AFCAT 2 2012 QUESTION PAPER

INSTRUCTIONS:

- 1. Total No. of Questions-100. Each Question is of three marks.
- 2. One mark will be deducted for every wrong answer.
- 3. Do not write or mark on the Question Paper.
- 4. Question Paper to be returned before leaving the Exam Hall.

DIRECTIONS (Qs. 1-5) : *Read the following passage carefully and answer the questions given below:*

The development and widespread use of computer technology and the internet have transformed how we communicate, how business is conducted, how information is dispersed, and how society is organised. Prior to 1980, in-depth information about any one subject matter was attained through laborious research involving countless visits to libraries and via repeated interviews with persons of known reputation and reputable expertise. Now, a great deal of information is available at the click of a mouse button, all attainable from within the confines of one's own home or from the use of a computer in an office. Previous labour-intensive support Jobs. such as loading and unpacking of trucks', luggage handling at airports, and food manufacturing, once performed by a large middle-class workforce, are now performed routinely by robots which are monitored by computer-controlled systems. Our lives have been simplified but these benefits which have been ushered in by the technology revolution have had an adverse effect on the core of our interpersonal-relationships. Mere communication is no longer via postal mail or face-to-face contact, but rather via electronic email, personal internet message boards and by virtue of hand-held personal electronic assistants. Although computer technology has brought us to within a mouseclick of any sought-after piece of information, this technology boom has sequestered us to the confines of our computer desks and homes and has removed us away from those traditional settings where personal and communication skills are developed.

- 1. The author's attitude the advent of computer technology can be best summarised as
 - (a) optimistic and thankful
 - (b) appreciative but reserved
 - (c) candid and reverent.
 - (d) understanding and obsessive
- 2. The author would agree with which of the following statements?
 - (a) The advent of computer technology has decreased access to libraries
 - (b) Because of advancements in robotics, labour-intensive jobs are more plentiful
 - (c) Although heralded as a great leap forward, the widespread use of computer technology is not without its setbacks
 - (d) Of all the benefits ushered in by the use the internet. electronic email is the most beneficial

- 3. The author's primary purpose in writing this passage is most likely which of the following?
 - (a) To downplay the need for the internet
 - (b) To explain how robotics and the internet have had both a positive and negative influence on how we live
 - (c) To pave way for the next great technology revolution
 - (d) To showcase the wonders of recent technology advancements

DIRECTIONS (Qs. 4-6) : *In each of the following choose the word most similar in meaning to the word given in capitals.*

4. OSMOSIS							
(a)	Gradual acceptance	(b)	Slow recovery				
(c)	Abrupt ending	(d)	Strength				
OST	RACISE,						
(a)	Take away	(b)	Cut off				
(c)	Include	(d)	Expedite				
ALACRITY							
(a)	Hesitatingly	(b)	Eagerness				
(c)	Unwillingly	(d)	Laziness				
	OSM (a) (c) OST (a) (c) ALA (a) (c)	OSMOSIS (a) Gradual acceptance (c) Abrupt ending OSTRACISE, (a) Take away (c) Include ALACRITY (a) Hesitatingly (c) Unwillingly	OSMOSIS (a) Gradual acceptance (b) (c) Abrupt ending (d) OSTRACISE, (a) Take away (b) (c) Include (d) ALACRITY (a) Hesitatingly (b) (c) Unwillingly (d)				

DIRECTIONS (Qs. 7-10) : In each of the following choose the word most nearly opposite in meaning to the word given in capitals.

