

Q16

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कच्च्या कामासाठी जागा/SPACE FOR ROUGH WORK

1. साठी, स्तव, प्रति, इ विभक्ति प्रतिरूपक शब्दयोगी अव्ययी शब्दांचा वापर कोणत्या विभक्तीत केला जातो?

- (1) द्वितीया (2) तृतीया (3) चतुर्थी (4) षष्ठी

2. 'कुडास कान, ठेवी ध्यान' या म्हणीचा योग्य अर्थ कोणता?

- (a) नेहमी सावधगिरीने बोलवे.
 (b) मागून येऊन वरचढ होणे.
 (c) एकाने काम करावे दुसऱ्याने त्याचा फायदा घ्यावा.
 (d) साहसाने कार्य करायचे, तर संकटाची भीती बाळगू नये.

पर्यायी उत्तरे :

- (1) फक्त (c) बरोबर (2) फक्त (a) बरोबर
 (3) फक्त (b) बरोबर (4) फक्त (c) व (d) बरोबर

3. 'आमच्या शाळेच्या सर्व विद्यार्थ्यांनी येत्या रविवारी वनभोजनास जाण्याचा निश्चय केला आहे'.

वरील वाक्यातील उद्देश्य ओळखा.

- (1) वनभोजनास (2) विद्यार्थ्यांनी (3) आमच्या शाळेच्या (4) सर्व

4. वाक्यातील नाम किंवा सर्वनाम यांचे क्रियापदाशी जे संबंध असतात त्यांना काय म्हणतात?

- (1) कारकार्थ (2) उपपदार्थ (3) अधिकरण (4) संप्रदान

5. 'वरपांगी नको असल्याचें सोंग करून एखादीच्या पाठीमागे लाभ मिळविण्यासाठी जाणे'. या अर्थाची म्हण कोणती?

- (1) नगं नगं म्हणत पायलीच्या मार्गं पळणं. (2) आगीतून निघावे अन् फुफाट्यात पडावे.
 (3) अगं अगं म्हशी मला कुठे नेशी. (4) ओठापर्यंत आले पण पोटात नाही गेले.

6. 'जो जे वांछिल तो ते लहो'. अर्थानुसार या वाक्याचा प्रकार कोणता?

- (1) विध्यर्थी (2) आज्ञार्थी (3) संकेतार्थी (4) विधानार्थी

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7. 'वाघाच्या घरी शेळी पाहुणी' या म्हणीचा सुसंगत अर्थ व्यक्त करणारा पर्याय निवडा.

- (a) पाहुण्यांचा आदरसत्कार करणे ही भारतीय संस्कृती
- (b) जाणूनबुजून नाजूकपणा दाखविण्याची वृत्ती
- (c) दुर्जनाच्या तावडीत सज्जन
- (d) संकटात परिस्थिती पाहून चलाखपणे वर्तन करणे

पर्यायी उत्तरे :

- (1) (d) बरोबर (2) (c) बरोबर (3) (b) बरोबर (4) (a) व (b) बरोबर

8. 'शिक्षकांनी विद्यार्थ्यांना शिकवावे' या वाक्यातील प्रयोग ओळखा.

- (1) कर्मणी प्रयोग (2) भाष्य प्रयोग (3) संकीर्ण प्रयोग (4) भावकर्तरी प्रयोग

9. 'हिरवे हिरवेगार गालिचे' या ओळीतील विशेषणाचा प्रकार पुढीलपैकी कोणता ?

- (a) गुणवाचक विशेषण (b) क्रमवाचक विशेषण
- (c) आवृत्तिवाचक विशेषण (d) गणनावाचक विशेषण

पर्यायी उत्तरे :

- (1) (b) व (a) बरोबर (2) फक्त (a) बरोबर
(3) फक्त (d) बरोबर (4) यापैकी नाही

10. साधित क्रियापदाची पुढीलपैकी दोन उदाहरणे कोणती आहेत ?

- (a) संपाची तीव्रता आता थंडावली. (b) हमालाल काम करवते.
- (c) कामगारांनी काम संपवून टाकले. (d) आईच्या प्रेमास तो आता दुरावला.

पर्यायी उत्तरे :

- (1) फक्त (a) व (c) (2) फक्त (a) व (d) (3) फक्त (c) व (d) (4) फक्त (a) व (b)

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खालील उतारा वाचा व त्यावरील प्र. क्र. 11 ते प्र. क्र. 15 ची उत्तरे द्या :

आपला समाज हा स्थितिप्रिय असल्याने त्यात परिवर्तनवादी शक्ती थोड्या आहेत, आणि त्यांतही पुन्हा त्या विविध प्रवाह व संघटना यांमधून इतस्ततः विखुरलेल्या आहेत. समाजपरिवर्तनासाठी होणारा संघर्ष हा बहुतांशी विषम स्वरूपाचा असतो. परिवर्तनवादी प्रवाहांचा पक्ष सामाजिक न्यायाचा आहे; मानवाच्या प्रतिष्ठेचा आहे. बाह्य परिस्थिती प्रतिकूल असली तरी काळाचा प्रवाह त्यांना अनुकूल आहे. पण परिवर्तनाला विरोध करणारे प्रस्थापितांचे प्रतिनिधी व प्रवक्ते यांना पैसा, प्रतिष्ठा, दमनयंत्रणा, सामाजिक संस्था व सांस्कृतिक परंपरा यांचे पाठबळ आहे. म्हणून परिवर्तनवादी शक्तींनी आपले सर्व बळ एकवटल्याखेरीज या झगड्यात यश मिळण्याची शक्यता नाही, याचा पदोपदी त्यांना अनुभव येतो. म्हणून प्रत्येक संघटनेचे नेते व कार्यकर्ते अंतर्गत एकात्मतेचा आग्रह धरतात, व्यापक एकजूटीचे वा आघाडीचे स्वागत करतात, पण प्रत्यक्ष वास्तवाकडे नजर टाकली तर अगदी वेगळे चित्र दिसते.

राजकीय पक्ष, श्रमिक संघटना, पुरोगामी सामाजिक संस्था या सर्वांच्या नित्यनैमित्तिक कार्यात एकजूटीचा अभावच दिसून येतो. राजकीय पक्षात वारंवार फूट पडते. आर्थिक, सामाजिक, शैक्षणिक व वाङ्मयीन क्षेत्रांत काम करणाऱ्या संस्था गटबाजीने ग्रासल्या जातात. संसदबाह्य कार्य करणाऱ्या संघटना पाहिल्या तर त्यांच्यातील मतभेद विकोपाला जाऊन त्यांना एकत्र काम करणे अशक्य होऊन बसते. विचारांच्या पातळीवर ऐक्याची ओढ आणि व्यवहारात अलगतावाद, फुटीरपणा आणि दुही यांचे प्राबल्य असा विसंवाद का निर्माण व्हावा, या प्रश्नाची अधिक खोलात जाऊन चर्चा करण्याची आवश्यकता आहे. या फुटीरपणाची कारणमीमांसा करताना प्रथम येथील सामाजिक वास्तवातील गुंतागुंतीची वस्तुनिष्ठ दृष्टीने उकल करावयास हवी. केवळ काही प्रमुख व्यक्ती, पक्ष वा संघटना यांच्यातील दोषांची व उणिवांची चिकित्सा करून या प्रवृत्तीचे उच्चाटन करता येणार नाही. याचा अर्थ असा नाही की, व्यक्तींचे दोष किंवा संघटनेतील उणिवा यांच्यामुळे काही कार्यहानी होत नाही. पण फक्त त्यांच्यावरच लक्ष केंद्रित केले, तर त्यामधून काही हाती लागणार नाही; कारण फुटीरपणाची ही प्रवृत्ती सामाजिक जीवनाच्या सर्व क्षेत्रांत पसरलेली आहे. तेव्हा आपल्या सामाजिक वास्तवात अशा काही गोष्टी असल्या पाहिजेत की, ज्यांच्यामुळे फुटीरपणाला खतपाणी मिळते, दुहीची बीजे पेरली जातात. त्यांच्यावर सतत प्रहार करून त्या नष्ट करता आल्या तर एकजूट साधण्याचे कार्य पुष्कळच सोपे होईल.

आज सर्वच ऊठसूठ समग्र क्रांतीची भाषा बोलत असतात. मग परिवर्तनवादी कोण आणि परिवर्तनविरोधी कोण या प्रश्नाचा निर्णय आपल्याला निःसंदिग्धपणे करता आला पाहिजे. शोषित व पददलित लोकसमूहांचे दास्य, दैन्य व दारिद्र्य नष्ट करायचे असेल तर, प्रचलित समाजव्यवस्थेत आमूलाग्र परिवर्तन घडवून आणले पाहिजे; आणि त्यासाठी सर्वसामान्य कष्टकरी जनतेला कधी ना कधी संघटितपणे निर्णायक संघर्ष करावा लागेल अशी ज्यांची धारणा असते, त्या बरोबरच जनतेत अशा जाणिवा व आत्मविश्वास निर्माण करण्यासाठी जे सम्यक् दृष्टीने व समर्पणशील वृत्तीने प्रयत्नशील असतात त्यांनाच परिवर्तनवादी म्हणणे उचित होईल. अनेक जाती, जमाती, भाषा, धर्म, पंथ यांनी बनलेल्या भारतासारख्या खंडप्राय देशात सर्वसामान्य लोकांच्या जीवनसरणीत नुसती विविधताच नव्हे, तर फार मोठी विषमताही आहे. त्यांच्यात 'एकात्मता' जोपासणे आवश्यक आहे. त्यासाठी समाज प्रबोधनकर्त्यांनी एकजूट झाले पाहिजे.

11. उतारा वाचल्यानंतर आपणास खरे 'परिवर्तन विरोधी कोण आहेत' असे वाटते ?

- | | |
|-----------------------------|-------------------------------------|
| (1) प्रतिगामी विचारांचे लोक | (2) प्रस्थापित लोक |
| (3) फुटीरतावादी लोक | (4) समग्र क्रांतीची भाषा करणारे लोक |

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12. परिवर्तनवादी संघटनांना अपयश येण्यामागचे अचूक कारण कोणते ?

