

SSC MTS EXAM - PRACTICE SET

Answers with Explanation

Reasoning Ability and Problem Solving

1. (a)

Days	Papers
Monday	Physics
Tuesday	Geography
Wednesday	Chemistry
Thursday	History
Friday	Math
Saturday	Economics

3. (c) The series is — a c b d / d b c a / a c b d / d b c a

4. (d)

5. (d) $\frac{8 \times 12}{2} = 48$

$\frac{6 \times 18}{2} = 54$

Similarly,

$\frac{4 \times 8}{2} = 16$


6. (b)

7. (d) D > F > A > E > C > B > G

8. (d)

9. (a) $632 \xrightarrow{+5} 637 \xrightarrow{+7} 644 \xrightarrow{+9} 653 \xrightarrow{+11} 664 \xrightarrow{+13} 677$

10. (d)

11. (d) 12. (b) $83 + 711 - 95 \div 9 \times 2 = 20$

After interchanging '711' and '95' we get,

$83 + 95 - 711 \div 9 \times 2 = 20$

$\Rightarrow 83 + 95 - 79 \times 2 = 20$

$\Rightarrow 178 - 158 = 20$

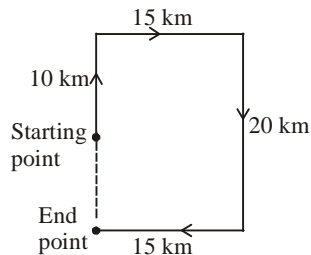
$\Rightarrow 20 = 20$

13. (c)

14. (d)

Opposite Letters	Similarly,	Opposite Letters
D ——— W		M ——— N
G ——— T		O ——— L
P ——— K		S ——— H

15. (c)



16. (c) $\frac{3004+2}{2} = 1503$

$\frac{1740+2}{2} = 871$

Similarly,

$\frac{142+2}{2} = 72$

17. (b) 18. (b) 19. (c) 20. (b)

Numerical and Mathematical Ability

1. (b) Let the number be x and the quotient be q.

Then, $x = 195q + 47 = (15 \times 13q) + (15 \times 3) + 2$

$= 15(13q + 3) + 2$

So, the given number when divided by 15 gives 2 as remainder.

2. (a) Given expression

$$= \left(\frac{1}{2} - \frac{1}{3}\right) + \left(\frac{1}{3} - \frac{1}{4}\right) + \left(\frac{1}{4} - \frac{1}{5}\right) + \left(\frac{1}{5} - \frac{1}{6}\right) + \dots + \left(\frac{1}{9} - \frac{1}{10}\right)$$

$$= \left(\frac{1}{2} - \frac{1}{10}\right) = \frac{4}{10} = \frac{2}{5}$$

3. (d) Number of pages typed by 1 man in 1 hour = $\frac{60}{8} = 7.5$

$$\therefore \text{Number of men required} = \frac{1710}{7.5} = 228$$

4. (a) $x^4 + \frac{1}{x^4} = 322 \Rightarrow x^4 + \frac{1}{x^4} + 2 = 324$

$$\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^2 = (18)^2 \Rightarrow x^2 + \frac{1}{x^2} = 18$$

$$\Rightarrow x^2 + \frac{1}{x^2} - 2 = 16$$

$$\Rightarrow \left(x - \frac{1}{x}\right)^2 = 16 \Rightarrow \left(x - \frac{1}{x}\right) = 4$$