7. PROFUSION (a) Travesty (b) Validity (d) Agitated (c) Scarcity 8. **ESCHEW** (a) Vicious (b) Invite (c) Use (d) Emanate 9. ABSTAIN (a) Refuse (b) Oppose (c) Run away (d) Permit INSOLENT 10. (a) Affable (b) Spotted (c) Foolish (d) Mature

DIRECTIONS (Qs. 11-15) : *In each of the following questions, find out which part has an error.*

- 11. If you will (a) / follow my instructions (b) / you will get (c) / a suitable reward for this (d)
- 12. Harshad, along with (a) / his brother (b) / Ashwani and six senior officials (c) / were arrested (d)
- 13. He received timely support (a) / from his elder brother (b) / who is working abroad (c) / for the last six years (d)

TIME LIMIT : 2 HOURS

- 14. One of the drawbacks (a) / of modern education are (b) / that it does not encourage original thinking (c) / No error (d)
- 15. Morphine and other (a) / narcotic drugs are valuable (b) / medically, if misused (c) / it can cause irreparable damage (d)

DIRECTIONS (Qs. 16-20) : *Pick up the most effective word from the given words to fill in the blanks to make the sentence meaningfully complete.*

16.	His	book was marked by man	У	remarks which made					
	(a)	irrelevant	(b)	objective					
	(c)	slanted	(d)	digressive					
17.	Son	ne people have the capacity	y for learn	ing foreign langua	ages				
	but	they have no	to speak.						
	(a)	interest	(b)	ability					
	(c)	fondness	(d)	inclination					
18.	The	e dispute among the par	ties beca	me so	that				
	ther	there was every likelihood of a free exchange of blows							
	(a)	complicated	(b)	acrimonious					
	(c)	bellicose	(d)	aggressive					
19.	The	judge decided to resign	when he	was for	pro-				
	mot	tion to Chief Justice.							
	(a)	passed by	(b)	passed out					
	(c)	passed off	(d)	passed over					
20.	Que	estions will be answered	by a	of experts.					
	(a)	staff	(b)	panel					
	(c)	bunch	(d)	band					
DIR	ЕСТ	TIONS (Qs. 21 to 40) : C	hoose the	correct answer.					
21.	Wh in 1	o among the following ha 838?	d discove	red the Bramhi Sc	cript				

- (a) Sir William Jones (b) Dr. Rajendra Lal Mitra
- (c) Dr. Bhaw Dagi (d) Jones Prinsep
- 22. Who was known as father of administration in medieval India?
 - (a) Akbar (b) Sher Shah Suri
 - (c) Humayun (d) Aurangzeb
- 23. Brahma Samaj was founded by
 - (a) Raja Rammohan Roy (b) Jawaharlal Nehru
 - (c) William Carey (d) Jonathan Duncan
- 24. Who discharges the function of the President when vacancy occur In the office of President & Vice President simultaneously, owing to removal, death, resignation or th incumbent or otherwise?
 - (a) Chief Justice of High Court
 - (b) Chief Justice of India
 - (c) Speaker of Lok Sabha
 - (d) Chairman of Rajya Sabha
- 25. With which sport is Lewis Hamilton associated?
 - (a) Golf (b) Hockey
 - (c) Billiards (d) F-1

