying
(4) relieving

Solution : 3

38. (1) forward
(2) backward
(3) sides
(4) upward

Solution : 1

39. (1) has
(2) have
(3) had
(4) be

Solution : 2

40. (1) by
(2) to

(3) in
(4) for

Solution : 4

41. (1) watching
(2) seeing
(3) sailing
(4) stopping

Solution : 3

42. (1) leave
(2) muster
(3) come
(4) present

Solution : 2

43. (1) correctly
(2) distantly
(3) near
(4) away

Solution : 4

44. (1) no
(2) neither
(3) not
(4) nor

Solution : 3

45. (1) spy
(2) rely
(3) occupy
(4) reply

Solution : 2

Directions (46 -50) : In the following questions, some of the sentences have errors and some are correct. Find out which part of a sentence has an error. The number of that part is your answer. If there is no error, the answer is (4).

46. A great many student (1)/ have been declared (2)/ successful. (3)/ No error. (4)

Solution : 1

47. We are going to launch (1)/ this three-crores project (2)/ within the next few months. (3)/ No error. (4)

Solution : 2

48. I hope to go to shopping (1)/ this weekend (2)/ if the weather permits. (3)/ No error. (4)

Solution : 1

49. The lawyer asked (I)/ if it was worth to take (2)/ the matter to court. (3)/ No error. (4)

Solution : 2

50. After a carefully investigation (1)/ we discovered (2)/ that the house was infested with termites. (3)/ No error. (4)

Solution : 1

Note: The Information Provided here is only for reference. It May vary the Original.

NUMERICAL APTITUDE

1. If $\sqrt{1+\frac{x}{9}}=\frac{13}{3}$, then the value of x is

(1) $\frac{1439}{9}$

(2) 160

(3) $\frac{1443}{9}$

(4) 169

Solution : 2

(2) $\sqrt{1+\frac{x}{9}}=\frac{13}{3}$

Squaring on both sides,

$1+\frac{x}{9}=\frac{169}{9}$

$\Rightarrow \frac{x}{9}=\frac{169}{9}-1=\frac{160}{9}$

$\Rightarrow x=\frac{160}{9}\times 9=160$

2. The sum of two numbers is 24 and their product is 143. The sum of their squares is

(1) 296

(2) 295

(3) 290

(4) 228

Solution : 3

(3) Let the numbers be x and y.
$\therefore x + y = 24$
and, $xy = 143$
$\therefore x^2 + y^2 = (x + y)^2 - 2xy$
$= (24)^2 - 2 \times 143$
$= 576 - 286 = 290$

3. Which one of the following will completely divide 571 + 572 + 573 ?
(1) 150
(2) 160
(3) 155
(4) 30

Solution : 3

(3) $5^{71} + 5^{72} + 5^{73}$
$= 5^{71} (1 + 5 + 5^2)$
$= 5^{71} \times 31$ which is exactly divisible by 155.

4. L.C.M. of two numbers is 120 and their H.C.F. is 10. Which of the following can be the sum of those two numbers ?
(1) 140
(2) 80
(3) 60
(4) 70

Solution : 4

(4) Let the numbers be $10x$ and $10y$ where x and y are prime to each other.
$\therefore$ LCM $= 10\,xy$
$\Rightarrow 10xy = 120$
$\Rightarrow xy = 12$
Possible pairs = (3, 4) or (1, 12)
$\therefore$ Sum of the numbers = 30 + 40 = 70

5. When 'n is divisible by 5 the remainder is 2. What is the remainder when n^2 is divided by 5 ?
(1) 2

(2) 3
(3) 1
(4) 4

Solution : 4

(4) Required remainder = Remainder obtained by dividing 2^2 by 5.
Remainder = 4

6. A student was asked to divide a number by 6 and add 12 to the quotient. He, however, first added 12 to the number and then divided it by 6, getting 112 as the answer. The correct answer should have been
(1) 124
(2) 122
(3) 118
(4) 114

Solution : 2

(2)
Let the number be x.

