SSC COMBINED GRADUATE LEVEL TIER-I EXAM, 26-06-2011 (1ST SITTING) – PREVIOUS YEAR PAPER

GENERAL AWARENESS

1. When there is an official change in the exchange rate of domestic currency, then it is called :
(1) Appreciation
(2) Depreciation
(3) Revaluation
(4) Deflation

Solution : 3

2. Inflation redistributes income and wealth in favour of :
(1) Pensioners
(2) Poor
(3) Middle class
(4) Rich

Solution : 4

3. The fringe benefit tax was introduced in the budget of
(1) 2003-04
(2) 2004-05
(3) 2005-06
(4) 2006-07

Solution : 3

4. In the Budget estimates for 2011-12, an allocation of 400 crore has been made to bring in a green revolution in the East in the cropping system of :
(1) Wheat
(2) Rice
(3) Jowar
(4) Pulses

Solution : 2

5. As announced by the Finance Minister in his budget speech on 28-2-2011, the income tax exemption limit for individuals other than senior citizens and women has been raised

to :
(1) 1,80,000
(2) 1,90,000
(3) 2,00,000
(4) 2,50,000

Solution : 1

6. Judicial review in the Indian Constitution is based on :
(1) Rule of Law
(2) Due process of Law
(3) Procedure established by Law
(4) Precedents and Conventions

Solution : 3

7. The Drafting of the Constitution was completed on :
(1) 26th January, 1950
(2) 26th December, 1949
(3) 261 November, 1949
(4) 30th November, 1949

Solution : 3

8. Who was the President of the Constituent Assembly?
(1) Pt. Jawahar Lal Nehru
(2) Sardar Patel
(3) Dr. Rajendra Prasad
(4) Dr. B.R. Ambedkar

Solution : 3

9. Which innovative discussion process is introduced by the Indian parliament to the World Parliamentary systems ?
(1) Question hour
(2) Zero hour
(3) Resolutions
(4) Presidential Speech

Solution : 2

10. The judges of the Supreme Court retire at the age of :
(1) 60 years
(2) 65 years
(3) 62 years
(4) 58 years

Solution : 2

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

11. The Greek ambassador sent to Chandragupta Malaya's Court was :
(1) Kautilya
(2) Seleucus Nicator
(3) Megasthenes
(4) Justin

Solution : 3

12. Identify the European power from whom Shivaji obtained cannons and ammunition :
(1) The French
(2) The Portuguese
(3) The Dutch
(4) The English

Solution : 2

13. The call of "Back to the Vedas" was given by :
(1) Swami Vivekananda
(2) Swami Dayanand Saraswati
(3) Aurobindo Ghosh
(4) Raja Ram Mohan Roy

Solution : 2

14. Simon Commission was boycotted by the nationalist leaders of India because :
(1) they felt that it was only an eyewash
(2) all the members of the Commission were English
(3) the members of the Commission were biased against India
(4) it did not meet the demands of the Indians

Solution : 2

15. Who among the following British persons admitted the Revolt of 1857 as a national revolt ?
(1) Lord Dalhousie
(2) Lord Canning
(3) Lord Ellenborough
(4) Disraeli

Solution : 4

16. How much of the Earth's land surface is desert ?
(1) 1/10th
(2) 1/5th
(3) 1/3rd
(3) 1/6th

Solution : 2

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

17. Which of the following is called the 'shrimp capital of India' ?
(1) Mangalore
(2) Nagapatnam
(3) Kochi
(4) Nellore

Solution : 4

18. River Indus originates from :
(1) Hindukush range
(2) Himalayan range
(3) Karakoram range
(4) Kailash range

Solution : 4

19. The lowest layer of the atmosphere is :
(1) Stratosphere
(2) Thermosphere
(3) Troposphere
(4) Mesosphere

Solution : 3

20. The Konkan Railway connects :
(1) Goa — Mangalore
(2) Roha — Mangalore
(3) Kanyakumari — Mangalore
(4) Kanyakumari — Mumbai

Solution : 2

21. Bark of this tree is used as a condiment—
(1) Cinnamon
(2) Clove
(3) Neem
(4) Palm

Solution : 1

22. Who was the architect of North and South Blocks of the Central Secretariate in Delhi ?
(1) Sir Edward Lutyens
(2) Herbert Baker
(3) Robert Tor Russell
(4) Antonin Raymond

Solution : 2

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

23. Saliva helps in the digestion of :
(1) Fats
(2) Starch
(3) Proteins
(4) Vitamins

Solution : 2

24. The longest bone in the human body is :
(1) Ulna
(2) Humerus
(3) Femur
(4) Tibia

Solution : 3

25. Red data book gives information about species which are :
(1) extinct
(2) endangered
(3) dangerous
(4) rare

Solution : 2

26. Which of the following is the smallest bird?
(1) Pigeon
(2) Parrot
(3) Humming bird
(3) House sparrow

Solution : 3

27. The time period of a pendulum when taken to the Moon would :
(1) remain the same
(2) decrease
(3) become zero
(4) increase

Solution : 4

28. The atmospheric air is held to the Earth by :
(1) gravity
(2) winds
(3) clouds
(4) rotation of the Earth

Solution : 1

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

29. The function of ball bearings in a wheel is :
(1) to increase friction
(2) to convert kinetic friction into rolling friction
(3) to convert static friction into kinetic friction
(4) just for convenience

Solution : 2

30. 'Shock-absorbers' are usually made of steel as it :
(1) is not brittle
(2) has lower elasticity
(3) has higher elasticity
(4) has no ductile property