- 26. From which country does the top seeded Tennis player Rafael Nadal hail from?
 - (a) France (b) Germany
 - (c) Spain (d) Russia
- 27. Which Indian Boxer won the gold medal in 60 kg category in Asian game and became the youngest to win a boxing gold for India?
 - (a) Vijendra Singh (b) Vikas Krishan
 - (c) Ranjan Sodhi (d) Somdev
- 28. In 2010 Leander Paes in partnership with Cara Black won the mixed doubles title of
 - (a) Australian Open Tennis Championship
 - (b) Wimblendon Open Tennis Championship
 - (c) Both of the above
 - (d) None of the above
- 29. Term 'Prime Vertical' in astronomy is defined as
 - (a) the vertical circle which passes through the east and west point of the horizon and is at right angles to the meridian of the place.
 - (b) the vertical circle which passes through the north and south pain of he horizon and is at right angles to the meridian of the place.
 - (c) the vertical circle which passes through the east and west pain of the horizon and is parallel to the meridian of the place.
 - (d) the vertical circle which passes through the north and south point of the horizon and is parallel to the merid-ian of the place.
- 30. MNREGA stands for
 - (a) Mahatma Gandhi National Revenue Engagement Guarantee Association
 - (b) Maharaja National Revenue Employment Guarantee Act
 - (c) Mahanagar National Rural Employment Guarantee Act
 - (d) Mahatma Gandhi National Rural Employment Guarantee Act
- 31. River Jhelum emerges from
 - (a) Northern slopes of the Kailash range
 - (b) Spring at Verinarg
 - (c) Rakas Lake
 - (d) Amarkantak plateau
- 32. Haematite ores is the ore of which metal?
 - (a) Iron (b) Aluminium
 - (c) Zink- (d) Cobalt
- 33. Green revolution relates to which of the following?
 - (a) Self-dependence in foodgrains production
 - (b) Self-dependence in milk production
 - (c) Self-dependence in petroleum crude oil production
 - (d) None of the above
- 34. Nuclear Submarine Akula has been handed over to India recently by
 - (a) France (b) Germany
 - (c) USA (d) Russia

Years'?

- (a) David Omand (b) Bilkees Latif
- (c) Pranab Bardhan (d) Jagat S. Mehta
- 36. Vertebrates have two endocrine glands associated with the brain, namely
 - (a) Thyroid, Thymus (b) Pituitary, Pancreas
 - (c) Pituitary, Pineal (d) Pancreas, Pineal
- 37. The layer common to two adjacent plant cells called Middle Lamella is composed of
 - (a) Calcium Phosphate (b) Calcium Sulphate
 - (c) Calcium Carbonate (d) Calcium Pectate
- 38. With the increase of the effective nuclear charge, the size of the atom or ion
 - (a) increases
 - (b) decreases
 - (c) remain the same, since it has no bearing on size
 - (d) it will depend on period to period and group to group
- 39. On which of the following statements, is the kinetic theory of matter base?
 - (a) Matter is made up of molecules
 - (b) Molecules are in rapid motion
 - (c) Molecules experience forces of attraction between one another
 - (d) All of the above
- 40. When heated with chloroform, secondary amines and tertiary amines
 - (a) gives isocyanides
 - (b) gives cyanides
 - (c) do not give isocyanides
 - (d) Both (a) and (b)
- 41. The number whose square is equal to the difference of the squares of 40 and 32 is
 - (a) 45.09 (b) 24
 - (c) 25 (d) 28
- 42. 5 buckets of water fill a tank when the capacity of each bucket is 7 litres How many buckets will be needed to fill the same tank, if the capacity of the bucket is 5 litres?

(a)	12	(b)	24
(c)	21	(b)	30

- 43. A vessel, full of water, weighs 27.5 kg. when the vessel is 1/4 full, it weighs 12.26 kg. Find the weight of empty vessel?
 - (a) 7.18 kg (b) 6.54 kg
 - (c) 2.75 kg (d) 2.5 kg
- 44. If a+b=10 and ab=21, find the value of a^3+b^3
 - (a) 370 (b) 210
 - (c) 730 (d) 598
- 45. If a/(a+b)=17/23, what is (a+b)/(a-b) equal to?
 - (a) 13/7 (b) 23/11
 - (c) 14/5 (d) 25/9

46.
$$\frac{(598 + 479)^2 - (598 - 479)^2}{(598 \times 479)} =$$
(a) 2 (b)

47. A man's average monthly expenditure for the first four months of the year was ₹ 225.25. For the next five months, the average monthly expenditure was ₹ 20.75 more than what it was during the first four months. If the person spent ₹ 700 in all during the remaining three months of the year, find what percentage of his annual income of ₹ 3500 he saved in the year?