- (1) व्यक्तीगत स्वार्थ (2) इतस्ततः विखुरलेल्या संघटना
(3) व्यक्तींचे दोष किंवा संघटनेतील उणिवा (4) अलगातेची प्रवृत्ती

13. लेखकाच्या मते 'खरा परिवर्तनवादी' कोणाला म्हणावे ?

- (1) समन्वयशील वृत्ती असलेला.
(2) सम्यक व समर्पणशील वृत्तीने प्रयत्नशील असलेला.
(3) संघटनशील वृत्तीचा.
(4) एकजूट करण्यात प्रयत्नशील असलेला.

14. परिवर्तनवादी चळवळींमध्ये एकजूट होण्यासाठी अचूक उपाय कोणता ?

- (1) विविध चळवळींचे ऐक्य घडवून आणावे.
(2) संघटनात्मक एकजूट दाखवून संघर्ष करावा.
(3) फुटीरतावादी प्रवृत्तीवर सतत प्रहार करून एकजूटीचे महत्व वाढवावे.
(4) पक्ष किंवा संघटना यांच्यातील दोष व उणिवा घालवून चळवळ उभारावी.

15. परिवर्तनवादी संघटनांना यश येण्यासाठी काय उपाय केला पाहिजे ?

- (1) परिवर्तनवादी शक्तींची एकजूट झाली पाहिजे.
(2) प्रस्थापितांना विरोध केला पाहिजे.
(3) फुटीरतावाद्यांना सोडून द्यावे.
(4) संघटितपणे संघर्ष करावा.

16. Choose the correct option to fill in the blank.

They decided to _____ and try to be friends again.

- (1) Bury the hatchet (2) Bury the sword
(3) Bury the gun (4) Bury the clarion call

17. Choose the most appropriate option from the following to complete the sentence :

She _____ between cheerfulness and deep despair.

- (1) Alternates (2) Alternately (3) Alters (4) Alternatively

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18. He worked hard that he might pass the examination .

Choose the correct simple sentence form of the above sentence.

- (1) He worked hard and passed the examination.
 - (2) He worked hard to pass the examination.
 - (3) He worked hard so that he could pass the examination.
 - (4) If you work hard you may pass the examination.
-

19. (a) He is almost correct in his decision.
(b) The house is enough large to accommodate sizeable number of people.
(c) Each boy and each girl is busy with duty.
(d) Neither he nor his friend has prepared their lesson.

Identify the correct sentences.

- | | |
|----------------------|----------------------|
| (1) Only (a) and (b) | (2) Only (a) and (c) |
| (3) Only (b) and (c) | (4) Only (b) and (d) |
-

20. Fill in the blank in the following sentences :

The book just _____ in my hands.

My whole life had _____ at the seams.

- | | |
|----------------------------|----------------------------|
| (1) came round, come round | (2) came apart, come apart |
| (3) came into, come in | (4) came by, came around |
-

21. Identify the underlined clause in the following sentence :

Hamish asked me how I grow my carrots .

- | | |
|-------------------|----------------------|
| (1) Noun clause | (2) Adjective clause |
| (3) Adverb clause | (4) Relative clause |
-

22. Nobody is happy with him because he is a black sheep in the society.

Identify the correct meaning of the underlined word.

- | | |
|---------------------------------|----------------------------|
| (1) a man with black complexion | (2) a very poor man |
| (3) a man of bad character | (4) a man of no importance |
-

23. Choose the correct sentence/s :

- (a) You mustn't driving fast.
 (b) You needn't drive fast.
 (c) Don't you have to go to the office at nine every day ?

Answer Options :

- (1) (a) and (b) only (2) (b) only
 (3) (b) and (c) only (4) (a), (b) and (c)

24. Match the pairs.

- | | |
|--|---------------|
| (a) First appearance in public | (i) maiden |
| (b) A mournful song for the dead | (ii) highbrow |
| (c) One who exhibits about his superiority | (iii) debut |
| (d) First venture of a person | (iv) dirge |
| | (v) egotist |

Answer Options :

- (a) (b) (c) (d)
 (1) (iii) (iv) (v) (ii)
 (2) (iii) (iv) (ii) (i)
 (3) (i) (iv) (ii) (v)
 (4) (i) (iv) (v) (iii)

25. Choose the incorrect passive option/s of the following sentence :

He urged the Council to reduce the rates.

- (a) The Council was urged to reduce the rates.
 (b) The Council were urged to reduce the rates.
 (c) He urged that the rates should be reduced.
 (d) He urged the rates to reduced.

Answer Options :

- (1) (a), (c) (2) (b), (d) (3) Only (d) (4) Only (a)

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Read the following passage carefully and answer Q.No's 26 to 30 based on it.

Happy is the man who acquires the habit of reading when he is young. He has secured a life-long source of pleasure, instruction and inspiration. So long as he has his beloved books, he need never feel lonely. He always has a pleasant occupation of leisure moments, so that he need never feel bored. He is the possessor of wealth more precious than gold. Ruskin calls books, "Kings' Treasures"- treasuries filled, not with gold and silver and precious stones, but with riches much more valuable than these - knowledge, noble thoughts and high ideals. Poor indeed is the man who does not read, and empty is his life.

The blessings which the reading habit confers on its possessor are many.

Provided we choose the right kind of books, reading gives the highest kind of pleasure. Some books we read simply for pleasure and amusement - for example, good novels. And novels and books of imagination must have their place in everybody's reading. When we are tired, or the brain is weary with serious study, it is a healthy recreation to lose ourselves in some absorbing story written by a master hand.

But to read nothing but books of fiction is like eating nothing but cakes and sweetmeats. As we need plain, wholesome food for the body, so we must have serious reading for the mind. And here we can choose according to our taste. There are many noble books on history, biography, philosophy, religion, travel, and science which we ought to read, and which will give us not only pleasure but an education. And we can develop a taste for serious reading, so that in the end it will give us more solid pleasure than even novels and books of fiction.

Nor should poetry be neglected, for the best poetry gives us noble thoughts and beautiful imaginings clothed in lovely and musical language.

Books are the most faithful of friends. Our friends may change, or die; but our books are always patiently waiting to talk to us. They are never cross, peevish, or unwilling to converse, as our friends sometimes are. No wonder a reader becomes a "book-lover."

26. The attitude of author towards the subject is most probably.

Choose the answer option :

- (1) Repulsive (2) Autocratic (3) Suggestive (4) Arrogant

27. Which of the following statements are not true in the context of the passage :

- (a) Book lovers never feel lonely.
 (b) Only fiction books provide pleasure.
 (c) Habit of reading provides pleasure, inspiration throughout one's life.
 (d) Serious reading is necessary for cultivation of mind.
 (e) Poetry is compared with cakes and sweetmeats.

Choose the correct alternative.

- (1) (a), (b), (c) (2) (c), (d), (e) (3) (b), (d) (4) (b), (e)

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P.T.O.

28. According to the author, which of the following statements are correct ?

- (a) Reading for only pleasure is desirable.
- (b) Poetry should be neglected.
- (c) One can choose books according to his or her taste for serious reading.
- (d) Reading habit is boon.
- (e) Poor are those who do not read.
- (f) Books are always willing to converse with us.

Choose the **correct** alternatives :

- (1) (a), (b), (e), (f) (2) (c), (d), (e), (f) (3) (b), (c), (e), (f) (4) (d), (c), (b)
-

29. Match the following :

- | | |
|-------------------------|-----------------------|
| (a) Right kind of books | (i) Noble thoughts |
| (b) Poetry | (ii) Kings' Treasures |
| (c) Ruskin | (iii) Pleasure |
| (d) Books on history | (iv) Education |

Answer Options :

- (a) (b) (c) (d)
- (1) (i) (iii) (ii) (iv)
- (2) (iv) (ii) (iii) (i)
- (3) (iii) (i) (ii) (iv)
- (4) (ii) (iv) (iii) (i)
-

30. To read nothing but books of fiction is like

Choose the answer option :

- (1) Eating plain, wholesome food
 - (2) Eating only cakes and sweetmeats
 - (3) Eating nothing but cakes and chocolates
 - (4) Eating nothing but cakes and fruits
-

कच्चा कामासाठी जागा / SPACE FOR ROUGH WORK

31. द्रौपदी मुर्मू भारताच्या 15 व्या राष्ट्रपतीबाबत पुढील दोन विधाने पहा :

- (a) त्या झारखंडच्या राज्यपाल होत्या.
 (b) त्या कला शाखेतील पदवीधारक आहेत.

पर्यायी उत्तरे :

- (1) केवळ (a) बरोबर (2) केवळ (b) बरोबर
 (3) (a) व (b) दोन्ही विधाने बरोबर (4) (a) व (b) दोन्ही विधाने चूक

Consider the following two statements about Droupadi Murmu, 15th President of India :

- (a) She was a Governor of Jharkhand.
 (b) She is a degree holder in Arts faculty.

Answer Options :

- (1) Only (a) is right (2) Only (b) is right
 (3) Both (a) and (b) are right (4) Neither (a) nor (b) is right

32. ऑगस्ट 2022 पर्यंत, भारतातील किती भाषांना 'अभिजात भाषेचा' दर्जा देण्यात आला आहे?

- (1) 04 (2) 06 (3) 08 (4) 10

As of August 2022, how many languages in India were given the status of a 'Classical language' ?

- (1) 04 (2) 06 (3) 08 (4) 10

33. 2022 चा साहित्य अकादमीतर्फे देण्यात येणारा बालसाहित्य पुरस्कार मराठीसाठी संगीता बर्वे यांच्या कुठल्या कादंबरीला देण्यात आला ?

- (1) रानफुले (2) गंमत झाली भारी
 (3) उजेडाचा गाव (4) पियुची वही

The 2022 Sahitya Academy - Bal Sahitya Puraskar (Children's Literature Award) for Marathi was awarded to which novel by Sangeeta Barve ?