$$\therefore \frac{x+12}{6} = 112$$

$$\Rightarrow x + 12 = 672$$

$$\Rightarrow x = 672 - 12 = 660$$

$$\therefore \text{Correct answer} = \frac{660}{6} + 12$$

$$= 110 + 12 = 122$$

7. Four runners started running simultaneously from a point on a circular track. They took 200 seconds, 300 seconds, 360 seconds and 450 seconds to complete one round. After how much time do they meet at the starting point for the first time ?
(1) 1800 seconds
(3) 3600 seconds
(2) 2400 seconds
(4) 4800 seconds

Solution : 1

(1) Required time = LCM of 200, 300, 360 and 450 seconds
= 1800 seconds

8. 'x' number of men can finish a piece of work in 30 days. If there were 6 men more, the work could be finished in 10 days less. The original number of men is

(1) 6

(2) 10

(3) 12

(4) 15

Solution : 3

(3)

Men	Days
x ↑	30 ↓
$x+6$	20

$x + 6 : x :: 30 : 20$

$\Rightarrow \frac{x+6}{x} = \frac{30}{20} = \frac{3}{2}$

$\Rightarrow 2x + 12 = 3x$

$\Rightarrow 3x - 2x = 12$

$\Rightarrow x = 12$ men

9. A work can be completed by P and Q in 12 days, Q and R in 15 days, R and P in 20 days. In how many days P alone can finish the work ?

(1) 10

(2) 20

(3) 30

(4) 60

Note: The Information Provided here is only for reference. It May vary the Original.

Solution : 3

(3) (P + Q)'s 1 day's work

$= \frac{1}{12}$ .....(i)

(Q + R)'s 1 day's work

$= \frac{1}{15}$ .....(ii)

(R + P)'s 1 day's work

$= \frac{1}{20}$ .....(iii)

Adding all three equations,
2 (P + Q + R)'s 1 day's work

$= \frac{1}{12} + \frac{1}{15} + \frac{1}{20} = \frac{5+4+3}{60}$

$= \frac{12}{60} = \frac{1}{5}$

∴ (P + Q + R)'s 1 day's work

$= \frac{1}{10}$ .....(iv)

∴ P's 1 day's work
= Equation (iv) – equation (ii)

$= \frac{1}{10} - \frac{1}{15} = \frac{3-2}{30} = \frac{1}{30}$

∴ P alone will complete the work in 30 days.

10. A is thrice as good a workman as B and is, therefore, able to finish a piece of work in 60 days less than B. The time (in days) in which they can do it working together is
(1) 22
(2) 22.5
(3) 23
(4) 23.25

Solution : 2

(2) If A completes the work in x days, B will do the same in $3x$ days.

$\therefore 3x - x = 60$

$\Rightarrow 2x = 60$

$\Rightarrow x = 30$ and $3x$

$= 90$

$\therefore$ (A) + B)'s 1 day's work

$$= \frac{1}{30} + \frac{1}{90} = \frac{3+1}{90}$$

$$= \frac{4}{90} = \frac{2}{45}$$

$\therefore$ A and B together will do the

work in $\frac{45}{2} = 22\frac{1}{2}$ days.

11. A copper wire is bent in the form of square with an area of 121 cm2. If the same wire is bent in the form of a circle, the radius (in cm) of the circle is (Take $\pi = \frac{22}{7}$)

(1) 7

(2) 10

(3) 11

(4) 14

Solution : 1

(1) Side of square

$= \sqrt{121} = 11$ cm

$\therefore$ Length of wire = 4 × 11

= 44 cm

$\therefore 2\pi r = 44$

$$\Rightarrow 2 \times \frac{22}{7} \times r = 44$$

$$\Rightarrow v = \frac{44 \times 7}{2 \times 22} = 7 \text{ cm}$$

12. The areas of three consecutive faces of a cuboid are 12 cm^2, 20 cm^2 and 15 cm^2, then the volume (in cm^3) of the cuboid is

(1) 3600

(2) 100

(3) 80

(4) 60

Solution : 4

(4) If the length, breadth and height of the cuboid be x, y and z cm respectively, then

$xy = 12$; $yz = 20$; $zx = 15$

$\therefore x^2y^2z^2 = 12 \times 20 \times 15$

$= 3600 \text{ cm}^6$

$\therefore v = xyz = \sqrt{3600} = 60 \text{ cm}^3$

13. Water is flowing at the rate of 5 km/h through a pipe of diameter 14 cm into a rectangular tank which is 50 m long, 44m wide. The time taken, in hours, for the rise in the level of water in the tank to be 7 cm is