6

- (a) 10% (b) 15%
- (c) 19.11% (d) 25%
- 48. The ratio of the present age of P and Q is 2.3. The ratio of their age after 18 years will be 4.5. What is the present age of Q?
 - (a) 26 years (b) 25 years
 - (c) 24 years (d) 27 years
- 49. The mean temperature of Monday to Wednesday was 37°C and of Tuesday to Thursday was 34°C. If the temperature on Thursday was 4/5th that of Monday, the temperature on Thursday' was
 - (a) 36.5° C (b) 36° C (c) 35.5° C (d) 34° C
- 50. Srinivasan invests two equal amounts in two banks giving 10% and 12% rate of interest respectively. At the end of year the interest earned is ₹ 1650. Find the sum invested in each.
 - (a) ₹ 8500
 (b) ₹ 15000

 (c) ₹ 7500
 (d) ₹ 17,000
- The simple interest on sum of money is 1/9 of the sum. The number of years is numerically equal to the rate percent per
 - annum. The rate percent per annum is (a) 3.33 (b) 5
 - (c) 6.66 (d) 10
- 52. A sum of ₹ 10.000 is lent partly at 8% and the remaining at 10% per annum, If the yearly interest on the average is 9.2%. the money lent at 10% is
 - (a) ₹ 6000 (b) ₹ 5500
 - (c) ₹ 5000 (d) ₹ 4500
- 53. In an election between two candidates, 60% of the voters cast their votes, out of which 4% of the votes were declared invalid. A candidate got 7344 votes which were 75% of the total valid votes. Find the total number of votes enrolled in that election.
 - (a) 1700 (b) 17590
 - (c) 17000 (d) 7344
- 54. If the price of kerosene be raised by 9%, find how much percent a house holder must reduce his consumption of kerosene so that not to increase his expenditure
 - (a) 9% (b) 8.25%
 - (c) 9% (d) 9.25%

55. Sixty five pupils from a school entered for an examination and 80% of them passed. Another school entered 10 more pupils than the first school and four more pupils passed. The % of pass in the second school was

(a)	75%	(b)	84%
(u)	1570	(0)	01/0

(c) 72% (d) 74.6%

- A jar contains black and white marbles. If there are ten marbles 56. in the jar, then which of the following could not be the ratio of black to white marbles?
 - 9:1 (a) (b) 7:3
 - (c) 1:10 (d) 1:4
- A sum of money is to be distributed among P, Q and R in the 57. ratio of 6:19:7. If R gives ₹ 200 from his share to Q, the ratio of P, Q and R becomes 3:10:3, what is the total sum?
 - (a) ₹ 3200 (b) ₹12800
 - (c) ₹ 6400 (d) data inadequate
- In what ratio should tea worth ₹ 10 per kg be mixed with tea 58. worth ₹ 14 per kg so that the average price of the mixture may be ₹ 11 per kg?
 - (b) 3:1 (a) 2:1
 - (c) 3:2 (d) 4:3
- Calculate the amount on ₹1250 for 2 years at 4% per annum. 59. compounded yearly.
 - (a) ₹676 (b) ₹1352
 - (c) ₹1778 (d) ₹255
- A sum of ₹ 3200 is lent out into two parts, one at 6% and 60. another at 4%. If the total annual income is ₹ 176, find the money lent at 6%.
 - (a) ₹ 2400 (b) ₹800
 - (c) ₹ 1600 (d) ₹3200

DIRECTIONS (Qs 61-70) : In the following questions the words given bear a certain relationship. Find out from the choices the words with the same relationship.