- (1) Ranfule (2) Gammat Zali Bhari
 (3) Ujedacha Gaav (4) Piyuchi Vahi

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

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34. नवी दिल्ली येथे जून 2022 मध्ये 'इंडस्ट्रियल डीकार्बोनायझेशन समीट 2022' चे उद्घाटन कोणी केले?

- (1) परराष्ट्र मंत्री
- (2) अर्थमंत्री
- (3) रस्तेवाहतूक आणि महामार्ग मंत्री
- (4) गृहमंत्री

Who inaugurated the 'Industrial Decarbonization Summit 2022' in New Delhi in June 2022 ?

- (1) Minister of External Affairs
- (2) Finance Minister
- (3) Minister for Road Transport and Highways
- (4) Minister for Home Affairs

35. भारतीय अवकाश संशोधन संस्थेने (ISRO) ब्राझीलचा 'अॅमेझॉनिया - 1' हा उपग्रह अवकाशात केव्हा सोडला ?

- | | |
|------------------------|------------------------|
| (1) 12 ऑगस्ट 2021 | (2) 19 एप्रिल 2021 |
| (3) 28 फेब्रुवारी 2021 | (4) 21 फेब्रुवारी 2021 |

When did the Indian Space Research Organization (ISRO) launch the Brazillian 'Amazonia - 1' satellite into space ?

- | | |
|----------------------|----------------------|
| (1) 12 August 2021 | (2) 19 April 2021 |
| (3) 28 February 2021 | (4) 21 February 2021 |

36. नुकतेच जून 2022 मध्ये गोव्यात 'नॅशनल म्युझियम ऑफ कस्टम्स अँड जी एस टी' चे उद्घाटन कोणी केले ?

- | | |
|----------------------------|-----------------------|
| (1) प्रमोद सावंत | (2) एस श्रीधरन पिल्लई |
| (3) पंतप्रधान नरेंद्र मोदी | (4) निर्मला सितारामन |

Recently, in June 2022 who inaugurated the 'National Museum of Customs and GST' in Goa ?

- | | |
|----------------------------------|--------------------------|
| (1) Pramod Sawant | (2) S. Sreedharan Pillai |
| (3) Prime Minister Narendra Modi | (4) Nirmala Sitharaman |

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

37. मंकीपॉक्स चा पहिला मानवी रुग्ण कधी आणि कोणत्या देशात नोंदवला गेला ?

- (1) अंगोला - 2022 (2) इथिओपीया - 2021
(3) नामिबीया - 2022 (4) कांगो लोकशाही प्रजासत्ताक - 1970

When and in which country was the first human case of Monkeypox recorded ?

- (1) Angola - 2022 (2) Ethiopia - 2021
(3) Namibia - 2022 (4) Democratic Republic of the Congo - 1970

38. दरवर्षी आंतरराष्ट्रीय स्वयंसेवक दिन कधी साजरा केला जातो ?

- (1) 1 डिसेंबर (2) 4 डिसेंबर (3) 5 डिसेंबर (4) 10 डिसेंबर

When is the International Volunteer Day observed every year ?

- (1) 1, December (2) 4, December (3) 5, December (4) 10, December

39. मायग्रेशन ट्रॅकिंग सिस्टम (MTS) ॲप्लिकेशन विकसित करणारे पहिले राज्य कोणते आहे ?

- (1) बिहार (2) गुजरात (3) महाराष्ट्र (4) उत्तर प्रदेश

Which is the first state to develop Migration Tracking System (MTS) application ?

- (1) Bihar (2) Gujarat (3) Maharashtra (4) Uttar Pradesh

40. इ.स. 2021 मध्ये शांततेचे नोबेल पारितोषिक कोणाला मिळाले की ज्यांनी अभिव्यक्ती स्वातंत्र्याचे रक्षण करण्यासाठी प्रयत्न केले ?

- (1) अब्दुलरझाक गुर्नाह
(2) डेव्हिड कार्ड आणि जोशुआ अँगरिष्ट
(3) मारिया रेसा आणि दिमीत्री मुराटोव्ह
(4) डोनाल्ड ट्रम्प

To whom is the Nobel Peace Prize in 2021 awarded for their efforts to safeguard freedom of expression ?

- (1) Abdulrazak Gurnah
(2) David Card and Joshua Angrist
(3) Maria Ressa and Dmitry Muratov
(4) Donald Trump

41. खालीलपैकी कोणती समिती निवडणूक सुधारणांसाठी स्थापन केलेली नाही ?

- (1) एल.एम. सिंघवी समिती (1986) (2) तारकुंडे समिती (1974)
(3) गोस्वामी समिती (1990) (4) इंद्रजीत गुप्ता समिती (1998)

Which of the following Committee was not formed for election reforms ?

- (1) L.M. Singhvi Committee (1986) (2) Tarkunde Committee (1974)
(3) Goswami Committee (1990) (4) Indrajit Gupta Committee (1998)

42. राज्यघटनेच्या अकराव्या यादीमध्ये पंचायती राज संस्थांना खालीलपैकी कोणत्या विषयाच्या संदर्भात निर्णय घेण्याचे अधिकार नाहीत ?

- (1) सामाजिक वनीकरण व वनशेती, लघुद्योग
- (2) ग्रामोद्योग, ग्रामीण घरबांधणी, पिण्याचे पाणी
- (3) प्राथमिक व माध्यमिक शाळा, तांत्रिक प्रशिक्षण
- (4) उच्च शिक्षण, दूरसंचार, राज्यपरिवहन

In the 11th schedule of the Constitution, Panchayati Raj institutions do not have powers to take decisions regarding which of the following subjects ?

- (1) Social forestry and Agro forestry, Small scale industries
- (2) Village industry, Rural housing, Drinking water
- (3) Primary and Secondary schools, Technical Training
- (4) Higher education, Telecommunications, State Transport

43. महाराष्ट्र महानगरपालिका अधिनियम, 1949 नुसार स्थायी समितीत किती नगरसेवकांचा समावेश असेल ?

- (1) 15 नगरसेवक
- (2) 20 नगरसेवक
- (3) 14 नगरसेवक
- (4) 16 नगरसेवक

As per Maharashtra Municipal Corporations Act, 1949 the Standing Committee shall consist of :

- (1) 15 councillors
- (2) 20 councillors
- (3) 14 councillors
- (4) 16 councillors

44. खालीलपैकी कोणता ग्रामपंचायतीचे उत्पन्नाचा स्रोत आहे ?

- (1) गावांतून जमा झालेल्या एकूण महसूलाच्या (दहा) 10% ग्रामपंचायतीला मिळतात
- (2) घरांवरील कर
- (3) ग्रामपंचायत प्राणी, व्यवसाय इत्यादींवर कर लादते
- (4) वरील सर्व

Which of the following is income source of Gram Panchayat ?

- (1) Gram Panchayat gets 10% of the total revenue collected from the village
- (2) House tax
- (3) Gram Panchayat imposes tax on animals and professions etc.
- (4) All the above

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

45. क्यू एस वर्ल्ड युनिव्हर्सिटी रँकिंगच्या 2023 आवृत्तीत भारतातील सर्वोत्तम उच्च शिक्षण संस्था म्हणून कोणती संस्था उदयाला आली ?

- | | |
|--------------------------|-------------------------|
| (1) आय आय टी मद्रास | (2) आय आय टी बाँम्बे |
| (3) आय आय एस सी बेंगलुरु | (4) आय आय आय टी बेंगलोर |

Which institution emerged as the best higher education institution in India in the 2023 edition of QS World University Ranking ?

- | | |
|--------------------|--------------------|
| (1) IIT Madras | (2) IIT Bombay |
| (3) IISc Bengaluru | (4) IIIT Bangalore |

46. खालीलपैकी कोणते राज्याच्या मुख्य सचिवांचे कार्य नाही ?

- (a) संपूर्ण सचिवालयावर नियंत्रण ठेवणे.
 (b) प्रशासनाशी संबंधित सर्व बाबींवर मुख्यमंत्र्यांना सल्ला देणे.
 (c) राज्यसरकारचा प्रवक्ता म्हणून काम करणे.
 (d) राज्याच्या कारभाराबाबत केंद्रीय गृहमंत्र्यांना अहवाल देणे.

पर्यायी उत्तरे :

- | | |
|----------------------|----------------------|
| (1) फक्त (a) आणि (b) | (2) फक्त (c) आणि (d) |
| (3) फक्त (d) | (4) फक्त (c) |

Which of the following is not a function of the Chief Secretary of State ?

- (a) To exercise control over the whole Secretariat.
 (b) To advise the Chief Minister on all matters related to administration.
 (c) To act as a spokesperson of the State Government.
 (d) To report to Union Home Minister regarding affairs of the State.

Answer Options :

- | | |
|----------------------|----------------------|
| (1) Only (a) and (b) | (2) Only (c) and (d) |
| (3) Only (d) | (4) Only (c) |

47. खालीलपैकी कोणाला भारतातील 'स्थानिक स्वराज्य संस्थेचे जनक' म्हणून ओळखले जाते ?

- | | |
|-------------------|-------------------------|
| (1) लॉर्ड रिपन | (2) लाल बहादूर शास्त्री |
| (3) महात्मा गांधी | (4) लॉर्ड माऊंटबॅटन |

Among the following who is known as 'father of Local-Self Government' in India ?

- | | |
|--------------------|-------------------------|
| (1) Lord Ripon | (2) Lal Bahadur Shastri |
| (3) Mahatma Gandhi | (4) Lord Mountbatten |

48. खालीलपैकी कोणते कार्य भारतीय राज्यघटनेच्या बाराव्या अनुसूचीमध्ये सूचीबद्ध नगरपालिकांच्या कार्यपैकी नाही ?

- (1) अपंग आणि मतिमंद यांच्यासह समाजातील दुर्बल घटकांच्या हिताचे रक्षण करणे
- (2) शहरी वनीकरण, पर्यावरणाचे संरक्षण आणि पर्यावरणीय पैलूंना प्रोत्साहन
- (3) आर्थिक आणि सामाजिक विकासासाठी नियोजन
- (4) यापैकी नाही

Which of the following functions is not among the functions of municipalities listed in the 12th schedule of the Constitution of India ?