5. (a) Given = $\sqrt{10+2\sqrt{6}+2\sqrt{10}+2\sqrt{15}}$

$$= \sqrt{10+2 \times \sqrt{3} \times \sqrt{2} + 2 \times \sqrt{2} \times \sqrt{5} + 2 \times \sqrt{3} \times \sqrt{5}}$$

$$= \sqrt{2+3+5+2 \times \sqrt{2} \times \sqrt{3} + 2 \times \sqrt{5} \times \sqrt{2} + 2 \times \sqrt{3} \times \sqrt{5}}$$

$$= \sqrt{(\sqrt{2})^2 + (\sqrt{3})^2 + (\sqrt{5})^2 + 2 \times \sqrt{2} \times \sqrt{3} + 2 \times \sqrt{5} \times \sqrt{2} + 2 \times \sqrt{3} \times \sqrt{5}}$$

$$\{\because a^2 + b^2 + c^2 + 2ab + 2bc + 2ca = (a+b+c)^2\}$$

$$= \sqrt{(\sqrt{2} + \sqrt{3} + \sqrt{5})^2}$$

$$= (\sqrt{2} + \sqrt{3} + \sqrt{5})$$

6. (c) Average monthly income of P and Q = ₹6,000
 Average monthly income of Q and R = ₹5,250
 Average monthly income of P and R = ₹5,500
 Total income of P + Q = $2 \times 6,000 = ₹12,000$... (i)
 Total income of Q + R = $2 \times 5,250 = ₹10,500$... (ii)
 Total income of R + P = $2 \times 5,500 = ₹11,000$... (iii)
 On adding equation (i) + (ii) and (iii), we get
 $2(P + Q + R) = 12,000 + 10,500 + 11,000$

$$\Rightarrow P + Q + R = \frac{33500}{2}$$

₹16,750 (iv)

By equation (iv) - (ii)

P's monthly income = ₹(16,750 - 10,500) = ₹6,250

7. (b) Let the radius of the circles be r and R respectively.

$$\text{Then, } \frac{2\pi r}{2\pi R} = \frac{2}{3} \Rightarrow \frac{r}{R} = \frac{2}{3} \Rightarrow \frac{r^2}{R^2} = \left(\frac{2}{3}\right)^2 \Rightarrow \frac{\pi r^2}{\pi R^2} = \frac{4}{9}$$

Hence, ratio of areas = 4 : 9

8. (b) $10 + (-10) + \frac{10 \times (-10)}{100}$

$$= -1\%$$

∴ 1% decrease

9. (d) Let, the depth of the tank be h metres. Then,

$$\pi \times (7)^2 \times h = 1848 \Leftrightarrow h = \left(1848 \times \frac{7}{22} \times \frac{1}{7 \times 7}\right) = 12\text{m}$$

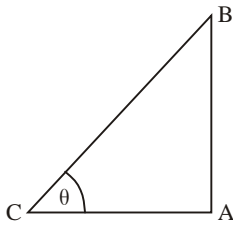
10. (b) Volume of 1 rod

$$= \left(\frac{22}{7} \times \frac{1}{100} \times \frac{1}{100} \times 7\right) \text{cu.m} = \frac{11}{5000} \text{cu.m}$$

Volume of iron = 0.88 cu. m.

$$\text{Number of rods} = \left(0.88 \times \frac{5000}{11}\right) = 400$$

11. (a) Let AB be the tree and AC be its shadow.



Let $\angle ACB = \theta$

$$\text{Then, } \frac{AC}{AB} = \sqrt{3}$$

$$\Rightarrow \cot \theta = \sqrt{3} \Rightarrow \theta = 30^\circ$$

12. (c) Let principal = P. Then, S. I. = P and T = 15 yrs

$$\therefore \text{Rate} = \left(\frac{100 \times P}{P \times 15}\right)\% = 6\frac{2}{3}\%$$

13. (c) $P\left(1 + \frac{R}{100}\right)^{15} = 2P \Rightarrow \left(1 + \frac{R}{100}\right)^{15} = \frac{2P}{P} = 2$

$$\text{Let } P\left(1 + \frac{R}{100}\right)^n = 8P \Rightarrow \left(1 + \frac{R}{100}\right)^n = 8 = 2^3 = \left\{\left(1 + \frac{R}{100}\right)^{15}\right\}^3$$

$$\Rightarrow \left(1 + \frac{R}{100}\right)^n = \left(1 + \frac{R}{100}\right)^{45} \Rightarrow n = 45$$