Surgeon : Scalpet 61

62

- (a) Musician : Instrument (b) Sculptor : Chisel (c) Carpenter : Cabinet (d) Baker : Oven Creche : Infants
- (a) School : Pupils (b) Deck : Sailors (c) Cottage : Guests (d) Aircraft: Crew Pesticide : Plant 63 (a) Injection : Disease (b) Teacher : Student (c) Medicine : Cure (d) Vaccination : Body Stare : Glance 64. (a) Gulp: Sip (b) Story: tell (c) Hunt : Stalk (d) Step: Walk Fish : Aquarium 65. (a) Student : Hostel (b) Bird: Forest (c) Goods : Consignment (d) Bee : Apiary Ecstasy : Pleasure 66
 - (a) Hatred : Affection (b) Rage : Anger Joy: Grief (d) Mumble: Speak (c)

- Necromancy: Ghosts 67.
 - (a) Romance : Stories (b) Magic : Amulets Alchemy: Gold Sorcery: Spirit (c) (d)
 - Coin: Mint
- 68. (a) Grain : Field

69.

- Wine : Brewery (c)
- Oak : Coniferous
- Chimpanzee : Ape (a)
- (c) Fish : Sea
- 70.
 - Christmas: Christians (a)
 - Bhangra : Punjab (b)
 - Kathak : Uttar Pradesh (c)
 - Bihu: Assam (d)

DIRECTIONS (Qs 71-75): In each of the following questions, a group of three inter related words is given. Choose a word from the given alternatives, that belongs to the same group.

Calendar : Dates : : Dictionary : ? 71. (a) Vocabulary (b) Language (d) Book (c) Words Heed : Neglect : : Pacify : ? 72. Incite (a) (b) Allay (c) War (d) Victory Malaria : Disease : : Sword : ? 73. (a) Wound (b) Spear Rifle (c) Weapon (d) 74. Eye: Wink: : Heart:? (a) Move (b) Throb (c) Pump (d) Quiver Earth : Sun : : Moon : ? 75. Orbit Sky (a) (b) (c) Star (d) Earth

DIRECTIONS (Qs 76-80): Choose the word which is least like the other words in the group.

			0	1		
76.	(a)	Rose			(b)	Lotus
	(c)	Marigold			(d)	Tulip
77.	(a)	Book			(b)	Sharpener
	(c)	Pencil			(d)	Paper
78.	(a)	Copper			(b)	Tin
	(c)	Brass			(d)	Zinc
79.	(a)	Kiwi			(b)	Eagle
	(c)	Emu			(d)	Penguin
80.	(a)	Raniganj			(b)	Jharia
	(c)	Bokaro			(d)	Baroda

DIRECTIONS (Qs 81 to 85): There are two sets of figures namely the Problem figures containing five figures 1, 2, 3, 4, 5 and Answer figures (a), (b), (c), (d). Select one figure from the Answer figures which will continue the same series as given in the Problem figures.

- (b) Hay: Stable
- (d) Book : Publisher
- - Animals : Carnivore
 - (b) (d) Tree: Grove
- Onam: Kerala



DIRECTIONS (Qs 86-90) : From amongst the figures marked (*a*), (*b*), (*c*) and (*d*), select the figure which satisfies the same conditions of placement of the dot as in fig. (X)

86.

87.

88.

89.

90.

DIRECTIONS (Qs 96-100) : *Find out from the given option (a), (b), (c) or (d) the right figure to fit in the missing figure.*