- (1) Safeguarding the interests of the weaker sections of society, including the handicapped and mentally retarded
- (2) Urban forestry, Protection of environment and promotion of ecological aspects
- (3) Planning for Economic and Social Development
- (4) None of these

49. 73 वी घटनादुरुस्ती खालीलपैकी कोणत्या भारतीय राज्यांना लागू होत नाही ?

- | | |
|------------|-------------------|
| (a) मेघालय | (b) गोवा |
| (c) मिझोरम | (d) हिमाचल प्रदेश |

पर्यायी उत्तरे :

- | | | | |
|-----------------|-----------------|-----------------|-----------------|
| (1) (a) आणि (b) | (2) (c) आणि (d) | (3) (a) आणि (c) | (4) (b) आणि (d) |
|-----------------|-----------------|-----------------|-----------------|

73rd Constitutional Amendment does not apply to which of the following Indian states ?

- | | |
|---------------|----------------------|
| (a) Meghalaya | (b) Goa |
| (c) Mizoram | (d) Himachal Pradesh |

Answer Options :

- | | | | |
|-----------------|-----------------|-----------------|-----------------|
| (1) (a) and (b) | (2) (c) and (d) | (3) (a) and (c) | (4) (b) and (d) |
|-----------------|-----------------|-----------------|-----------------|

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

50. राष्ट्रीय महिला आयोगाची निर्मिती _____ करण्यात आली.

- (1) भारताच्या संविधानातील दुरुस्तीने
- (2) भारताच्या केंद्रीय मंत्रिमंडळाच्या निर्णयाने
- (3) भारतीय संसदेने संमत केलेल्या कायद्याने
- (4) भारताच्या राष्ट्रपतींच्या आदेशाने

The National Commission for Women was created with _____ .

- (1) an amendment in the Constitution of India
- (2) a decision of the Union Cabinet of India
- (3) an act passed by the Parliament of India
- (4) an order of the President of India

51. हायड्रोजन अणूची आयोनायझेशन ऊर्जा किती असते ?

- (1) 786 eV
- (2) 13.6 eV
- (3) 0 eV
- (4) 1 MeV

How much is the ionisation energy of the Hydrogen atom ?

- (1) 786 eV
- (2) 13.6 eV
- (3) 0 eV
- (4) 1 MeV

52. खालीलपैकी कोणत्या प्रक्रियेमुळे पांढऱ्या प्रकाशाचे त्याच्या घटक रंगात विभाजन होते जेव्हा ते लोलकामधून बाहेर पडतात ?

- (1) प्रकाशाचे परावर्तन
- (2) टोटल इंटर्नल रिफ्लेक्शन
- (3) डिस्पर्शन
- (4) प्रकाशाचे अपवर्तन

Due to which of the following process white light get separated into its constituent colors when passing through a prism ?

- (1) Reflection of light
- (2) Total internal reflection
- (3) Dispersion
- (4) Refraction of light

53. अल्फा क्षयामध्ये अस्थिर न्यूक्लिअस, अल्फा कण उत्सर्जित करतो, ज्यामुळे त्याचे प्रोटॉन आणि न्यूट्रॉन _____ ने कमी होते.

- (1) प्रोटॉन 2 ने आणि न्यूट्रॉन 2 ने
- (2) प्रोटॉन 1 ने आणि न्यूट्रॉन 2 ने
- (3) प्रोटॉन 2 ने आणि न्यूट्रॉन 1 ने
- (4) प्रोटॉन 1 ने आणि न्यूट्रॉन 1 ने

In alpha decay, the unstable nucleus emits an alpha particle reducing its proton and neutron by :

- (1) Z by 2 and N by 2
- (2) Z by 1 and N by 2
- (3) Z by 2 and N by 1
- (4) Z by 1 and N by 1

54. खालीलपैकी कोणत्या अणूमध्ये न्यूट्रॉन नसतो ?

- (1) ड्युटेरियम (2) हायड्रोजन (3) ट्रिटियम (4) हेलियम

Which atom does not contain neutron ?

- (1) Deuterium (2) Hydrogen (3) Tritium (4) Helium

55. NH_3 ने संतृप्त आहे अशा NaCl च्या संतृप्त द्रावणातून CO_2 पाठविला असता _____ चे स्फटिक वेगळे होतात.

- (1) NaHCO_3 (2) Na_2CO_3 (3) NH_4Cl (4) $(\text{NH}_4)_2\text{CO}_3$

When CO_2 is passed into a concentrated solution of NaCl which is saturated with NH_3 , Crystals of _____ separate out.

- (1) NaHCO_3 (2) Na_2CO_3 (3) NH_4Cl (4) $(\text{NH}_4)_2\text{CO}_3$

56. खालीलपैकी कोण अष्टकाचा नियम पाळत नाही ?

- (1) BeCl_2 (2) PCl_5 (3) BCl_3 (4) वरीलपैकी सर्व

Which of the following does not obey octet rule ?

- (1) BeCl_2 (2) PCl_5 (3) BCl_3 (4) All of the above

57. वनक्षेत्राचे आरेखन (digitalization) करण्यासाठी _____ घटकाचा वापर करतात.

- (1) बिंदू (2) रेषा (3) बहुभुजाकृती (4) वरील सर्व

_____ element is used for digitalization of forest area.

- (1) Point (2) Line (3) Polygon (4) Above all

58. शॉर्टरेंज नेटवर्क यास _____ असे म्हणतात.

- (1) ब्लूटूथ (2) संगणक (3) मोबाईल (4) प्रिन्टर

Short-range Network is called _____.

- (1) Bluetooth (2) Computer (3) Mobile (4) Printer

59. भारतात हवाई छायाचित्रणाची सुरवात _____ साली झाली.

- (1) 1920 (2) 1921 (3) 1951 (4) 1971

In India aerial photography started in _____ year.

- (1) 1920 (2) 1921 (3) 1951 (4) 1971

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

60. इलेक्ट्रॉनिक रेकॉर्डचे प्रमाणीकरण हे _____ आणि हॅश फंक्शनच्या वापराद्वारे केले जाईल, जे सुरुवातीच्या इलेक्ट्रॉनिक रेकॉर्डला दुसऱ्या इलेक्ट्रॉनिक रेकॉर्डमध्ये आच्छादित आणि रूपांतरित करते.

- | | |
|---------------------|---------------------------------|
| (1) डिजिटल सिग्नेचर | (2) असिमेट्रीक क्रिप्टो सिस्टीम |
| (3) क्रिप्टोग्राफी | (4) क्रिप्टोफंक्शन |

The Authentication of the electronic record shall be effected by the use of _____ and hash function which envelop and transform the initial electronic record into another electronic record.

- | | |
|-----------------------|------------------------------|
| (1) Digital Signature | (2) Asymmetric Crypto System |
| (3) Cryptography | (4) Crypto Function |

61. मालवेअर वर्गीकृत करण्याचे प्रकार _____.

- | | | | |
|-----------------------|-------------------|---------------|--------------|
| (a) विषाणु आणि वर्म्स | (b) ट्रोजन हॉर्सस | (c) स्पायवेअर | (d) सॉफ्टकॉन |
|-----------------------|-------------------|---------------|--------------|

पर्यायी उत्तरे :

- | | |
|----------------------|-----------------|
| (1) (a) आणि (c) | (2) (b) आणि (c) |
| (3) (a), (b) आणि (c) | (4) (d) फक्त |

Malware can be classified as :

- | | | | |
|-----------------------|-------------------|-------------|-------------|
| (a) Viruses and Worms | (b) Trojan Horses | (c) Spyware | (d) Softcon |
|-----------------------|-------------------|-------------|-------------|

Answer Options :

- | | |
|----------------------|-----------------|
| (1) (a) and (c) | (2) (b) and (c) |
| (3) (a), (b) and (c) | (4) (d) only |

62. संगणक हार्डवेअर नियंत्रित करणारे _____ हे सॉफ्टवेअर आहे.

- (1) केबल (2) ऑपरेटिंग सिस्टीम
(3) कोबोल (4) कंपायलर

The software that controls computer hardware is _____.

- (1) Cable (2) Operating System
(3) COBOL (4) Compiler

63. सायबर गुन्ह्यांत _____ सारख्या क्रियाप्रकारांचा समावेश होतो.

- (a) चाइल्ड पोर्नोग्राफी (b) क्रेडीट कार्ड फसवणूक
(c) दुसऱ्या व्यक्तीची ऑनलाईन बदनामी करणे (d) संगणक प्रणालीमध्ये अनधिकृत प्रवेश मिळवणे

पर्यायी उत्तरे :

- (1) (a) आणि (b) (2) (c) आणि (d)
(3) (a), (b) आणि (d) (4) वरील सर्व

Cyber Crime involves activities such as _____.

- (a) Child pornography (b) Credit Card Fraud
(c) Defaming another person online (d) Gaining unauthorized access to computer Systems

Answer Options :

- (1) (a) and (b) only (2) (c) and (d) only
(3) (a), (b) and (d) only (4) All of the above

64. महाराष्ट्रातील सह्याद्री पर्वत रांगेत खालीलपैकी कोणत्या प्रकारचे वस्तीचे प्रारूप आढळते ?

- (1) त्रिकोणी प्रारूप (2) रेषाकृती प्रारूप
(3) ताराकृती प्रारूप (4) पायऱ्या पायऱ्याचे प्रारूप

Which kind of settlement pattern is found in Sahyadri ranges of Maharashtra ?

- (1) Triangles pattern (2) Linear pattern
(3) Star pattern (4) Step pattern

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

65. भारताच्या शेजारी राष्ट्रांची संख्या किती आहे?

- (1) 7 (2) 6 (3) 8 (4) 9

India is having how many neighbouring countries ?

- (1) 7 (2) 6 (3) 8 (4) 9

66. तापी जलप्रणालीची लांबी किती आहे?

- (1) 540 किमी (2) 762 किमी (3) 900 किमी (4) 724 किमी

The total length of Tapi River is :

- (1) 540 km (2) 762 km (3) 900 km (4) 724 km

67. हिमाचल प्रदेशातील भाक्रा हे धरण कोणत्या नदीवर बांधण्यात आले आहे?