Solution : 3

31. The first computer made available for commercial use was :
(1) MANIAC
(2) ENIAC
(3) UNIVAC
(4) EDSAC

Solution : 3

32. A communication network which is used by large organizations over regional, national or global area is called :
(1) LAN
(2) WAN
(3) MAN
(4) VAN

Solution : 2

33. Which of the following could be used as fuel in propellant or rockets?
(1) Liquid Hydrogen + Liquid Nitrogen
(2) Liquid Oxygen + Liquid Argon
(3) Liquid Nitrogen + Liquid Oxygen
(4) Liquid Hydrogen + Liquid Oxygen

Solution : 4

34. The addition of gypsum to port-land cement helps in :
(1) increasing the strength of cement
(2) rapid setting of cement
(3) preventing rapid setting of cement
(4) reduction in the cost of cement

Solution : 3

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

35. White lung disease is prevalent among the workers of :
(1) Paper industry
(2) Cement industry
(3) Cotton industry
(4) Pesticide industry

Solution : 4

36. Iodoform is used as an :
(1) antipyretic
(2) analgesic
(3) antiseptic
(4) anaesthetic

Solution : 3

37. An artificial ecosystem is represented by :
(1) pisciculture tank
(2) agricultural land
(3) zoo
(4) aquarium

Solution : 4

38. The constituents of automobile exhaust that can cause cancer is/ are :
(1) Oxides of nitrogen
(2) Carbon monoxide
(3) Polycyclic hydrocarbons
(4) Lead

Solution : 4

39. The optimum dissolved oxygen level (in mg/litre) required for survival of aquatic organisms is :
(1) 4 — 6
(2) 2 — 4
(3) 8 — 10
(4) 12 — 16

Solution : 1

40. The world's only floating national park is sistuated in :
(1) Manipur
(2) Kuala Lumpur
(3) Bilaspur
(4) Dispur

Solution : 1

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

41. According to the latest 'Education Development Index' based on a series of surveys conducted by the National University of Education, Planning and Administration and released in February, 2011, the state with the highest Development Index is :
(1) Tamil Nadu
(2) Kerala
(3) Punjab
(4) Gujarat

Solution : 2

42. Indian Army's Operatio `Saiyam' was related to :
(1) Kashmir
(2) Indo-China Border in the Central Region
(3) North-East
(4) Indo-Pak Border in Punjab and Rajasthan

Solution : 4

43. In the Railway Budget for 201112, an outlay of 57,630 crore has been announced for adding new lines with length of :
(1) 1000 km
(2) 1200 km
(3) 1300 km
(4) 1500 km

Solution : 3

44. The strong earthquake-cum-tsunami which has moved Japan's main island by a few feet and has caused the Earth's axis to wobble is expected to lead to the shortening of the day by :
(1) 1.6 microseconds
(2) 2.3 microseconds
(3) 3.1 microseconds
(4) 3.4 microseconds

Solution : 1

45. The 'Project Snow Leopard' to conserve the endangered speceis, launched by the Union Ministry of Environment and Forests covers the states of :
(1) Jammu & Kashmir and Himachal Pradesh only
(2) Jammu & Kashmir, Himachal Pradesh and Uttarakhand only
(3) Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh only
(4) Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh and Sikkim

Solution : 4

46. The 2010 FIFA World Cup Final was held at :
(1) Paris

(2) Berlin
(3) Johannesburg
(4) London

Solution : 3

47. Who of the following receivedSangeet Natak Akademi's Us-tad Bismillah Khan Yuva Puruskar for 2009 in 'Hindustani Vocal Music'?
(1) Omkar Shrikant Dadarkar
(2) Ragini Chander Shekar
(3) Abanti Chakravorty and Sukracharya Rabha
(4) K. Nellai Manikandan

Solution : 1

48. Which of the following folk/tribal dances is associated with Uttar Pradesh?
(1) Veedhi
(2) Thora
(3) Tamasha
(4) Rauf

Solution : 2

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

Solution : 1

50. Who is the recepient of the Sahitya Akademi Award 2010 in Hindi Literature category?
(1) Uday Prakash
(2) Laxman Dubey
(3) Nanjil Nandan
(4) Mangat Badal

Solution : 1

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

ENGLISH COMPREHENSION

Directions (1-5) : 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 the answer. If there is no error your answer is (4) i.e. No error.

1. The future of food companies (1) / seems quite secure (2) / owed to ever-growing demand. (3)/ No error. (4)

   Solution : 3

2. The vaccine (1) / when hit the Indian market (2) / is dogged by controversy. (3) / No error. (4)

   Solution : 3

3. His son(1) / is working (2) / very hardly. (3) / No error.(4)

   Solution : 3

4. Do you know that it was I (1) / who has done (2) / this piece of beautiful work? (3)/ No error.(4)

   Solution : 2

5. The company has ordered(1) / some (2) / new equipments, (3) / No error.(4)

   Solution : 3

Directions (6-10) : 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.

6. The housewife_____ the cakes burning, and ran to switch off the oven.
   (1) smell
   (2) smells
   (3) smelt
   (4) smelling

   Solution : 3

7. _____an old legend, King Shirham lived in India.
   (1) In the event of
   (2) Due to
   (3) According to
   (4) In reference to

   Solution : 3

8. _____you leave now, you will be late.
(1) Until
(2) Till
(3) Unless
(4) Although

Solution : 1

9. The _____were arrested for illegally hunting the bears.
(1) poachers
(2) rangers
(3) soldiers
(4) villagers

Solution : 1

10. If you had followed the rules, you _____disqualified.
(1) will not be
(2) would not be
(3) will not have been
(4) would not have been

Solution : 4

Directions (11-15) : In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

11. LOQUACIOUS
(1) Talkative
(2) Slow
(3) Content
(4) Unclear

Solution : 1

12. VINDICTIVE
(1) Imaginative
(2) Accusative
(3) Spiteful
(4) Aggressive

Solution : 3

13. INCLEMENT
(1) Selfish
(2) Active
(3) Unfavourable
(4) Inactive

Solution : 3

14. GENIAL
(1) Cordial
(2) Unselfish
(3) Careful
(4) Specific

Solution : 1

15. ACCRUE
(1) Accumulate
(2) Accommodate
(3) Grow
(4) Suffice

Solution : 1

Directions (16-20) : In the following questions, out of the four alternatives, choose the word opposite in meaning to the given word.