Thus, the required time = 45 years

14. (c) Number of candidates failing from city D

$$= \left(\frac{3}{4} \times 2.27 \times 100000\right)$$

$$= \left(\frac{3}{4} \times \frac{227}{100} \times 100000\right) = (227 \times 750)$$

Number of candidates failing from city A

$$= \left(\frac{3}{10} \times 1.25 \times 100000\right)$$

$$= \left(\frac{3}{10} \times \frac{125}{100} \times 100000\right) = (300 \times 125)$$

$$\text{Required ratio} = \frac{227 \times 750}{300 \times 125} = \frac{227}{50} = 227 : 50$$

15. (b) Number of candidates from city C

$$= (1.08 \times 100000) = 108000$$

Number of candidates from city B

$$= (3.14 \times 100000) = 314000$$

$$\text{Required percentage} = \left(\frac{108000}{314000} \times 100\right)\%$$

$$= \left(\frac{108}{314} \times 100\right)\% = \left(\frac{54}{157} \times 100\right)\%$$

$$= \frac{5400}{157}\% = 34.39\% \approx 34\%$$

16. (d) Amount of milk left after 3 operations

$$= \left[40 \left(1 - \frac{4}{40}\right)^3\right] \text{ litres}$$

$$= \left(40 \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10}\right) = 29.16 \text{ litres}$$

17. (a) Suppose, number of bananas bought = L.C.M of 6 and 4 = 12

$$\therefore \text{C.P} = ₹\left(\frac{10}{6} \times 12\right) = ₹20; \text{SP} = ₹\left(\frac{6}{4} \times 12\right) = ₹18$$

$$\therefore \text{Loss}\% = \left(\frac{2}{20} \times 100\right)\% = 10\%$$

18. (d) Speeds of vehicles on Day 1:

$$A \rightarrow \frac{832}{16} \text{ km/hr} = 52 \text{ km/hr}$$

$$B \rightarrow \frac{516}{12} \text{ km/hr} = 43 \text{ km/hr}$$

$$C \rightarrow \frac{693}{11} \text{ km/hr} = 63 \text{ km/hr}$$

$$D \rightarrow \frac{552}{12} \text{ km/hr} = 46 \text{ km/hr}$$

$$E \rightarrow \frac{935}{17} \text{ km/hr} = 55 \text{ km/hr}$$

$$F \rightarrow \frac{703}{19} \text{ km/hr} = 37 \text{ km/hr}$$

Speeds of vehicles on Day 2:

$$A \rightarrow \frac{864}{16} \text{ km/hr} = 54 \text{ km/hr}$$

$$B \rightarrow \frac{774}{18} \text{ km/hr} = 43 \text{ km/hr}$$

$$C \rightarrow \frac{810}{18} \text{ km/hr} = 45 \text{ km/hr}$$

$$D \rightarrow \frac{765}{15} \text{ km/hr} = 51 \text{ km/hr}$$

$$E \rightarrow \frac{546}{14} \text{ km/hr} = 39 \text{ km/hr}$$

$$F \rightarrow \frac{636}{12} \text{ km/hr} = 53 \text{ km/hr}$$

Clearly, B travelled at the same speed on both the days.

$$\begin{aligned} 19. (c) \quad & 4 + \frac{47}{99} - 3 + \frac{16}{99} + 2 + \frac{44}{99} \\ & = (4 - 3 + 2) + \left(\frac{47}{99} - \frac{16}{99} + \frac{44}{99} \right) \\ & = 3 + \frac{75}{99} \\ & = 3.75 \end{aligned}$$

$$\begin{aligned} 20. (a) \quad & \therefore (\sec^2\theta + \tan^2\theta) = \frac{7}{12} \\ & \therefore (\sec^4\theta - \tan^4\theta) \\ & = (\sec^2\theta - \tan^2\theta)(\sec^2\theta + \tan^2\theta) \\ & = (1 + \tan^2\theta - \tan^2\theta) \times \frac{7}{12} \\ & = \frac{7}{12} \end{aligned}$$

English Language and Comprehension

- (c) Use 'in' in place of 'of'.
- (a) Use 'at' in place of 'on'.
- (b) All over the world: everywhere on earth, in every corner of the globe.
- (a) Preposition 'by' is the appropriate usage.
- (a) Fight against someone or something is to battle against someone or something.
- (c) Renaissance, a French word meaning rebirth, is applied to the rediscovery and revival of interest in the art, architecture and literary culture of Antiquity which took

place in Italy from the 14th century onwards, and in Northern Europe a little later.