- (1) सतलज (2) रावी (3) चिनाब (4) बियास

In Himachal Pradesh the Bhakra dam built on which river ?

- (1) Sutlej (2) Ravi (3) Chenab (4) Beas

68. भिमा आणि गोदावरी नद्यांच्या दरम्यान _____ डोंगर रांग स्थित आहे.

- (1) महादेव डोंगर (2) सातमाळा-अजंठा
(3) हरिशचंद्र बालाघाट (4) सातपुडा

_____ hill is situated between Bhima river and Godavari river.

- (1) Mahadev hill (2) Satmala - Ajentha
(3) Harishchandra Balaghat (4) Satpuda

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

P.T.O.

69. अंगारा भूमी आणि गोंडवाना भूमी यांच्या दरम्यान कोणता समुद्र होता ?

- (1) पॅसिफिक समुद्र (2) लाल समुद्र (3) अटलांटिक समुद्र (4) टेथिस समुद्र

Which ocean was located between Angara and Gondawana land ?

- (1) Pacific ocean (2) Red sea (3) Atlantic ocean (4) Tethys sea

70. _____ हे दक्षिण कोकणातील जास्त पावसाचे ठिकाण आहे.

- (1) इगतपुरी (2) माथेरान (3) आंबोली (4) महाबळेश्वर

_____ is a heavy rainfall place in south Konkan.

- (1) Igatpuri (2) Matheran (3) Amboli (4) Mahabaleshwar

71. दिलेल्या संख्या शंकूतील ताऱ्याच्या ठिकाणी येणारी संख्या शोधा.

| | | | | |
|----|----|----|----|----|
| 19 | 43 | 37 | 26 | 39 |
| 24 | 6 | 11 | 13 | |
| 30 | 17 | 24 | | |
| 13 | 7 | | | |
| ☆ | | | | |

- (1) 18 (2) 6 (3) 16 (4) 20

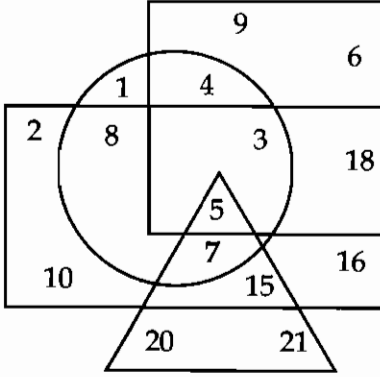
Find the number at the place of star, in given number pyramid.

| | | | | |
|----|----|----|----|----|
| 19 | 43 | 37 | 26 | 39 |
| 24 | 6 | 11 | 13 | |
| 30 | 17 | 24 | | |
| 13 | 7 | | | |
| ☆ | | | | |

- (1) 18 (2) 6 (3) 16 (4) 20

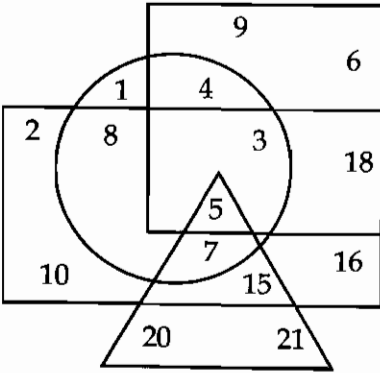
कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

72. खालील दिलेल्या आकृतीत आयत महिला दर्शवितो, त्रिकोण शिक्षित दर्शवितो, वर्तुळ ग्रामीण दर्शवितो आणि चौकोन स्वयंरोजगार दर्शवितो; तर खालीलपैकी कोण अशिक्षित स्वयंरोजगारीत ग्रामीण महिला आहे ?



- (1) 4 (2) 18 (3) 5 (4) 3

In the following diagram, rectangle represents females, triangle represents educated, circle represents rural and square represents self employed. Who among the following is uneducated self employed rural female ?

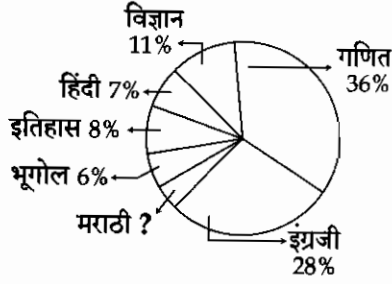


- (1) 4 (2) 18 (3) 5 (4) 3

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

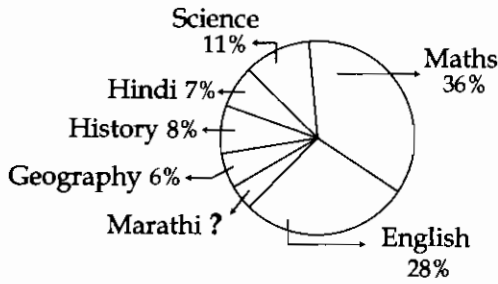
P.T.O.

73. परीला शाळेतून एक प्रोजेक्ट मिळाला. त्यात तिला विद्यार्थ्यांना आवडणाऱ्या विषयांबद्दल माहिती जमा करावयाची होती. तीने 800 विद्यार्थ्यांकडून माहिती जमा केली तर मराठी विषय आवडणारे किती विद्यार्थी आहेत ?



- (1) 4 (2) 32 (3) 1440 (4) 40

Pari got a project from her school. In which she has to collect the information regarding favourite subjects of the students. She collected data from total 800 students. How many students like Marathi subject ?



- (1) 4 (2) 32 (3) 1440 (4) 40

74. विनयला आठवते की त्याच्या आईचा वाढदिवस 26 ऑगस्ट च्या नंतर परंतु 29 ऑगस्ट च्या आत आहे. तर त्याच्या भावाला विकासला आठवते की आईचा वाढदिवस 27 ऑगस्टच्या नंतर परंतु 30 ऑगस्टच्या आत आहे. तर त्यांच्या आईचा वाढदिवस कोणत्या दिवशी असतो ?

- (1) 26 ऑगस्ट (2) 27 ऑगस्ट (3) 28 ऑगस्ट (4) 30 ऑगस्ट

Vinay remembered that his mother's birthday is after 26 August but before 29th August. While his brother Vikas remembered that his mother's birthday is after 27th August but before 30th August. What is the birth date of their mother ?

- (1) 26 August (2) 27 August (3) 28 August (4) 30 August

75. प्रश्न चिन्हाच्या ठिकाणी योग्य संकल्पना ओळखा -

FVJ : HXD :: ? : TWP

- (1) BTW (2) DYV (3) NUR (4) JVF

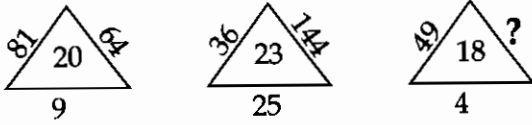
Find out the proper term at the place of question mark.

FVJ : HXD :: ? : TWP

- (1) BTW (2) DYV (3) NUR (4) JVF

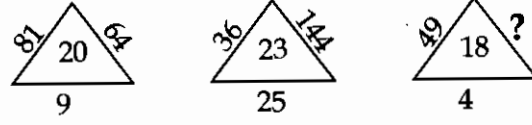
कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

76. प्रश्न चिन्हाच्या ठिकाणी योग्य संख्या शोधा :



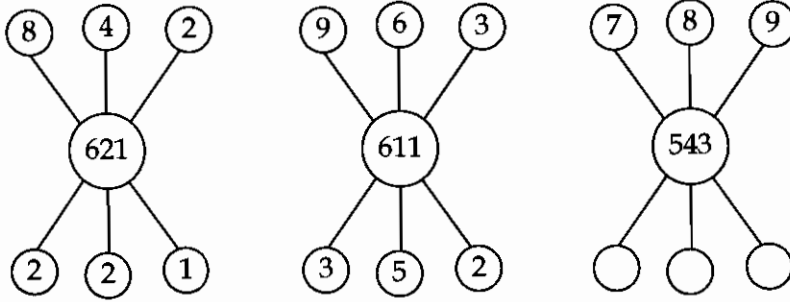
- (1) 81 (2) 72 (3) 53 (4) 01

Find out the number for question mark :



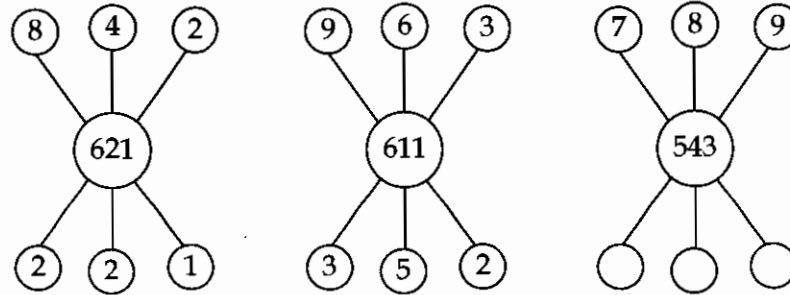
- (1) 81 (2) 72 (3) 53 (4) 01

77. मोकळ्या जागेतील योग्य संख्या शोधा :



- (1) 4 2 3 (2) 3 2 2 (3) 6 4 3 (4) 2 4 6

Find out the correct number for empty space :



- (1) 4 2 3 (2) 3 2 2 (3) 6 4 3 (4) 2 4 6

78. प्रश्न चिन्हाच्या जागी कोणती संख्या येईल?

31, 15, 6, __?__, 1

- (1) 7 (2) 4 (3) 2 (4) 1

Which number will replace question mark in the series ?

31, 15, 6, __?__, 1

- (1) 7 (2) 4 (3) 2 (4) 1

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

P.T.O.

79. जर $8 \times 2 = 4$, $8 \times 4 = 2$, $16 \times 8 = 2$ तर $40 \times 5 = ?$

- (1) 2 (2) 8 (3) 20 (4) 10

If $8 \times 2 = 4$, $8 \times 4 = 2$, $16 \times 8 = 2$ then $40 \times 5 = ?$

- (1) 2 (2) 8 (3) 20 (4) 10

80. बँकेतील भरतीसाठी 20 प्रश्नांची एक परीक्षा घेण्यात आली. त्या परीक्षेत प्रत्येक बरोबर येणाऱ्या उत्तरासाठी 5 गुण मिळतात तर प्रत्येक चुकलेल्या उत्तरासाठी 2 गुण कमी होतात. स्पंदनला त्या परीक्षेत फक्त 10 प्रश्न बरोबर सोडविता आले तर त्याला किती गुण मिळतील?