16. ACCORD
(1) Disagreement
(2) Welcome
(3) Disrespect
(4) Conformity

Solution : 1

17. INFIRMITY
(1) Employment
(2) Indisposition
(3) Strength
(4) Weakness

Solution : 3

18. FEASIBLE
(1) Useful
(2) Impractical
(3) Uneven
(4) Important

Solution : 2

19. METICULOUS
(1) Forgetful
(2) Destructive

(3) Careless
(4) Flagrant

Solution : 3

20. SYNTHETIC
(1) Natural
(2) Plastic
(3) Cosmetic
(4) Apathetic

Solution : 1

Directions (21-25) : In the following questions, four alternatives are given for the meaning of the given Idiom/Phrase. Choose the alternative which best expresses the meaning of the Idiom/Phrase.

21. A bolt from the blue
(1) a delayed event
(2) an inexplicable event
(3) an unexpected event
(4) an unpleasant event

Solution : 3

22. Cold comfort
(1) absurdity
(2) deception
(3) slight satisfaction
(4) foolish proposal

Solution : 3

23. To be all at sea.
(1) a family voyage
(2) lost and confused
(3) in the middle of the ocean
(4) a string of islands

Solution : 2

24. To take to one's heels
(1) to walk slowly
(2) to run away
(3) to march forward
(4) to hop and jump

Solution : 2

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

25. To bite the dust
(1) eat voraciously
(2) have nothing to eat
(3) eat roots
(4) None of the above

Solution : 4

Directions (26-30) : In the following questions, a sentence or bold part thereof is given which may need improvement. Alternatives ae given at (1), (2) and (3) below, which may be a better option. In case no improvement is needed, your answer is (4).

26. He has for good left India.
(1) He has left for good India.
(2) He has left India for good.
(3) Good he has left India.
(4) No improvement

Solution : 2

27. We are credibly informed that the murderer has given himself up.
(1)We are informed that the murderer has credibly given himself up.
(2) We are informed that the murderer has given credibly himself up.
(3) We are informed that credibly the murderer has given up himself.
(4) No improvement

Solution : 4

28. We generally select one of the most intelligent student of the school for this award.
(1) one of the most intelligent students of the school
(2) one of the intelligent most students of the school
(3) one of the intelligent most student of the school
(4) No improvement

Solution : 1

29. My friend lives in a nearby street whose name I have forgotten.
(1) the name of which
(2) which name
(3) of which name
(4) No improvement

Solution : 1

30. He both won a medal and a scholarship.
(1) He won a medal and a scholarship both.
(2) Both he won a medal and a scholarship.
(3) He won both a medal and a scholarship.
(4) No improvement

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

Solution : 3

Directions (31-35) : In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentence.

31. A post with little work but high salary
(1) Director
(2) Trustee
(3) Sinecure
(4) Ombudsman

Solution : 3

32. Something that causes death
(1) Dangerous
(2) Fatal
(3) Brutal
(4) Horrible

Solution : 2

33. A person who writes decoratively
(1) Calligrapher
(2) Collier
(3) Choreographer
(4) Cartographer

Solution : 1

34. Pertaining to cattle
(1) Canine
(2) Feline
(3) Bovine
(4) Verminous

Solution : 3

35. To look at someone in an angry or threatening way
(1) Glower
(2) Gnaw
(3) Gnash
(4) Grind

Solution : 1

Directions (36-40) : In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

36. (1) agnostik
(2) accomplice

(3) advercity
(4) acrimonous

Solution : 2

37. (1) dysentery
(2) momentery
(3) cemetary
(4) comentary

Solution : 1

38. (1) ebulient
(2) jubilant
(3) iminent
(4) tolerent

Solution : 2

39. (1) malaign
(2) arraign
(3) asigne
(4) degine

Solution : 2

40. (1) harrassment
(2) embarrasment
(3) fulfilment
(4) denoument

Solution : 3

Directions (41-50) : In the following 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 blanks with the help of the alternatives given.

PASSAGE (Q.Nos. 41-50) The Solar System has been a complicated wonder for the astronomers. This is a (41) to which we may never have the exact answer. Man has wondered (42) the age of the Earth (43) ancient times. There were all kinds of (44) that seemed to have the (45). But man could not begin to (46) about the question scientifically until about 400 years (47). When it was proved that the (48) revolved round the Sun and the
Earth was a (49) of our Solar Systen, then scientists knew where to (50) .