(1) 2

(2) 1.5

(3) 3

(4) 2.5

Solution : 1

(1) Water flowed by the pipe in 1 hour

$= \pi r^2 h$

$= \frac{22}{7} \times \frac{7 \times 7}{100 \times 100} \times 5000 \text{ metre}^3$

$= 77 \text{ metre}^3$

Volume of expected water in the tank

$= \frac{50 \times 44 \times 7}{100} = 154 \text{ metre}^3$

$\therefore$ Required time

$= \frac{154}{77} = 2$ hours

14. The wheel of a motor car makes 1000 revolutions in moving 440 m. The diameter (in metre) of the wheel is

(1) 0.44

(2) 0.14

(3) 0.24

(4) 0.34

Solution : 2

(2) Distance covered by wheel in one revolution

= Circumference of wheel

$\therefore \pi \times \text{diameter} = \frac{440}{1000}$

$\Rightarrow \frac{22}{7} \times \text{diameter} = \frac{440}{1000}$

$\Rightarrow \text{Diameter} = \frac{440}{1000} \times \frac{7}{22}$

= 0.14 cm

15. The sides of a triangle are in the ratio 2 : 3 : 4. The perimeter of the triangle is 18 cm. The area (in cm2) of the triangle is

(1) 9

(2) 36

(3) √42

(4) 3√15

Solution : 4

(4) Ratio = 2 : 3 : 4

= 4 : 6 : 8

Perimeter = 18 cm

$\therefore \text{Semi-perimeter(s)} = \frac{4+6+8}{2}$

= 9

∴ Area of triangle

$= \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{9(9-4)(9-6)(9-8)}$

$= \sqrt{9 \times 5 \times 3 \times 1} = 3\sqrt{15}$ sq.cm.

16. Marked price of an article is 275. Shopkeeper allows a discount of 5% and he gets a profit of 4.5%. The actual cost of the article is

(1) 250

(2) 225

(3) 215

(4) 210

Note: The Information Provided here is only for reference. It May vary the Original.

Solution : 1

(1) C.P. of article = Rs. x (let)

$$\therefore \frac{x \times 104.5}{100} = \frac{275 \times 95}{100}$$

$$\Rightarrow x \times 104.5 = 275 \times 95$$

$$\Rightarrow x = \frac{275 \times 95}{104.5} = \text{Rs. } 250$$

17. The difference between a discount of 40% on Z 500 and two successive discounts of 36%, 4% on the same amount is
(1) 0
(2) 2
(3) 1.93
(4) 7.20

Solution : 4

(4) Single equivalent discount for 36% and 4%

$$= \left(36 + 4 - \frac{36 \times 4}{100}\right)$$

$$= (40 - 1.44)\% = 38.56\%$$

$\therefore$ Required difference

= 1.44% of 500

$$= \frac{500 \times 1.44}{100} = \text{Rs. } 7.20$$

18. If x: y = 4 : 5, then (3x + y) (5x + 3y) =
(1) 3 : 5
(2) 5 : 3
(3) 17 : 35
(4) 35 : 17

Solution : 3

(3) $\frac{x}{y} = \frac{4}{5}$

$$\therefore \frac{3x+y}{5x+3y} = \frac{3\left(\frac{x}{y}\right)+1}{5\left(\frac{x}{y}\right)+3}$$

$$= \frac{3\times\frac{4}{5}+1}{5\times\frac{4}{5}+3} = \frac{\frac{12+5}{5}}{7}$$

$$= \frac{17}{35}$$

19. The ratio of the quantities of an acid and water in a mixture is 1 : 3. If 5 litres of acid is further added to the mixture, the new ratio becomes 1 : 2. The quantity of new mixture in litres is

(1) 32
(2) 40
(3) 42
(4) 45

Solution : 4

(4) Let the quantity of acid in original mixture be x litre and that of water be $3x$ litre.

$$\therefore \frac{x+5}{3x} = \frac{1}{2}$$

$\Rightarrow 2x + 10 = 3x$
$\Rightarrow x = 10$
$\therefore$ Quantity of new mixture
$= 4x + 5 = 45$ litres

20. The ratio between two numbers is 2 : 3. If each number is increased by 4, the ratio between them becomes 5 : 7. The difference between the numbers is

(1) 8
(2) 6
(3) 4
(4) 2

Note: The Information Provided here is only for reference. It May vary the Original.