- (1) 20 (2) 30 (3) 40 (4) 50

An examination of 20 questions is taken for Bank recruitment. 5 marks are awarded for the correct answer and 2 marks are deducted for the wrong answer. Spandan has solved 10 questions correctly in that examination, then what will be his score in examination ?

- (1) 20 (2) 30 (3) 40 (4) 50

81. दोन संख्यांची बेरीज 50 आहे. त्यांच्यातील फरक 22 आहे, तर त्यातील लहान संख्या कोणती?

- (1) 28 (2) 14 (3) 05 (4) 30

If the sum of two number is 50 and their difference is 22, then the smaller number is ?

- (1) 28 (2) 14 (3) 05 (4) 30

82. एका गटात A, B, C, D आणि E अश्या पाच व्यक्ती आहेत. त्यात B, C चा भाऊ आहे. या 5 व्यक्तीत एक जोडपे आहे. E हा नवरा आहे. A आणि D मैत्रीणी आहेत आणि त्यांनी लग्न केलेले नाही. तर E ची बायको कोण?

- (1) B (2) C (3) D (4) A

In a group there are five persons. A, B, C, D and E. B is the brother of C. In these five people there is one couple. E is the husband. A and D are female friends and they are unmarried. Who is a wife of 'E' ?

- (1) B (2) C (3) D (4) A

83. जर खालील संख्यात्मक माहितीचा मध्यमान 6 असेल तर खालील माहितीतील 'P' ची किंमत किती असेल?

| | | | | | |
|---|---|---|---|----|-----|
| X | 2 | 4 | 6 | 10 | P+5 |
| f | 3 | 2 | 3 | 1 | 2 |

- (1) 66 (2) 14 (3) 07 (4) 03

If mean of the following data is 6. Then find out the value of P :

| | | | | | |
|---|---|---|---|----|-----|
| X | 2 | 4 | 6 | 10 | P+5 |
| f | 3 | 2 | 3 | 1 | 2 |

- (1) 66 (2) 14 (3) 07 (4) 03

रुच्या कामासाठी जागा / SPACE FOR ROUGH WORK

84. सकाळी नीलम सूर्याच्या दिशेने चालायला सुरुवात करते आणि 8 किमी चालते. ती 90° च्या कोनात डावीकडे वळते आणि सरळ 12 किमी चालते आणि पुन्हा 90° च्या कोनात उजवीकडे वळते आणि 8 किमी जाते. तर ती सुरुवातीच्या स्थळापासून किती अंतर दूर आहे आणि कोणत्या दिशेला आहे?

- (1) 28 किमी पूर्वेला (2) 18 किमी ईशान्यकडे
(3) 20 किमी ईशान्यकडे (4) 20 किमी पूर्वेकडे

In the morning Neelam starts to walk towards the Sun and walks 8 km. She turns left at 90° and goes 12 km, and then again turns right at 90° and goes 8 km. How far and in which direction is she from her starting point ?

- (1) 28 km, East (2) 18 km, North-East
(3) 20 km, North-East (4) 20 km, East

85. 73 विद्यार्थी असलेल्या वर्गातील काही विद्यार्थी केवळ गिटार आणि काही केवळ बासरी वाजवू शकतात. अकरा विद्यार्थी गिटार आणि बासरी दोन्ही वाजवू शकतात. जर गिटार वाजवू शकणाऱ्या विद्यार्थ्यांची संख्या 31 असेल तर केवळ बासरी वाजवू शकणाऱ्या व केवळ गिटार वाजवू शकणाऱ्या विद्यार्थ्यांची संख्या किती ?

- (1) 43 व 21 (2) 42 व 21 (3) 42 व 22 (4) 42 व 20

In a class of 73 students, some students can play only Guitar & some can play only Flute. Eleven students can play both Guitar & Flute. If the Number of students who can play Guitar is 31. Then how many students can play only Flute & how many can only play Guitar ?

- (1) 43 and 21 (2) 42 and 21 (3) 42 and 22 (4) 42 and 20

86. गाळलेल्या जागेतील संज्ञा शोधा.

X 11, V 13, S 17, O 23, _____.

- (1) K 25 (2) I 27 (3) J 31 (4) F 32

Find out the next missing term.

X 11, V 13, S 17, O 23, _____.

- (1) K 25 (2) I 27 (3) J 31 (4) F 32

87. गाळलेल्या जागी योग्य शब्द शोधा.

CX, FU, IR, _____, OL

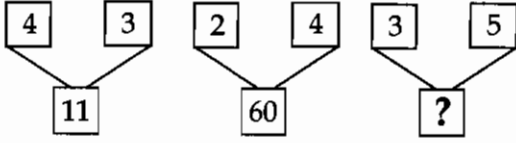
- (1) LO (2) OM (3) MP (4) OO

Find out the missing term.

CX, FU, IR, _____, OL

- (1) LO (2) OM (3) MP (4) OO

88. रिकाम्या जागेतील अंक शोधा :



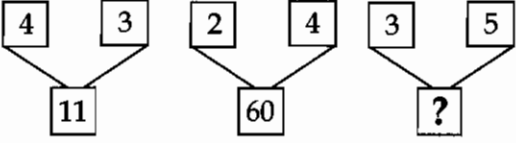
(1) 19

(2) 80

(3) 33

(4) 116

Find out the missing number :



(1) 19

(2) 80

(3) 33

(4) 116

89. एका पिशवीत 10 पांढरे, 16 लाल आणि 14 काळे चेंडू आहेत. जर यादृच्छिकपणे एक चेंडू त्यातून काढण्यात आला तर लाल किंवा काळा चेंडू निघण्याची किती शक्यता आहे ?

(1) $\frac{1}{1}$ (2) $\frac{3}{4}$ (3) $\frac{7}{3}$ (4) $\frac{2}{40}$

A bag contains 10 white, 16 red and 14 black balls. A ball is drawn randomly from it, then the probability of drawing a red or black ball is ?

(1) $\frac{1}{1}$ (2) $\frac{3}{4}$ (3) $\frac{7}{3}$ (4) $\frac{2}{40}$

90. योग्य गणितीय चिन्हांचा उपयोग करून खालील समीकरण बरोबर करा :

$$42 \square 6 \square 51 = 201$$

(1) + आणि -

(2) \times आणि -(3) - आणि \div (4) \div आणि \times

Use proper mathematical signs to make the equation correct :

$$42 \square 6 \square 51 = 201$$

(1) + and -

(2) \times and -(3) - and \div (4) \div and \times

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

91. योग्य निष्कर्ष निवडा :

विधान : औरंगाबाद ते चेन्नई प्रवास हवाई मार्गाने जलद होतो.

निष्कर्ष : (a) औरंगाबाद आणि चेन्नई ही ठिकाणे हवाई मार्गाने जोडलेली आहे.

(b) औरंगाबाद ते चेन्नईसाठी दुसरा कोणताही दळण-वळणाचा मार्ग उपलब्ध नाही.

पर्यायी उत्तरे :

(1) फक्त (a) हा निष्कर्ष योग्य आहे.

(2) फक्त (b) हा निष्कर्ष योग्य आहे.

(3) दोन्ही (a) आणि (b) निष्कर्ष योग्य आहे.

(4) दोन्ही (a) आणि (b) निष्कर्ष योग्य नाही.

Choose proper conclusion :

Statement : It is faster to travel by air from Aurangabad to Chennai.

Conclusion : (a) Aurangabad and Chennai are connected by air services.

(b) There is no other means of transportation between Aurangabad to Chennai.

Answer Options :

(1) Only conclusion (a) is implicit.

(2) Only conclusion (b) is implicit.

(3) Both (a) and (b) are implicit.

(4) Neither (a) or (b) are implicit.

92. संजयपेक्षा नितीन 3 वर्षांनी मोठा आहे. संजयचे वय किरण च्या वयाच्या दुप्पट आहे. जर त्यांच्या तिघांच्या वयांची एकूण बेरीज 103 आहे. तर नितीन किती वर्षांचा आहे?

(1) 20

(2) 34

(3) 40

(4) 43

Nitin is 3 year older than Sanjay, who is twice as old as Kiran. If the sum of total age of all three is 103, then how old is Nitin ?

(1) 20

(2) 34

(3) 40

(4) 43

93. शाळेत येण्यासाठी विद्यार्थी खालील दळणवळणाचा उपयोग करित असतील आणि ही माहिती जर पाई चार्ट द्वारा दाखवण्यात आली तर शाळेत पायी येणाऱ्या विद्यार्थ्यांसाठी किती अंशाचा कोन तयार होईल?

| शाळेत येण्यासाठी वापरले जाणारे साधन | पायी | गाडी | सायकल | बस | रिक्षा |
|-------------------------------------|------|------|-------|----|--------|
| विद्यार्थी संख्या | 6 | 4 | 7 | 8 | 5 |

(1) 6°

(2) 30°

(3) 72°

(4) 80°

The students are using following transportation for school and if this information is shown in a Pie-chart then how many degree's angle will be made for students who are coming by walking ?

| Means for transportation | Walk | Car | Cycle | Bus | Auto |
|--------------------------|------|-----|-------|-----|------|
| No. of Students | 6 | 4 | 7 | 8 | 5 |

(1) 6°

(2) 30°

(3) 72°

(4) 80°

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

P.T.O.

94. रिकाम्या जागेसाठी योग्य अंक शोधा.

27, 32, _____, 54, 71, 92

(1) 37 (2) 41 (3) 51 (4) 52

Find out the missing number.