41. (1) problem
(2) question
(3) matter
(4) query

Solution : 2

42. (1) around
(2) out
(3) about
(4) on

Solution : 3

43. (1) since
(2) during
(3) around
(4) from

Solution : 1

44. (1) ideas
(2) opinions
(3) stories
(4) matters

Solution : 3

45. (1) solution
(2) novel
(3) book
(4) answer

Solution : 4

46. (1) read
(2) think
(3) open
(4) guess

Solution : 2

47. (1) now
(2) time
(3) then
(4) ago

Solution : 4

48. (1) Moon
(2) time
(3) Earth
(4) Mars

Solution : 3

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

49. (1) part
(2) division
(3) opening
(4) centre

Solution : 1

50. (1) end
(2) begin
(3) think
(4) work

Solution : 2

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

NUMERICAL APTITUDE

1. $\sqrt{6+\sqrt{6+\sqrt{6+\ldots}}} = ?$

(1) 2.3
(2) 3
(3) 6
(4) 6.3

Solution : 2

(2) Let $\sqrt{6+\sqrt{6+\sqrt{6+\ldots\ldots}}} = x$

On squaring both sides,

$6+\sqrt{6+\sqrt{6+\ldots\ldots}} = x^2$

$\Rightarrow 6+x = x^2$

$\Rightarrow x^2 - x - 6 = 0$

$\Rightarrow x^2 - 3x + 2x - 6 = 0$

$\Rightarrow x(x-3) + 2(x-3) = 0$

$\Rightarrow (x+2)(x-3) = 0$

$\therefore x = 3$ because $x \neq -2$

2. The square root of $\left(\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}\right)$ is

(1) $\sqrt{3}+\sqrt{2}$
(2) $\sqrt{3}-\sqrt{2}$
(3) $\sqrt{2}\pm\sqrt{3}$
(4) $\sqrt{2}-\sqrt{3}$

Solution : 1

(1) Expression $= \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$

Rationalising the denominator,

$$= \frac{(\sqrt{3}+\sqrt{2})(\sqrt{3}+\sqrt{2})}{(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})}$$

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

$$= \frac{\left(\sqrt{3}+\sqrt{2}\right)^2}{3-2} = \left(\sqrt{3}+\sqrt{2}\right)^2$$

$$\therefore \sqrt{\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}} = \sqrt{\left(\sqrt{3}+\sqrt{2}\right)^2}$$

$$= \sqrt{3}+\sqrt{2}$$

3. The remainder when 321is divided by 5 is

(1) 1

(2) 2

(3) 3

(4) 4

Solution : 3

(3) $3^1 = 3; 3^2 = 9; 3^3 = 27; 3^4 = 81;$
$3^5 = 243$
i.e. unit's digit is repeated after index 4.
Remainder after dividing 21 by 4 = 1
∴ Unit's digit in the expansion of $(3)^{21} = 3$
∴ Remainder after dividing by 5 = 3

4. **The value of** $\dfrac{2\frac{1}{3}-1\frac{2}{11}}{3+\dfrac{1}{3+\dfrac{1}{3+\frac{1}{3}}}}$ **is**

(1) $\frac{38}{109}$

(2) $\frac{109}{38}$

(3) 1

(4) $\frac{116}{109}$

Solution : 1

(1) Expression

$$= \frac{\frac{7}{3} - \frac{13}{11}}{3 + \frac{1}{3 + \frac{1}{\frac{9+1}{3}}}} = \frac{\frac{77-39}{33}}{3 + \frac{1}{3 + \frac{3}{10}}}$$

$$= \frac{\frac{38}{33}}{3 + \frac{1}{\frac{30+3}{10}}} = \frac{\frac{38}{33}}{3 + \frac{10}{33}}$$

$$= \frac{\frac{38}{33}}{\frac{99+10}{33}} = \frac{38}{33} \times \frac{33}{109} = \frac{38}{109}$$

5. The last digit of $(1001)^{2008} + 1002$ is

(1) 0

(2) 3

(2) 4

(4) 6

Solution : 2

(2) Last digit of $(1001)^{2008} + 1002$
$= 1 + 2 = 3$

6. The value of

$$\frac{3\sqrt{2}}{\sqrt{3}+\sqrt{6}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}} + \frac{\sqrt{6}}{\sqrt{3}+\sqrt{2}}$$

is

(1) 4

(2) 0

(3) $\sqrt{2}$

(4) $3\sqrt{6}$

Solution : 2
(2) Expression

$$= \frac{3\sqrt{2}}{\sqrt{3}+\sqrt{6}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}} + \frac{\sqrt{6}}{\sqrt{3}+\sqrt{2}}$$

$$= \frac{3\sqrt{2}(\sqrt{6}-\sqrt{3})}{(\sqrt{6}+\sqrt{3})(\sqrt{6}-\sqrt{3})} - \frac{4\sqrt{3}(\sqrt{6}-\sqrt{2})}{(\sqrt{6}+\sqrt{2})(\sqrt{6}-\sqrt{2})} + \frac{\sqrt{6}}{(\sqrt{3}+\sqrt{2})} \times \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$$

$$= \frac{3\sqrt{2}(\sqrt{6}-\sqrt{3})}{6-3} - \frac{4\sqrt{3}(\sqrt{6}-\sqrt{2})}{(6-2)} + \frac{\sqrt{6}(\sqrt{3}-\sqrt{2})}{3-2}$$

$$= \sqrt{2}(\sqrt{6}-\sqrt{3}) - \sqrt{3}(\sqrt{6}-\sqrt{2}) + \sqrt{6}(\sqrt{3}-\sqrt{2})$$

$$= \sqrt{12} - \sqrt{6} - \sqrt{18} + \sqrt{6} + \sqrt{18} - \sqrt{12}$$

$$= 0$$

7. If $x * y = (x + 3)^2 (y - 1)$, then the value of $5 * 4$ is

(1) 192

(2) 182

(3) 180

(4) 172

Solution : 1

(1) $x \star y = (x + 3)^2 (y - 1)$

$\therefore 5 \star 4 = (5 + 3)^2 (4 - 1)$

$= 64 \times 3 = 192$

8. $\dfrac{(0.05)^2 + (0.41)^2 + (0.073)^2}{(0.005)^2 + (0.041)^2 + (0.0073)^2}$ is