AFCAT 2 2012 QUESTION PAPER

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

- 1. (b) The author's attitude the advent of computer technology can be best summarised as the appreciative but reserved.
- (c) The sentence '....but these benefits which have been ushered in by the technology revolution have had an adverse effect on the core of our interpersonalrelationships' affirms that the author would agree with the widespread use of computer technology is not without its setbacks.
- 3. (b) The author's primary purpose in writing this passage is to explain how robotics and the internet have had both a positive and negative influence on how we live.
- 4. (a) Osmosis means the process of gradual or unconscious assimilation of ideas, knowledge, etc.
- 5. (b) Ostracise means avoid speaking to or dealing with and cut off means the same.
- 6. (b) Alacrity means liveliness and eagerness; hence, option b is right.
- 7. (c) Profusion means the property of being extremely abundant and its opposite should be scarcity.
- 8. (c) Eschew means avoid and stay away from deliberately; stay clear of, hence, its opposite should be Use.
- 9. (c) Abstain means choose not to consume and its opposite should be permit.
- 10. (a) Insolent means marked by casual disrespect while affable means diffusing warmth and friendliness.
- 11. (a) In the conditional sentence the correct patter should be 'If you follow my instructions......
- 12. (d) Along with, like in addition to, and together with, is often employed following the subject of a sentence or clause to introduce an addition. The addition, however does not alter the tense of the verb, which is governed by the subject. The king (singular), along with two aides, is expected in an hour. Hence, were is to be replaced with was.
- (c) Present perfect continuous tense talks of an action or actions that started in the past and continued until recently or that continue into the future. Hence, the correct structure of the sentence should be - who has been working abroad.
- 14. (b) Here the verb 'are' is to be replaced with is; hence, the correct sequence of the sentence is 'one of the drawbacks of modern education is
- 15. (d) Since morphine and other narcotic drugs is in plural so, the pronoun 'it' should be replaced with 'they'.
- 16. (d) The correct filler here should be digressive.
- 17. (d) Here the right option should be 'inclination'.
- (b) Acrimonious is the most effective word among the given options.

- 19. (d) Pass over means to leave out, disregard.
- 20. (b) Panel rightly corresponds with the experts.
- (d) The script was deciphered in 1837 by Jones Prinsep, an archaeologist, philologist, and official of the British East India Company.
- (a) Brahma Samaj is the societal component of Brahmoism, a monotheistic reformist and renaissance movement of Hindu religion. It was started at Calcutta on 20 August 1828 by Raja Ram Mohan Roy and Debendranath Tagore.
- 24. (b) When President Zakir Hussain died in office, the Vice President VV Giri, acted as the President. However, Mr. Giri resigned as the Vice President. Then the Chief Justice Hidayatullah became the acting President of India. The most senior judge of the Supreme Court became the acting Chief Justice of India. When the newly elected President took office a month later, Justice Hidayatullah again became the Chief Justice of India.
- (d) Lewis Carl Davidson Hamilton, MBE is a British Formula One racing driver from England, currently racing for the Mercedes AMG team. He is the 2008 Formula One World Champion. Hamilton was born in Stevenage, Hertfordshire.
- 26. (c) Rafael "Rafa" Nadal Parera (born 3 June 1986) is a Spanish professional tennis player and the current world No. 1. Nadal has won 13 Grand Slam singles titles, the 2008 Olympic gold medal in singles, a record 27 ATP World Tour Masters 1000 and a record 15 ATP World Tour 500 tournaments.
- (b) Leander Paes and Cara Black won the last senior title of Wimbledon 2010 by beating Wesley Moodie and Lisa Raymond 6-4 7-6 (7-5) in the mixed doubles.
- 29. (c) In astronomy and astrology, the prime vertical is the vertical circle passing east and west through the zenith, and intersecting the horizon in its east and west points.
- 30. (c) Act offers to guarantee hundred days of wageemployment in a year to a rural household.
- 31. (b) Verinag is approximately 80 km from Srinagar, by road, at an elevation of 1,876 m. It is believed that the eponymous Verinag spring is the chief source of the river Jhelum. There is an octagonal base at the spring, surrounded by a covered passage.
- 32. (a) Hematite, also spelled as haematite, is the mineral form of iron oxide, one of several iron oxides. Hematite crystallizes in the rhombohedral lattice system, and it has the same crystal structure as ilmenite and corundum.