Solution : 1

(1) Let the numbers be $2x$ and $3x$.

$\therefore \frac{2x+4}{3x+4} = \frac{5}{7}$

$\therefore 15x + 20 = 14x + 28$

$\Rightarrow x = 28 - 20 = 8$ = Required difference

21. Monthly incomes of A and B are in the ratio of 4 : 3 and their expenses bear the ratio 3 : 2. Each of them saves 6,000 at the end of the month, then the monthly income of A is

(1) 12,000

(2) 24,000

(3) 30,000

(4) 60,000

Solution : 2

(2) Let the monthly incomes of A and B be Rs. $4x$ and Rs. $3x$ respectively and their expenditures be Rs. $3y$ and Rs. $2y$ respectively.

$\therefore 4x - 3y = 6000$

and $3x - 2y = 6000$

$\Rightarrow 4x - 3y = 3x - 2y$

$\Rightarrow x = y$

$\therefore 4x - 3y = 6000$

$\Rightarrow x = 6000$

$\Rightarrow$ A's monthly income $= 4x$

= Rs. 24000

22. The average of three consecutive odd numbers is 12 more than one third of the first of these numbers. What is the last of the three numbers ?

(1) 15

(2) 17

(3) 19

(4) Data inadequate

Solution : 3

(3) If the smallest number be x,
then

$$\frac{x}{3}+12=x+2$$

$\Rightarrow x+36=3x+6$
$\Rightarrow 3x-x=36-6$
$\Rightarrow 2x=30 \Rightarrow x=15$
$\therefore$ Third number $= 15+4=19$

23. The average of 18 observations is recorded as 124. Later it was found that two observations with values 64 and 28 were entered wrongly as 46 and 82. Find the correct average of the 18 observations.

(1) $111\frac{7}{9}$

(2) 122

(3) 123

(4) $137\frac{3}{9}$

Solution : 2

(2) Difference in observations
$= 64+28-46-82=-36$
$\therefore$ Correct average

$$=124-\frac{36}{18}=122$$

24. If the cost price of 15 articles is equal to the selling price of 12 articles, find gain %

(1) 20
(2) 25
(3) 18
(4) 21

Solution : 2

(2) Percentage profit

$$=\frac{15-12}{12}\times 100=25$$

25. The cost price of an article is 64% of the marked price. The gain percentage after allowing a discount of 12% on the marked price is

(1) 37.5%

(2) 48%

(3) 50.5%

(4) 52%

Solution : 1

(1) Marked price of article
= Rs. 100 (let)
∴ C.P. of article = Rs. 64
∴ S.P. of article = Rs. 88
∴ Profit per cent

$$= \frac{88-64}{64} \times 100$$

= 37.5%

26. A man purchased some eggs at 3 for ! 5 and sold them at 5 for ? 12. Thus he gained ! 143 in all. The number of eggs he bought is

(1) 210

(2) 200

(3) 195

(4) 190

Solution : 3

(3) Let he buy 15 eggs.
∴ CP of 15 eggs = Rs. 25
∴ SP of 15 eggs = Rs. 36
∴ Gain = 36 – 25 = Rs. 11

∵ Rs. 11 ≡ 15 eggs

$$\therefore \text{Rs. } 143 \equiv \frac{15}{11} \times 143$$

= 195 eggs

27. X sells two articles for ! 4,000 each with no loss and no gain in the interaction. If one was sold at a gain of 25% the other is sold at a loss of

(1) 25%

(2) $18\frac{2}{9}$

(3) $16\frac{2}{3}$%

(4) 20%

Solution : 4

(4) Here, SP of both articles is same. Profit on one is equal to loss on the other.

If loss per cent be x, then

$$25 - x - \frac{25x}{100} = 0$$

$$\Rightarrow 25 - x - \frac{x}{4} = 0$$

$$\Rightarrow 100 - 4x - x = 0$$

$$\Rightarrow 5x = 100$$

$$\Rightarrow x = 20$$

28. 20% loss on selling price is what per cent loss on the cost price ?