(1) 10

(2) 100

(3) 1000

(4) None of these

Solution : 2

(2) Let $0.05 = a \therefore 0.005 = \frac{a}{10}$

$0.41 = b \therefore 0.041 = \frac{b}{10}$

and $0.073 = c \therefore 0.0073 = \frac{c}{10}$

$\therefore$ Expression

$$= \frac{a^2 + b^2 + c^2}{\left(\frac{a}{10}\right)^2 + \left(\frac{b}{10}\right)^2 + \left(\frac{c}{10}\right)^2}$$

$$= \frac{a^2 + b^2 + c^2}{\frac{1}{100}\left(a^2 + b^2 + c^2\right)} = 100$$

9. If $9\sqrt{x} = \sqrt{12} + \sqrt{147}$, then x = ?

(1) 2

(2)3

(3) 4

(4) 5

Solution : 2

(2) $9\sqrt{x} = \sqrt{3 \times 2 \times 2} + \sqrt{3 \times 7 \times 7}$

$\Rightarrow 9\sqrt{x} = 2\sqrt{3} + 7\sqrt{3} = 9\sqrt{3}$

$\therefore x = 3$

10. $\sqrt[3]{1 - \frac{127}{343}}$ is equal to

(1) $\frac{5}{9}$

(2) $1 - \frac{1}{7}$

(3) $\frac{4}{7}$

(4) $1 - \frac{2}{7}$

Solution : 2

(2) Expression

$$= \sqrt[3]{1 - \frac{127}{343}} = \sqrt[3]{\frac{343 - 127}{343}}$$

$$= \sqrt[3]{\frac{216}{343}} = \sqrt[3]{\frac{(6)^3}{(7)^3}} = \frac{6}{7} = 1 - \frac{1}{7}$$

11. If the sum of two numbers be multiplied by each number separately, the products so obtained are 247 and 114. The sum of the numbers is

(1) 19
(2) 20
(3) 21
(4) 23

Solution : 1

(1) Let the numbers be x and y.
$\therefore x(x + y) = 247$
and $y(x + y) = 114$
$\Rightarrow x^2 + xy = 247$ and $xy + y^2 = 114$
On adding;
$x^2 + xy + xy + y^2 = 247 + 114$
$\Rightarrow x^2 + 2xy + y^2 = 361$
$\Rightarrow (x + y)^2 = 19^2 \Rightarrow x + y = 19$

12. Find a number, one-seventh of which exceeds its eleventh part by 100.

(1) 1925
(2) 1825
(3) 1540
(4) 1340

Solution : 2

(1) Let the number be x.

$$\therefore \frac{x}{7} - \frac{x}{11} = 100$$

$$\Rightarrow \frac{11x - 7x}{11 \times 7} = 100$$

$$\Rightarrow 4x = 77 \times 100$$

$$\Rightarrow x = \frac{77 \times 100}{4} = 1925$$

13. The L.C.M. of three different numbers is 120. Which of the following ***cannot*** be their H.C.F.?
(1) 8
(2) 12
(3) 24
(4) 35

Solution : 4

(4) LCM = 2 × 2 × 2 × 3 × 5
Hence, HCF = 4, 8 or 12

14. A number when divided by 49 leaves 32 as remainder. This number when divided by 7 will have the remainder as
(1) 4
(2) 3
(3) 2
(4) 5

Solution : 1

(1) Here, the first divisor i.e. 49 is multiple of second divisor i.e. 7.
∴ Required remainder = Ramainder obtained on dividing 32 by 7 = 4

15. In an examination a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and secures 125 marks, the number of questions he attemtpts correctly is
(1) 35
(2) 40
(3) 42
(4) 46

Solution : 2

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

(2) Let the number of correct answers be x.

$\therefore\ x \times 4 - (75 - x) \times 1 = 125$

$\Rightarrow\ 4x - 75 + x = 125$

$\Rightarrow\ 5x = 125 + 75 = 200$

$\therefore\ x = \frac{200}{5} = 40$

16. The traffic lights at three different road crossings change after 24 seconds, 36 seconds and 54 seconds respectively. If they all change simultaneously at 10 : 15 :00 AM, then at what time will they again change simultaneously?
(1) 10 : 16 : 54 AM
(2) 10 : 18 : 36 AM
(3) 10 : 17 : 02 AM
(4) 10 : 22 : 12 AM

Solution : 2

(2) LCM of 24, 36 and 54 seconds
= 216 seconds
= 3 minutes 36 seconds
∴ Required time = 10 : 15 : 00 + 3 minutes 36 seconds
= 10 : 18 : 36 a.m.

17. A can do a work in 12 days. When he had worked for 3 days, B joined him. If they complete the work in 3 more days, in how many days can B alone finish the work?
(1) 6 days
(2) 12 days
(3) 4 days
(4) 8 days

Solution : 1

(1) Let B alone do the work in x days.

$\therefore\ 6 \times \frac{1}{12} + 3 \times \frac{1}{x} = 1$

$\Rightarrow \frac{1}{2} + \frac{3}{x} = 1$

$\Rightarrow \frac{3}{x} = \frac{1}{2} \Rightarrow x = 6$ **days**

18. A and B can complete a piece of work in 8 days, B and C can do it in 12 days, C and A can do it in 8 days. A, B and C together can complete it in
(1) 4 days
(2) 5 days
(3) 6 days
(4) 7 days

Solution : 3

(3) (A + B)'s 1 day's work = $\frac{1}{8}$

(B + C)'s 1 day's work = $\frac{1}{12}$

(C + A)'s 1 day's work = $\frac{1}{8}$

On adding,
2 (A + B + C)'s 1 day's work

$$= \frac{1}{8} + \frac{1}{12} + \frac{1}{8} = \frac{3+2+3}{24}$$

$$= \frac{8}{24} = \frac{1}{3}$$

(A + B + C)'s 1 day's work = $\frac{1}{6}$

Hence, the work will be completed in 6 days.