- (c) 'Peremptory': leaving no opportunity for denial or refusal; imperious or dictatorial.
- (c) 'Natural' is the antonym of the word 'Artificial'.
- (b) 'Abandon' means to give up or discontinue any further interest in something because of discouragement, weariness, distaste, or the like. So, 'Keep' is the antonym of 'Abandon'.
- (d) 'To end up in smoke' means to come to nothing; to have no positive result.
- (d) 'The ins and outs': the detailed or complicated facts of something.
- (a) The meaning of this idiom is to become known very quickly.
- (b) Unless (Conj.): except under the circumstances that. Except (Conj.): only; otherwise than. **ACHIEVERS In Focus** Here, unless is the right usage.
- (c) Singular Verb-is will be used with the name of the book 'Gulliver's Travels'. Hence, 'is' is the right usage.
- (a) Deployed (Verb) : to move soldiers or weapons into a position where they are ready for military action. Employed (Verb) : to give somebody a job to do for payment. Here, deployed is the proper usage.
- (c) Burglar (N.): A person who enters a building illegally in order to steal.
- (b) Out of the given options, the word which describes "Remarks which have no order or connection" is 'irrelevant'.
- (c) The correct answer is 'Tractable'. 'Tractable' means capable of being easily led, taught or controlled.
- (d) 'Kleptomania' is a recurrent urge to steal, typically without regard for need or profit.
- (c) 'Running' is the action of managing or operating something.
- (d) 22. (b)
- (a)
- (c)
- (c)

General Awareness

- (c) The whole country was shocked over the sudden decision to stop the Non-Cooperation movement. During this time, Chittaranjan Das, made this statement when he was frustrated.
- (c) The reason for the use of copper wire rather than iron wire is that it is superior to transport electricity than iron.
- (a) The difference in temperature is greater in the desert environment. Prickly pear is a desert ecosystem plant. It has acquired multiple adaptive properties to protect it from the heat of the day, such as its leaves being converted into thorns, its plant stem is creamy and flat that are capable of doing Photosynthesis in high heat levels.
- (a) Lord Dalhousie, who was the Governor-General of India from 1848 to 1856, started the Public Works Department in 1848 and irrigation projects were among the earliest to be launched by this department.