- 36. (c) The endocrine system refers to the collection of glands of an organism that secrete hormones directly into the circulatory system to be carried toward a distant target organ. The major endocrine glands include the pineal gland, pituitary gland, pancreas, ovaries, testes, thyroid gland, parathyroid gland, hypothalamus, gastrointestinal tract and adrenal glands.
- 37. (d) The middle lamella is a pectin layer which cements the cell walls of two adjoining cells together. Plants need this to give them stability and so that they can form plasmodesmata between the cells. It is the first formed layer which is deposited at the time of cytokinesis. The cell plate that is formed during cell division itself develops into middle lamella or lamellum. The middle lamella is made up of calcium and magnesium pectates. In plants, the pectins form an unified and continuous layer between adjacent cells.
- 38. (d) The effective nuclear charge is the net positive charge experienced by an electron in a multi-electron atom. The term "effective" is used because the shielding effect of negatively charged electrons prevents higher orbital electrons from experiencing the full nuclear charge by the repelling effect of inner-layer electrons. The effective nuclear charge experienced by the outer shell electron is also called the core charge. It is possible to determine the strength of the nuclear charge by looking at the oxidation number of the atom.
- 41. (b) $(40)^2 (32)^2 = 1600 1024 = 576$

Hence, 24 is the required number.

42. (c) Less capacity, more buckets. (Indirect proportion) $\therefore 5:15::7:x$

 $\frac{5}{15} = \frac{7}{x}$

x=21

Hence, 21 buckets will be needed to fill the same tank. a) Let 'x' be the weight g empty vessel and 'y' be the

43. (a) Let 'x' be the weight g empty vessel and 'y' be the weight of full vessel. x+y=27.5 ...(1)

$$x + \frac{y}{4} = 12.26$$

 $4x + y = 4 \times 12.26$...(2) Subtracting equation (1) from (2) 4x - x = 49.04 - 27.53x = 21.54x = 7.18 kg

44. (a) Given, a + b = 10Squaring on both sides $a^2 + b^2 + 2ab = 100$ $a^2 + b^2 = 100 - 2 \times 21$

$$a^{2} + b^{2} = 58$$

Now, $a^{3} + b^{3} = (a + b) (a^{2} + b^{2} - ab)$
= (10) (58-21)
= 10 × 37 = 370
45. (b) $\frac{a}{a+b} = \frac{17}{23}$
 $23a = 17a + 17b$
 $6a = 17b$
 $a = \frac{17}{6}b$
 $\frac{a+b}{a-b} = \frac{17}{6}b+b}{\frac{17}{6}b-b} = \frac{17}{6} + 1}{\frac{17}{6} - 1}$
 $\Rightarrow \frac{a+b}{a-b} = \frac{23}{11}$
46. (c) $\frac{(598 + 479)^{2} - (598 - 479)^{2}}{598 \times 479}$
 $\Rightarrow (598)^{2} + (479)^{2} + 2 \times 598 \times 479$
 $-\frac{(598)^{2} - (479)^{2} + 2 \times 598 \times 479}{598 \times 479}$
 $\Rightarrow \frac{4 \times 598 \times 479}{598 \times 479}$
 $\Rightarrow 4$
47. (c) Total expenditure spent on four months
 $= 4 \times 225.25 = ₹901$

Total expenditure spent on next five months = $5 \times (225.25 + 20.75)$

= 5 × 246 =₹ 1230

Total expenditure for 12 months

=₹[901+1230+700]=2831

Required % =
$$\frac{669}{3500} \times 100 = 19.11\%$$

48. (d) Let the present age of P and Q be 2x and 3x.According to question

$$\frac{2x + 18}{3x + 18} = \frac{4}{5}$$

10x + 90 = 12x + 72
2x = 18
x = 9
Present age of Q = 9 × 3 = 27 years

49. (b)
$$\frac{Mon + Tues + Wed}{3} = 37^{\circ}C$$
 ...(1)

$$\frac{\text{Tues} + \text{Wed} + \text{Thur}}{3} = 34^{\circ}\text{C} \qquad \dots(2)$$

Subtracting equation (2) from (1) Mon – Thurs = $37 \times 3 - 34 \times 3$

$$\frac{5}{4}$$
 Thus – Thurs = 9

Thurs = $36^{\circ}C$

50. (c) Let 'x' be the sum invested in the bank. According to question

$$\frac{x \times 10 \times 1}{100} + \frac{x \times 12 \times 1}{100} = 1650$$

10x + 12x = 165000
22x = 165000
x = ₹7500

51. (a) Let sum = ₹x, S.I. = $\frac{1}{9}x$

Rate = R%Time = R yrs.