Quicker Approach

$$\text{Time} = \frac{2xyz}{xy + yz + zx}$$

(Here, $x = 8, y = 12; z = 8$)

$$= \frac{2 \times 8 \times 12 \times 8}{96 + 96 + 64} = \frac{2 \times 8 \times 12 \times 8}{256}$$

= 6 days.

19. X is 3 times as fast as Y and is able to complete the work in 40 days less than Y. Then the time in which they can complete the work together is
(1) 15 days
(2) 10 days
(3) 7 idays
(4) 5 days

Solution : 1

(1) If X completes a work in x days, Y will do the same in $3x$ days.

$\therefore 3x - x = 40 \Rightarrow x = 20$

$\therefore$ Y will finish the work in 60 days.

$\therefore$ (X + Y)'s 1 days work

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

$\therefore$ Both together will complete the work in 15 days.

20. A copper wire is bent in the shape of a square of area $81 cm^2$. If the same wire is bent in the form of a semicircle, the radius (in cm) of the semicircle is

(Take $\pi = \frac{22}{7}$)

(1) 16
(2) 14
(3) 10
(4) 7

Solution : 4

(4) Side of a square

$= \sqrt{81} = 9$ cm

$\therefore$ Length of the wire

$= 4 \times 9 = 36$ cm.

$\therefore$ Perimeter of semi-circle

$= (\pi + 2)r$

where r = radius

$$\Rightarrow \left(\frac{22}{7} + 2\right)r = 36$$

$$\Rightarrow \frac{36}{7}r = 36$$

$$\Rightarrow r = \frac{36 \times 7}{36} = 7 \text{ cm.}$$

21. The volume (in m^3) of rain water that can be collected from 1.5 hectares of ground in a rainfall of 5 cm is

(1) 75
(2) 750
(3) 7500
(4) 75000

Solution : 2

(2) 1 hectare = 10000 sq.metre
∴ Area of the ground = 15000 sq.metre
∴ Required volume

$= 15000 \times \frac{5}{100}$

= 750 cubic metre

22. A river 3 m deep and 40 m wide is flowing at the rate of 2 km per hour. How much water (in litres) will fall into the sea in a minute?
(1) 4,00,000
(2) 40,00,000
(3) 40,000
(4) 4,000

Solution : 2

(2) Volume of water flowed in an hour
= 2000 × 40 × 3 cubic metre
= 240000 cubic metre
∴ Volume of water flowed in 1 minute

$= \frac{240000}{60} = 4000$ cubic metre

= 4000000 litre

23. A bicycle wheel makes 5000 revolutions in moving 11km.Then the radius of the wheel (in cm) is
(Take $\pi = \frac{22}{7}$)
(1) 70
(2) 35
(3) 17.5
(4) 140

Solution : 2

(2) Distance covered by wheel in one revolution

= Circumference of wheel

$$= \frac{11000}{5000} = \frac{11}{5} \text{ metre}$$

$$= \frac{11}{5} \times 100 \text{ cm} = 220 \text{ cm}$$

$$\therefore 2\pi r = 220$$

$$\Rightarrow 2 \times \frac{22}{7} \times r = 220$$

$$\Rightarrow r = \frac{220 \times 7}{2 \times 22} = 35 \text{ cm}$$

24. The perimeter of a triangle is 40cm and its area is 60 cm^2. If the largest side measures 17cm, then the length (in cm) of the smallest side of the triangle is

(1) 4

(2) 6

(3) 8

(4) 15

Solution : 3

(3) Smallest side of the triangle

= x cm (let)

∴ Second side of triangle

$$= 40 - 17 - x = 23 - x$$

$$\text{Semi-perimeter} = s = \frac{40}{2} = 20$$

$$\therefore \sqrt{s(s-a)(s-b)(s-c)} = 60$$

$$\sqrt{20(20-17)(20-x)(20-23+x)}$$

$$= 60$$

$$\Rightarrow (20 - x)(x - 3) = 60$$

$$\Rightarrow 20x - 60 - x^2 + 3x = 60$$

$$\Rightarrow x^2 - 23x + 120 = 0$$

$$\Rightarrow x^2 - 15x - 8x + 120 = 0$$

$$\Rightarrow x(x - 15) - 8(x - 15) = 0$$

$$\Rightarrow (x - 8)(x - 15) = 0$$

$$\Rightarrow x = 8 \text{ or } 15$$

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

25. A shopkeeper allows a discount of 10% to his customers and still gains. 20%. Find the marked price of the article which costs 450.
(1) 600
(2) 540
(3) 660
(4) 580

Solution : 1

(1) Let the marked price of the article be Rs. x.

$$\therefore x \times \frac{90}{100} = \frac{450 \times 120}{100}$$

$$\Rightarrow \frac{9x}{10} = 540$$

$$\Rightarrow x = \frac{540 \times 10}{9} = \text{Rs. } 600$$

26. What single discount is equivalent to two successive discounts of 20% and 15%?
(1) 35%
(2) 32%
(3) 34%
(4) 30%

Solution : 2

(2) Single equivalent discount

$$= \left(x + y - \frac{xy}{100}\right)\%$$

$$= \left(20 + 15 - \frac{20 \times 15}{100}\right)\% = 32\%$$

27. In a business partnership among A, B, C and D, the profit is shared as follows:

$$\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}} = \frac{\text{C's share}}{\text{D's share}} = \frac{1}{3}$$