5. (c) Ashwini Kumar Dutta commented on the annual session of the Congress for three days each year and he made this statement during the Amaravati Session in 1897.
6. (a) The Presidency banks viz. Bank of Bengal, Bank of Bombay and Bank of Madras amalgamated on January 27, 1921 and the Imperial Bank of India was formed under the Imperial Bank of India Act, 1920. After Independence, the Imperial Bank of India was nationalized under the State Bank of India Act, 1955 and State Bank of India (SBI) was formed.
7. (c) Naharkatia oil fields are located in Assam at a distance of 32 km south-west of Digboi at the bank of Burhi Dihing River. Here the discovery of oil took place in 1953 and production started in 1954. Oil is available at depths differing from 4,000 to 5,000 metres. Among the 60 successful wells drilled so far, 56 are producing oil while the remaining 4 are producing natural gas.
8. (c) Article 137 of the Constitution states that the Supreme Court may reconsider its own judgement.
9. (a) A censure motion can be moved in lower house of the Parliament or in a state assembly in India. This motion can be moved only in Lok Sabha and by the opposition of the house. It can be moved against the ruling government or against any Minister for the failure to act or seeking disapproval of their policy.
If the censure motion is passed, the government does not need to resign, unlike in case of No-Confidence Motion.
10. (a) Seventh Five Year Plan from 1985 to 1990 had the objective to establish a self-sufficient economy, opportunities for productive employment. For the first time, the private sector got priority over the public sector. Socialist India started moving away from it.
11. (b) It includes the industries where finished products are made natural materials produced in the primary sector. Industrial production, cotton fabric, sugar cane production etc. activities comes under this sector.
Hence its the part of a country's economy that manufactures goods, rather than producing raw materials.
Since this sector is associated with different kinds of industries, it is also called industrial sector.
People engaged in secondary activities are called blue collar workers.
12. (d) Jatindranath Mukhopadhyay was the real name of Bagha Jatin.
13. (c) Iswar Chandra Gupta was the Editor of 'Sangbad Prabhakar'.
14. (a) Farookh Siyar granted East India Company the civil rights.
15. (a) 'Chandrayaan-2' is an Indian lunar mission that will explore the Moon's south polar region. The launch vehicle will be carrying an orbiter, a rover named 'Pragyan' and a lander named 'Vikram'.
16. (a) Father of Blood Grouping : Karl Landsteiner. He discovered A, B and O blood groups.
Decastello and Sturle discovered AB blood groups.
Blood transfusion techniques was developed by Dr. James Blundell.
17. (a) The Human Chromosome 21 (Hsa21), the smallest autosomic chromosome of the human genome. Chromosome 1 is the designation for the largest human Chromosome.
18. (c) Cashew plants can adapt themselves to any type of climate without affecting the productivity. The best soil suitable for this crop is well drained sandy loam soil with a hard pan. Also red sandy loam soil, lateritic soil, sand of coastal areas and soil with acidic pH are all suitable for the cultivation of cashew.
19. (d) The Doongri festival is one of the most famous festivals in Himachal Pradesh. It is organized on the occasion of Basant Panchami in mid-May. This festival is celebrated at Hadimba Temple.
This day is celebrated as the birthday of Hadimba devi. According to Mythology, Hadimba devi is the wife of Bhima.
20. (a) The highest sporting honour in the country is the 'Major Dhyan Chand Khel Ratna Award' formerly known as the 'Rajiv Gandhi Khel Ratna Award'.
The Indian Government's Ministry of Youth Affairs and Sports bestows it on a yearly basis.
The award which was established in 1991-1992, was granted for a sports person's performance over the course of a year.
Chess Grandmaster Viswanathan Anand was the first winner of the honour in 1991-1992.
21. (d) The National Institute of Technology that recently launched the 'Nivahika' web portal for data management is located in Calicut. This web portal represents a significant advancement in how the institute handles and reports data, ensuring accuracy and consistency in various institutional processes.
22. (a) According to the Travel and Tourism Development Index (TTDI) 2024 released by the World Economic Forum, India secured the 39th position. This ranking reflects India's performance in enhancing the competitiveness and sustainability of its tourism sector.
23. (c) India has successfully obtained the operational rights for a terminal at Mongla Port in Bangladesh, which is the country's second-largest seaport. This strategic acquisition is significant as it represents a counter to China's growing influence in the Indian Ocean region. Indian Port Global Limited (IPGL) will manage the terminal, which will enhance India's regional presence and security.
24. (a) American sprinter Noah Lyles clinched the gold medal in the men's 100 meter sprint at the 2024 Paris Olympics. Lyles won with a razor thin margin of 0.005 seconds over Jamaica's Kishane Thompson, finishing with a time of 9.784 seconds. His victory marks the first time an American has won the 100 meter gold since Justin Gatlin in 2004.
25. (a) Daljit Singh Chawdhary, who is the Director General of Sahastra Seema Bal (SSB), took over the additional charge of the Director General Border Security Force (BSF) on 3 August, 2024. He is an IPS officer of the 1990 batch from the Uttar Pradesh cadre. He has significant accolades such as 4 police medals for Gallantry, the police medal for meritorious service, the President's police medal for distinguished service, and the Ati Utkrisht seva medal.