27, 32, _____, 54, 71, 92

(1) 37 (2) 41 (3) 51 (4) 52

95. मुलीचे वय 16 वर्षे आहे आणि मुलगी ही आई-वडीलांच्या लग्नानंतर 1 वर्षांनी जन्मलेली आहे. जर आई वडीलांच्या वयांची बेरीज आणि लग्नाच्या वर्षाची बेरीज 116 आहे. आईचे वय वडीलांच्या वयापेक्षा 3 वर्षांनी कमी असेल तर वडीलांचे वय किती आहे?

(1) 56 वर्षे 6 महिने (2) 51 वर्षे
(3) 48 वर्षे (4) 99 वर्षे

A daughter is 16 years of age, who was born after one year of parent's marriage. The sum of total age of parents and their marriage is 116 years. Mother is 3 year younger than father, then what is the age of father ?

(1) 56 years 6 months (2) 51 years
(3) 48 years (4) 99 years

96. कोसी नदीच्या पात्र बदलामुळे खालीलपैकी कोणत्या राज्यातील सर्वाधिक जिल्ह्यांना नेहमी पुराचा तडाखा बसतो?

(1) झारखंड (2) बिहार आणि उत्तर प्रदेश
(3) बिहार (4) उत्तर प्रदेश

Majority districts of which state are affected by the floods due to change in the course of river Kosi ?

(1) Jharkhand (2) Bihar and Uttar Pradesh
(3) Bihar (4) Uttar Pradesh

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

97. वातावरणात ओझोन वायूचे प्रमाण _____ टक्के आढळते.

- (1) 0.00006 (2) 0.00005 (3) 0.00007 (4) 0.000006

In the atmosphere ozone gas is found in _____ percent.

- (1) 0.00006 (2) 0.00005 (3) 0.00007 (4) 0.000006

98. _____ हि मानवनिर्मित आपत्ती आहे.

- (1) पूर (2) भूस्खलन (3) दुष्काळ (4) औद्योगिक अपघात

_____ is a manmade hazard.

- (1) Floods (2) Landslide (3) Famine (4) Industrial accident

99. खालीलपैकी कोणते जैवविविधता स्थळ नाही ?

- (1) पश्चिम घाट (2) पूर्व हिमालय
(3) अंदमान निकोबार बेटे (4) पूर्व घाट

Which of the following is not a biodiversity hotspots ?

- (1) Western Ghat (2) Eastern Himalaya
(3) Andaman - Nicobar Islands (4) Eastern Ghat

100. आंतरराष्ट्रीय स्तरावर पर्यावरण विषयक पहिली जागतिक परिषद 5 जून 1972 रोजी कोणत्या शहरात संपन्न झाली ?

- (1) स्टॉकहोम (2) न्युयॉर्क (3) लंडन (4) बर्मिंगहॅम

In which of the following city the first "International Environmental Conference" was held on 5th June 1972 ?

- (1) Stockholm (2) New York (3) London (4) Birmingham

- o O o -

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

P.T.O.

सूचना - (पृष्ठ 1 वरून पुढे....)

- (8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते काँपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या "परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82" यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.
- (9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षककडे न विसरता परत करणे आवश्यक आहे.

नमुना प्रश्न

प्र. क्र. 201. सतीची चाल नष्ट करण्यासाठी कोणी मूलतः प्रयत्न केले ?

- | | |
|---------------------------|---------------------------|
| (1) स्वामी दयानंद सरस्वती | (2) ईश्वरचंद्र विद्यासागर |
| (3) राजा राममोहन रॉय | (4) गोपाळकृष्ण गोखले |

ह्या प्रश्नाचे योग्य उत्तर "(3) राजा राममोहन रॉय" असे आहे. त्यामुळे या प्रश्नाचे उत्तर "(3)" होईल. यास्तव खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक "(3)" हे वर्तुळ पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201. ① ② ● ④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तर-क्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉल्पेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

परीक्षेचे नांव : महाराष्ट्र राजपत्रित तांत्रिक सेवा संयुक्त (पूर्व) स्पर्धा परीक्षा - २०२२

परीक्षेचा दिनांक : १७ डिसेंबर, २०२२

(जाहिरात क्रमांक : ०८७/२०२२)

विषय : मराठी, इंग्रजी व सामान्य क्षमता चाचणी

महाराष्ट्र लोकसेवा आयोगामार्फत दिनांक १७ डिसेंबर, २०२२ रोजी आयोजित ' महाराष्ट्र राजपत्रित तांत्रिक सेवा संयुक्त (पूर्व) स्पर्धा परीक्षा-२०२२ ' या परीक्षेची प्रथम उत्तरतालिका उमेदवारांच्या माहितीसाठी आयोगाच्या संकेतस्थळावर प्रसिध्द करण्यात आली होती. त्यासंदर्भात उमेदवारांनी अधिप्रमाणित (Authentic) स्पष्टीकरण देऊन ऑनलाईन पध्दतीने सादर केलेल्या हरकती, तसेच तज्ञांचे अभिप्राय विचारात घेऊन, आयोगाने उत्तरतालिका सुधारित केली आहे. या उत्तरतालिकेतील उत्तरे अंतिम समजण्यात येतील. यासंदर्भात आलेली निवेदने विचारात घेतली जाणार नाहीत व त्याबाबत कोणताही पत्रव्यवहार केला जाणार नाही, याची कृपया नोंद घ्यावी.

उत्तरतालिका - KEY

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 1 | 3 | 2 | 2 | 2 |
| 2 | 2 | 3 | 3 | 2 |
| 3 | 2 | 2 | 3 | 1 |
| 4 | 1 | 2 | 2 | 2 |
| 5 | 3 | 1 | 2 | 2 |
| 6 | 1 | 1 | 1 | 2 |
| 7 | 2 | 2 | 1 | 3 |
| 8 | 2 | 3 | 2 | 3 |
| 9 | 2 | 2 | 2 | 2 |
| 10 | 2 | 2 | 2 | 1 |
| 11 | 3 | 1 | 4 | 4 |
| 12 | 4 | 4 | 3 | 3 |
| 13 | 2 | 2 | 1 | 1 |
| 14 | 3 | 3 | 3 | 3 |
| 15 | 1 | 3 | 2 | 2 |
| 16 | 1 | 1 | 2 | 2 |
| 17 | 1 | 2 | 2 | 2 |
| 18 | 2 | 3 | 3 | 1 |
| 19 | 2 | 2 | 3 | 2 |
| 20 | 2 | 2 | 3 | 3 |
| 21 | 1 | 2 | 2 | 2 |
| 22 | 3 | 3 | 1 | 1 |
| 23 | 3 | 1 | 1 | 1 |
| 24 | 2 | 3 | 2 | 3 |
| 25 | 3 | 1 | 1 | 3 |

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 26 | 3 | 2 | 3 | 4 |
| 27 | 4 | 2 | 4 | 3 |
| 28 | 2 | 3 | 2 | 3 |
| 29 | 3 | 3 | 3 | 2 |
| 30 | 2 | 4 | 2 | 2 |
| 31 | 3 | 2 | 4 | 3 |
| 32 | 2 | 3 | 2 | 3 |
| 33 | 4 | 3 | 3 | 3 |
| 34 | 3 | 3 | 4 | 3 |
| 35 | 3 | 3 | 3 | 3 |
| 36 | 4 | 4 | 3 | 3 |
| 37 | 4 | 3 | 3 | 2 |
| 38 | 3 | 4 | 3 | 4 |
| 39 | 3 | 3 | 4 | 4 |
| 40 | 3 | 4 | 3 | 4 |
| 41 | 1 | 4 | 3 | 1 |
| 42 | 4 | 1 | 4 | 4 |
| 43 | 4 | 3 | 4 | 1 |
| 44 | # | 3 | 4 | 3 |
| 45 | 3 | 4 | 1 | 3 |
| 46 | 3 | 3 | 3 | 3 |
| 47 | 1 | 1 | 3 | 4 |
| 48 | 4 | 3 | 3 | 3 |
| 49 | 3 | 4 | 1 | # |
| 50 | 3 | # | # | 4 |

-1-

Date:- 14th February, 2023

ने दर्शविलेले प्रश्न रद्द करण्यात आलेले आहेत.

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| प्रश्न क्रमांक | उत्तरे | | | |
|-------------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 51 | 2 | 2 | 2 | 3 |
| 52 | 3 | 3 | 3 | 2 |
| 53 | 1 | 1 | 1 | 1 |
| 54 | 2 | 1 | 1 | 1 |
| 55 | 1 | 2 | 2 | 2 |
| 56 | 4 | 4 | 4 | 4 |
| 57 | 3 | 1 | 1 | 1 |
| 58 | 1 | 1 | 3 | 1 |
| 59 | 1 | 3 | 1 | 3 |
| 60 | 2 | 2 | 4 | 2 |
| 61 | 3 | 2 | 2 | 2 |
| 62 | 2 | 3 | 2 | 3 |
| 63 | 4 | 4 | 3 | 4 |
| 64 | 4 | 4 | 3 | 4 |
| 65 | 1 | 1 | 3 | 3 |
| 66 | 4 | 1 | 1 | 4 |
| 67 | 1 | 3 | 1 | 1 |
| 68 | 3 | 4 | 4 | 3 |
| 69 | 4 | 4 | 4 | 1 |
| 70 | 3 | 3 | 4 | 4 |
| 71 | 4 | 2 | 2 | 4 |
| 72 | 4 | 2 | 4 | 1 |
| 73 | 2 | 3 | 3 | 4 |
| 74 | 3 | 3 | 4 | 3 |
| 75 | 3 | 1 | 2 | 1 |

| प्रश्न क्रमांक | उत्तरे | | | |
|-------------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 76 | 1 | 2 | 3 | 3 |
| 77 | 4 | 3 | 3 | 2 |
| 78 | 3 | 4 | 4 | 3 |
| 79 | 2 | 1 | 1 | 1 |
| 80 | 2 | 3 | 2 | 2 |
| 81 | 2 | 2 | 2 | 2 |
| 82 | 2 | 2 | 4 | 2 |
| 83 | 3 | 4 | 3 | 3 |
| 84 | 3 | 2 | 2 | 3 |
| 85 | 4 | 4 | 4 | 2 |
| 86 | 3 | 4 | 3 | 2 |
| 87 | 1 | 3 | 1 | 2 |
| 88 | 4 | 3 | 2 | 4 |
| 89 | 2 | 1 | 2 | 4 |
| 90 | 2 | 3 | 3 | 4 |
| 91 | 1 | 2 | 4 | 2 |
| 92 | 4 | 4 | 1 | 4 |
| 93 | 3 | 4 | 2 | 3 |
| 94 | 2 | 2 | 3 | 3 |
| 95 | 2 | 2 | 2 | 2 |
| 96 | 3 | 1 | 1 | 4 |
| 97 | 1 | 3 | 4 | 3 |
| 98 | 4 | 4 | 1 | 1 |
| 99 | 4 | 1 | 4 | 4 |
| 100 | 1 | 4 | 3 | 1 |

Date:- 14th February, 2023

- 2 -

ने दर्शविलेले प्रश्न रद्द करण्यात आलेले आहेत.