If the total profit is 4,00,000, the share of C is(1) 1,12,500
(2) 1,37,500
(3) 90,000
(4) 2,70,000

Solution : 3

. (3) A : B = 1 : 3
B : C = 1 : 3 = 3 : 9
C : D = 1 : 3 = 9 : 27
∴ A : B : C : D = 1 : 3 : 9 : 27
Sum of ratios = 1 + 3 + 9 + 27
= 40
∴ C's share in profit

$$= \frac{9}{40} \times 400000 = \text{Rs. } 9000$$

28. A can contains a mixture of two liquids A and B in the ratio 7 : 5. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7 : 9. Litres of liquid A contained by the can initially was
(1) 10
(2) 20
(3) 21
(4) 25

Solution : 3
(3) A ≡ 7x litre, B ≡ 5x litre (let)
In 9 litres of mixture,

$$A = \frac{7x}{12x} \times 9 = \frac{21}{4} \text{ litre}$$

$$B = \frac{5x}{12x} \times 9 = \frac{15}{4} \text{ litre}$$

In new situation,

$$\frac{7x - \frac{21}{4}}{5x - \frac{15}{4} + 9} = \frac{7}{9}$$

$$\Rightarrow \frac{28x - 21}{20x - 15 + 36} = \frac{7}{9}$$

$\Rightarrow 252x - 189 = 140x + 147$
$\Rightarrow 112x = 336 \Rightarrow x = 3$
∴ Initial quantity of liquid A
$= 7x = 7 \times 3 = 21$ litre

29. What number should be added to or subtracted from each term of the ratio 17 : 24 so that it becomes equal to 1 : 2 ?
(1) 5 is subtracted

(2) 10 is added
(3) 7 is added
(4) 10 is subtracted

Solution : 4

(4) Let the number x be added.

$\therefore \frac{17+x}{24+x} = \frac{1}{2}$

$\Rightarrow 34 + 2x = 24 + x$

$\Rightarrow 2x - x = 24 - 34$

$\Rightarrow x = -10$

Hence, 10 should be subtracted.

30. The ratio of weekly incomes of A and B is 9 : 7 and the ratio of their expenditures is 4 : 3. If each saves 200 per week, then the sum of their weekly incomes is
(1) 3,600
(2) 4,200
(3) 4,800
(4) 5,600

Solution :

(*) Let A's and B's weekly incomes be Rs. $9x$ and Rs. $7x$ and their expenditures be Rs. $4y$ and $3y$ respectively.

$\therefore\ 9x - 4y = 200$.....(i)

and $7x - 3y = 200$ .....(ii)

$\Rightarrow\ 9x - 4y = 7x - 3y$

$\Rightarrow\ 9x - 7x = 4y - 3y$

$\Rightarrow\ 2x = y$.....(iii)

From equation (i),

$9x - 4y = 200$

$\Rightarrow 9x - 8x = 200$

$\Rightarrow x = 200$

$\therefore$ Sum of their weekly incomes

$= 16x = 16 \times 200 =$ Rs. 3200

31. Among three numbers, the first is twice the second and thrice the third. If the average of the three numbers is 49.5, then the difference between the first and the third number is
(1) 54
(2) 28

(3) 39.5
(4) 41.5

Solution : 1

(1) Let the second number be x.

$\therefore$ First number = $2x$

$\therefore$ Third number = $\frac{2x}{3}$

$\therefore \quad 2x + x + \frac{2x}{3} = 49.5 \times 3$

$\Rightarrow 6x + 3x + 2x = 49.5 \times 9 = 445.5$

$\Rightarrow 11x = 445.5$

$\Rightarrow x = \frac{445.5}{11} = 40.5$

$\therefore$ Required difference

$= 2x - \frac{2x}{3} = \frac{4x}{3}$

$= \frac{4 \times 40.5}{3} = 54$

32. The mean of 50 numbers is 30. Later it was discoverd that two entries were wrongly entered as 82 and 13 instead of 28 and 31. Find the correct mean.
(1) 36.12
(2) 30.66
(3) 29.28
(4) 38.21

Solution : 3

(3) Required average

$= 30 + \frac{(28 + 31 - 82 - 13)}{50}$

$= 30 + \left(-\frac{36}{50}\right)$

$= 30 - 0.72 = 29.28$

33. If the selling price of 10 articles is equal to the cost price of 11 articles, then the gain percent is
(1) 10
(2) 11

(3) 15
(4) 25

Solution : 1

(1) Let the C.P. of each article be Re. 1.
∴ C.P. of 10 articles = Rs. 10
and S.P. of 10 articles = Rs. 11
∴ Profit percent

$$= \frac{11-10}{10} \times 100 = 10\%$$

34. While selling a watch, a shopkeeper gives a discount of 5%. If he gives a discount of 6%, he earns 15 less as profit. What is the marked price of the watch?
(1) 1,250
(2) 1,400
(3) 1,500
(4) 750

Solution : 3

(3) Let the marked price of watch be Rs. x.

$$\therefore \frac{x \times 95}{100} - \frac{x \times 94}{100} = 15$$

$$\Rightarrow x = 15 \times 100 = \text{Rs. } 1500$$

35. Krishna purchased a number of articles at '10 for each and the same number for 14 each. He mixed them together and sold them for 13 each. Then his gain or loss percent is