(1) 25%

(2) 15%

(3) $16\frac{2}{3}\%$

(4) $16\frac{1}{3}\%$

Solution : 2

(2) Let the CP be Rs. 100.

If selling price be Rs. x, then

$$\frac{100 - x}{x} \times 100 = 20$$

$$\Rightarrow 500 - 5x = x$$

$$\Rightarrow 6x = 500$$

$$\Rightarrow x = \frac{500}{6} = \text{Rs.}\frac{250}{3}$$

$\therefore$ Required loss per cent

$$= 100 - \frac{250}{3} = \frac{50}{3} = 16\frac{2}{3}\%$$

29. If 90% of A = 30% of B and B = x% of A, then the value of x Is

(1) 800

(2) 300

(3) 700

(4) 400

Solution : 2

(2) $A \times \frac{90}{100} = \frac{B \times 30}{100}$

$\Rightarrow A \times 3 = B$

$\Rightarrow A \times x\% = A \times 3$

$\Rightarrow \frac{x}{100} = 3 \Rightarrow x = 300$

30. A reduction of 20% in the price of sugar enables me to purchase 5 kg more for 600. Find the price of sugar per kg before reduction of price.

(1) 24

(2) 30

(3) 32

(4) 36

Solution : 2

(2) Let the original C.P. of sugar be Rs. x per kg. New price of sugar = Rs. $\frac{4x}{5}$ per kg.

$\therefore \frac{600}{\frac{4x}{5}} - \frac{600}{x} = 5$

$\Rightarrow 600\left(\frac{5}{4x} - \frac{1}{x}\right) = 5$

$\Rightarrow 600\left(\frac{5-4}{4x}\right) = 5$

$\Rightarrow \frac{600}{4x} = 5$

$\Rightarrow x = \frac{600}{20} = 30$

31. The price of a commodity rises from ! 6 per kg to 7.50 per kg. If the expenditure cannot increase, the percentage of reduction in consumption is

(1) 15

(3) 20

(2) 25

(4) 30

Solution : 2

(2) Percentage increase

$$= \frac{7.50 - 6}{6} \times 100 = 25$$

∴ Percentage decrease in consumption $= \frac{25}{125} \times 100 = 20\%$

32. First and second numbers are less than a third number by 30% and 37% respectively. The second number is less than the first by
(1) 7%
(2) 4%
(3) 3%
(4) 10%

Solution : 4

(4) Let the third number = 100.
∴ First number = 70
Second number = 63
∴ Required per cent

$$= \frac{70 - 63}{70} \times 100 = 10\%$$

33. Walking at 6/7 th of his usual speed a man is 25 minutes too late. His usual time to cover this distance is
(1) 2 hours 30 minutes
(2) 2 hours 15 minutes
(3) 2 hours 25 minutes
(4) 2 hours 10 minutes

Solution : 1

Note: The Information Provided here is only for reference. It May vary the Original.

(1) Time and speed are inversely proportional.

$\therefore \frac{7}{6} \times$ Usual time – Usual time

= 25 minutes

$\Rightarrow$ Usual time $\left(\frac{7}{6}-1\right)$

= 25 minutes

$\Rightarrow$ Usual time $\times \frac{1}{6}$

= 25 minutes

$\therefore$ Usual time = 25 × 6

= 150 minutes

= 2 hours 30 minutes

34. Walking at 5 km/ hr a student reaches his school from his house 15 minutes early and walking at 3 km/ hr he is late by 9 minutes. What is the distance between his school and his house ?

(1) 5 krn

(2) 8 km

(3) 3 km

(4) 2 km

Solution : 3

(3) Let the required distance be x km.