 $\frac{1}{9}\mathbf{x} = \frac{\mathbf{x} \times \mathbf{R} \times \mathbf{R}}{100}$

$$R^2 = \frac{100}{9}$$

$$R = 3.33\%$$

52. (a) 8%

0.8%

9.2%

The ratio in which money lent is 0.8: 1.2 or 2: 3Therefore, money lent at 10%

$$=\frac{3}{5}\times10000=6000$$

53. (c) Let the total number of votes enrolled be x. Then, number of votes cast = 60% of x Valid votes = 96% of (60% of x) 75% of [96% of (60% of x)] = 7344

$$\frac{75}{100} \times \frac{96}{100} \times \frac{60}{100} \times x = 7344$$
$$x = \frac{7344 \times 100 \times 100 \times 100}{75 \times 96 \times 60}$$
$$x = 17000$$

54. (b) If the price of a commodity increases by R%, then the reduction in consumption. So as not to increase the expenditure is

$$\left[\frac{R}{100+R} \times 100\right]\% = \frac{9}{100+9} \times 100$$

= 8.25%

55. (d) Pupils from first school appeared for an examination = 80% of 65 = 52Pupils from second school appeared for an examination

= 52 + 4 = 56

Total pupils in second school = 65 + 10 = 75

Pass % of second school = $\frac{56}{75} \times 100 = 74.6\%$

- 56. (c) 1:10 could not be the ratio of black to white marbles.
- 57. (c) Going by options,

If the total sum is 6400 then distribution among P, Q and R was 1200, 3800 and 1400. After giving 200 to Q by R. New sum would be 1200, 4000 and 1200.

Or, 1200: 4000: 1200 = 3: 10: 3

Hence, the ratio should be 3 : 1.

59. (b) Amount = Principal
$$\left(1 + \frac{\text{Rate}}{100}\right)^{\text{Time}}$$

$$= 1250 \left(1 + \frac{4}{100}\right)^2$$
$$= 1250 \times \frac{26}{2} \times \frac{26}{2}$$

$$= 1250 \times \frac{26}{25} \times \frac{26}{25}$$

60. (a) Let the sum lent at 6% be $\not\in$ x and that lent at 4% be $\not\in$ (3200 - x). Then,

$$\frac{x \times 6 \times 1}{100} + \frac{(3200 - x)4 \times 1}{100} = 176$$

6x+4×3200-4x = 17600
2x = 17600-4×3200
2x = 17600-12800 = 4800
x =₹2400

- 61. (b) Second is the tool used to first.
- 62. (b) Infants are kept in Creche like wise sailors.
- 63. (d) Plant is given pesticide for cure and body is given vaccination.
- 64. (a) First is bigger than the second.
- 65. (d) Second is the place where first lives.
- 66. (b) First is more intense form of second.
- 67. (d) Necromancy is the practice to deal with ghosts similarly Sorcery deals with spirits.
- 68. (c) Second is the place where first is manufactured.
- 69. (a) First is a kind or type of second.
- 70. (d) Onam is a festival of Kerala and Bihu is of Assam.

- (c) Calendar consists of dates and dictionary consists of words.
- 72. (a) The words in pair are opposite to each other.
- 73. (c) Second is the class to which first belongs.
- 74. (b) Second is the activity done by first.
- 75. (d) First revolves around the second.
- 76. (b) Lotus grow in water and rest grow on land.
- 77. (b) All except sharpener are used in writing.
- 78. (c) Brass is an alloy and rest are metals.
- 79. (b) All except eagle are flightless birds.
- 80. (d) All except Baroda are famous for coal fields.