(1) Loss $8\frac{1}{3}\%$

(2) Gain $8\frac{2}{3}\%$

(3) Loss $8\frac{2}{3}\%$

(4) Gain $8\frac{1}{3}\%$

Solution : 4

(4) Let 10 articles of each kind be bought.
Total cost
= Rs. (10 × 10 + 14 × 10)
= Rs. 240
Total selling price
= 13 × 20 = Rs. 260
Gain percent

$$= \frac{260-240}{240} \times 100$$

$$= \frac{20 \times 100}{240} = 8\frac{1}{3}\%$$

36. A trader bought two horses for 19,500. He sold one at a loss of 20% and the other at a profit of 15%. If the selling price of each horse is the same, then their cost prices are respectively.
(1) 10,000 and 9,500
(2) 11,500 and 8,000
(3) 12,000 and 7,500
(4) 10,500 and 9,000

Solution : 2

(2) The sum of cost prices of two articles is Rs. x. One of them is sold at a loss of $a\%$ and other is sold at a gain of $b\%$ and their S.P. is same.
∴ C.P. of article sold at a loss of $a\%$

$$= \frac{100+b}{200-a+b} \times x$$

$$= \frac{100+15}{200-20+15} \times 19500$$

$$= \frac{115}{195} \times 19500 = \text{Rs. } 11500$$

C.P. of second article = Rs. 8000

37. The cost price of an article is 40% of the selling price. What percent of the cost price is the selling price?
(1) 140%

(2) 200%
(3) 220%
(4) 250%

Solution : 4

(4) Let the S.P. of the article
= Rs. 100
∴ C.P. = Rs. 40
∴ Required percentage

$$= \frac{100}{40} \times 100 = 250\%$$

38. If 90% of A = 30% of B and B = 2x% of A, then the value of x is
(1) 450
(2) 400
(3) 300
(4) 150

Solution : 4

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

$\Rightarrow 3A = B$

$\Rightarrow 3A = A \times \frac{2x}{100}$

$\Rightarrow 300 = 2x \Rightarrow x = 150$

39. When the price of sugar decreases by 10%, a man could buy 1 kg more for 270. Then the original price of sugar per kg is
(1) 25
(2) 30
(3) 27
(4) 32

Solution : 2

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

(2) Let the original price of sugar be Rs. x/kg.

$\therefore$ New price = Rs. $\frac{9x}{10}$ /kg

$$\therefore \frac{270}{\frac{9x}{10}} - \frac{270}{x} = 1$$

$$\Rightarrow \frac{300}{x} - \frac{270}{x} = 1 \Rightarrow \frac{30}{x} = 1$$

$\Rightarrow x$ = Rs. 30 /kg

40. If the price of sugar is raised by 25%, find by how much percent a householder must reduce his consumption of sugar so as not to increase his expenditure?
(1) 10
(2) 20
(3) 18
(4) 25

Solution : 2

(2) Percentage decrease

$$= \frac{25}{125} \times 100 = 20$$

41. If 30% of A is added to 40% of B, the answer is 80% of B. What percentage of A is B?
(1) 30%
(2) 40%
(3) 70%
(4) 75%

Solution : 4

(4) $A \times \frac{30}{100} + \frac{B \times 40}{100} = \frac{B \times 80}{100}$

$\Rightarrow A \times 30 = B \times 40$

$$\Rightarrow \frac{A}{B} = \frac{40}{30} = \frac{4}{3}$$

$$\Rightarrow \frac{B}{A} = \frac{3}{4}$$

$$\Rightarrow \frac{B}{A} \times 100 = \frac{3}{4} \times 100 = 75\%$$

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

42. A man can row 6 km/h in still water. If the speed of the current is 2 km/h, it takes 3 hours more in upstream than in the downstream for the same distance. The distance is
(1) 30 km
(2) 24 km
(3) 20 km
(4) 32 km

Solution : 2

(2) Let the required distance be x km.

$$\therefore \frac{x}{6-2} - \frac{x}{6+2} = 3$$

$$\Rightarrow \frac{x}{4} - \frac{x}{8} = 3$$

$$\Rightarrow \frac{2x - x}{8} = 3$$

$$\Rightarrow x = 3 \times 8 = 24 \text{ km.}$$

43. A student goes to school at the rate of 2.5 km/h and reaches 6 minutes late. If he travels at the speed of 3 km/h. he is 10 minutes early. The distance (in km) between the school and his house is
(1) 5
(2) 4
(3) 3
(4) 1

Solution : 2

(2) Let the required distance be x km.

$$\frac{x}{\frac{5}{2}} - \frac{x}{3} = \frac{16}{60}$$

$$\Rightarrow \frac{2x}{5} - \frac{x}{3} = \frac{4}{15}$$

$$\Rightarrow \frac{6x - 5x}{15} = \frac{4}{15} \Rightarrow x = 4 \text{ km.}$$

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

44. A sum of money placed at compound interest doubles itself in 4 years. In how many years will it amount to four times itself ?
(1) 12 years
(2) 13 years
(3) 8 years
(4) 16 years

Solution : 3

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

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

$\Rightarrow 2^2 = \left(1+\frac{R}{100}\right)^8$

45. The simple interest on a sumfor 5 years is one fourth of the sum. The rate of interest per annum is
(1) 5%
(2) 6%
(3) 4%
(4) 8%

Solution : 1

(1) $\frac{\text{Simple interest}}{\text{Principal}} = \frac{1}{4}$

$\therefore \text{Rate} = \frac{\text{S.I.} \times 100}{\text{Principal} \times \text{Time}}$

$= \frac{1 \times 100}{4 \times 5} = 5\%$ per annum

46. The difference between the compound interest and simple interest on 10,000 for 2 years is 25. The rate of interest per annum is
(1) 5%
(2) 7%
(3) 10%
(4) 12%

Solution : 1