$\therefore \frac{x}{3}-\frac{x}{5}=\frac{24}{60}$

$\Rightarrow \frac{5x-3x}{15}=\frac{2}{5} \Rightarrow \frac{2x}{3}=2$

$\Rightarrow 2x = 2 \times 3 \Rightarrow x = 3$ km

35. A sum of 12,000 deposited at compound interest becomes double after 5 years. After 20 years, it will become

(1) 48,000

(2) 96,000

(3) 1,90,000

(4) 1,92,000

Solution : 4

(4) $A = P\left(1+\frac{R}{100}\right)^T$

$\Rightarrow \frac{A}{P} = \left(1+\frac{R}{100}\right)^T$

$\Rightarrow 2 = \left(1+\frac{R}{100}\right)^5$

$\Rightarrow 2^4 = \left(1+\frac{R}{100}\right)^{20}$

$\Rightarrow 16 = \left(1+\frac{R}{100}\right)^{20}$

Hence, the principal will become 16 times i.e.

Rs. (16 × 12000)
= Rs. 192000

36. Simple interest on a certain sum for 6 years is 9/25 of the sum. The rate of interest is
(1) 6%
(2) 6.5%
(3) 8%
(4) 8.5%

Solution : 1

(1) $\text{Rate} = \frac{\text{SI} \times 100}{\text{Principal} \times \text{Time}}$

$= \frac{9}{25} \times \frac{100}{6} = 6\%$ per annum

37. The difference between the compound interest and simple interest for the amount ! 5,000 in 2 years is 32. The rate of interest is
(1) 5%
(2) 8%
(3) 10%
(4) 12%

Solution : 2

(2) Difference of 2 years

$$= \frac{p \times r^2}{10000}$$

$$\Rightarrow 32 = \frac{5000 \times r^2}{10000}$$

$$\Rightarrow r^2 = \frac{32 \times 10000}{5000} = 64$$

$$\Rightarrow r = \sqrt{64} = 8\%$$

38. The least number, which is to be added to the greatest number of 4 digits so that the sum may be divisible by 345, is

(1) 50
(2) 6
(3) 60
(4) 5

Solution : 2

(2) The largest 4-digit number
= 9999

```
345)9999(28
     690
     3099
     2760
      339
```

∴ Required number = 345 – 339
= 6

39. If $\frac{4\sqrt{3} + 5\sqrt{2}}{\sqrt{48} + \sqrt{18}} = a + b\sqrt{6}$, then

the values of a and b are respectively

(1) $\frac{9}{15}, -\frac{4}{15}$

(2) $\frac{3}{11}, \frac{4}{33}$

(3) $\frac{9}{10}, \frac{2}{5}$

(4) $\frac{3}{5}, \frac{4}{15}$

Solution : 4

(4) L.H.S. $= \frac{4\sqrt{3}+5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$

$= \frac{4\sqrt{3}+5\sqrt{2}}{4\sqrt{3}+3\sqrt{2}}$

$= \frac{4\sqrt{3}+5\sqrt{2}}{4\sqrt{3}+3\sqrt{2}} \times \frac{4\sqrt{3}-3\sqrt{2}}{4\sqrt{3}-3\sqrt{2}}$

(Rationalising the denominator)

$= \frac{16\times 3-12\sqrt{6}+20\sqrt{6}-15\times 2}{\left(4\sqrt{3}\right)^2-\left(3\sqrt{2}\right)^2}$

$= \frac{48+8\sqrt{6}-30}{48-18}$

$= \frac{18+8\sqrt{6}}{30} = \frac{9}{15}+\frac{4\sqrt{6}}{15}$

$= \frac{3}{5}+\frac{4\sqrt{6}}{15}$

$\therefore \frac{3}{5}+\frac{4\sqrt{6}}{15} = a+b\sqrt{6}$

$\Rightarrow a = \frac{3}{5}$ and $b = \frac{4}{15}$

Note: The Information Provided here is only for reference. It May vary the Original.

40. If 17^{200} is divided by 18, the remainder is

(1) 1

(2) 2

(3) 16

(4) 17

Solution : 1

(1) Remainder when $(x - 1)^n$ is divided by x is $(-1)^n$.

$\therefore (17)^{200} = (18 - 1)^{200}$

$\therefore$ Remainder $= (-1)^{200} = 1$

41. If $x + \cfrac{2}{3 + \cfrac{4}{5 + \cfrac{7}{6}}} = 10$, then the value of x is

(1) $\frac{1276}{135}$

(2) $\frac{53}{6}$

(3) 4.35

(4) 9

Solution : 1