महाराष्ट्र राजपत्रित नांत्तिक सेवा (मुख्य) स्पर्धा परीक्षा
आभियांत्रिकी सेवा (स्थापत्य) गट-अ व ब मुख्य परीक्षा 2022

प्रश्नपुस्तिका क्रमांक
BOOKLET No.

2022



102141

प्रश्नपुस्तिका - I H17

संच क्र.

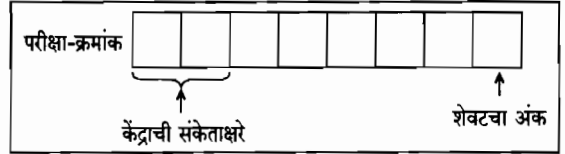
स्थापत्य अभियांत्रिकी पेपर - I

वेळ : 2 (दोन) तास

एकूण प्रश्न : 100

एकूण गुण : 200

सूचना

- सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.
- आपला परीक्षा-क्रमांक ह्या चौकोनांत न विसरता बॉलपेनने लिहावा.

- वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे न विसरता नमूद करावा.
- या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तरक्रमांक नमूद करताना तो संबंधित प्रश्नक्रमांकासमोर छायांकित करून दर्शविला जाईल याची काळजी घ्यावी. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.
- सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नाकडे वळावे. अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.
- उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही. एकापेक्षा जास्त उत्तरे नमूद केल्यास ते उत्तर चुकीचे धरले जाईल व त्या चुकीच्या उत्तराचे गुण वजा केले जातील.
- प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवारांच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच "उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची दिलेल्या चार उत्तरांपैकी सर्वात योग्य उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चुकीच्या उत्तरांसाठी 25% किंवा 1/4 गुण वजा/कमी करण्यात येतील".

ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवाराला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या "परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम-82" यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरुद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पर्यवेक्षकांच्या सूचनेनुसार ही सील उघडू नये

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

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1. For a given long column subjected to load, product of failure stress and slenderness ratio will be
- (1) Constant
 - (2) Variable – depending on support condition
 - (3) Variable – depending on value of load
 - (4) Variable – depending on length of column

2. A mild steel rod of area 3140 mm² is fixed at one end and the other end pulls gradually till it reaches 628 kN force in axial direction. If the force is removed at this stage, then
- (1) the rod regains its original shape and size
 - (2) the rod regains its original shape but not the size
 - (3) the rod shows neck formation at centre
 - (4) the rod neither regains its original shape nor the size

3. When a shaft of diameter D is subjected to a twisting moment T and a bending moment M, then the maximum normal stress is given by

| | |
|--|--|
| (1) $\frac{16}{\pi D^3} \left[\sqrt{M^2 + T^2} \right]$ | (2) $\frac{16}{\pi D^3} \left[\sqrt{M^2 - T^2} \right]$ |
| (3) $\frac{16}{\pi D^3} \left[M - \sqrt{M^2 + T^2} \right]$ | (4) $\frac{16}{\pi D^3} \left[M + \sqrt{M^2 + T^2} \right]$ |

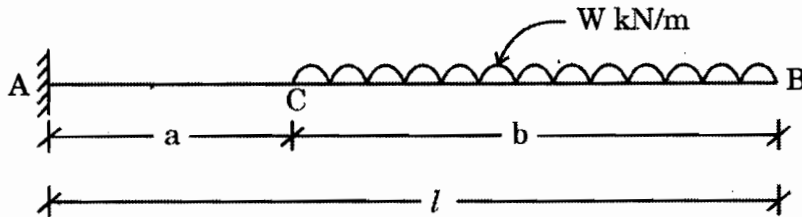
4. A cantilever beam AB of span 5 m is fixed at end A while force at end B is subjected to a point load of 20 kN at 2 m from end A. What is the value of shear force and bending moment at 3 m from end A ?
- | | |
|-------------------|-------------------|
| (1) 20 kN, 60 kNm | (2) 20 kN, 40 kNm |
| (3) 20 kN, 0 | (4) 0, 0 |

5. As per middle third rule, the eccentricity 'e' in a rectangular section should be _____ . (Where, b is the width at the base)
- | | |
|-----------------|----------------|
| (1) $\leq b/2$ | (2) $\leq b/3$ |
| (3) $\leq 2b/3$ | (4) $\leq b/6$ |

6. _____ for buckling of column gives fairly correct result for all cases of columns ranging from short to long columns.

- (1) Euler's formula
- (2) Rankine's formula
- (3) Mohr's formula
- (4) Coulomb's formula

7. A cantilever beam AB as shown in the figure is subjected to uniformly distributed load (W) kN/m over a length of 'b' m from the free end B, then what is the bending moment at fixed end A ?



- (1) $W.b \left(2a + \frac{b}{2}\right)$
- (2) $W.b \frac{(a+l)}{2}$
- (3) $W.b \left(\frac{l}{2}\right)$
- (4) $W.a \left(a + \frac{b}{2}\right)$

8. Calculate the torque which a shaft of 3 cm diameter can safely transmit, if the shear stress is 48 N/cm^2 .

- (1) $1.27\pi \text{ N.cm}$
- (2) $81\pi \text{ N.cm}$
- (3) $54\pi \text{ N.cm}$
- (4) $48\pi \text{ N.cm}$

9. The angle of twist of a shaft can be written as

(Where J – Polar MI,

G – Torsional Rigidity

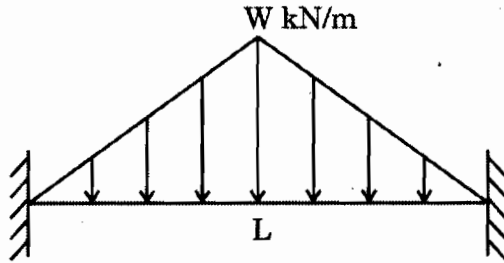
L – Length

T – Torque)

- (1) $T.L/J$
- (2) $GJ/T.L$
- (3) $T.L/GJ$
- (4) T/J

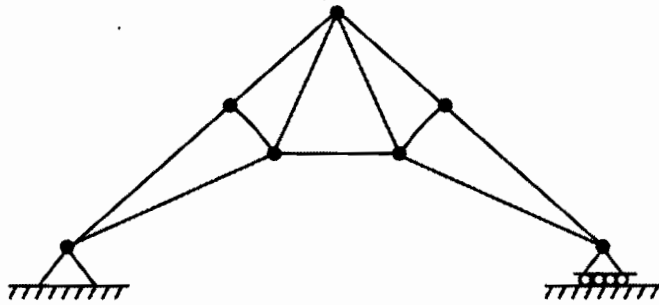
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12. Fixed end moments for the beam as shown in the figure are (anticlockwise moments are positive)



- (1) $\frac{WL^2}{30}$, $-\frac{WL^2}{20}$ (2) $\frac{3WL^2}{96}$, $-\frac{3WL^2}{96}$
 (3) $\frac{5WL^2}{48}$, $-\frac{5WL^2}{48}$ (4) $\frac{5WL^2}{96}$, $-\frac{5WL^2}{96}$

13. The kinematic indeterminacy of the plane truss shown in the figure is



- (1) 11 (2) 8 (3) 3 (4) 0

14. A cantilever of length l has flexural rigidity EI for half span and $EI/2$ for rest. The beam carries moment M at the free end. The slope at the free end is given by

- (1) $\frac{Ml}{EI}$ (2) $\frac{Ml^2}{EI}$
 (3) $\frac{2}{3} \frac{Ml}{EI}$ (4) $\frac{3}{2} \frac{Ml}{EI}$

15. The relative stiffness of a member at a joint whose farther end is hinged or simply supported is

- (1) $\frac{3I}{4l}$ (2) $\frac{4I}{3l}$
 (3) $\frac{l}{I}$ (4) $\frac{I}{l}$

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16. In the moment area method, the change of slope between any two sections of a loaded flexural member is equal to the

- (1) Area of the $\frac{M}{EI}$ diagram between these two sections
- (2) Moment of the $\frac{M}{EI}$ diagram between these two sections
- (3) $\frac{1}{2} \times$ Area of the $\frac{M}{EI}$ diagram between these two sections
- (4) $\frac{1}{2} \times$ Moment of the $\frac{M}{EI}$ diagram between these two sections

17. Pick up the correct statement.

- (a) In the frame analysis, using unit load method, the directions of deflection and rotation components are the same as, or the opposite to that of the unit load or the unit moment, depending on whether the answer obtained is positive or negative.
- (b) Since the axial deformation of the members in a rigid frame owing to the direct axial stresses in them is always small, it can be neglected.

Answer options :

- (1) Both (a) and (b) are correct
- (2) Both (a) and (b) are incorrect
- (3) (a) is correct; (b) is incorrect
- (4) (a) is incorrect; (b) is correct

18. Pick up the correct methods that correspond to displacement method.

- (a) Stiffness matrix method
- (b) Flexibility matrix method
- (c) Slope-deflection method
- (d) Method of consistent deformation

Answer options :

- (1) (a) and (b)
- (2) (a) and (c)
- (3) (b) and (c)
- (4) (a) and (d)

23. For a two-hinged arch, if one of the supports settles down vertically, then the horizontal thrust
- (1) is decreased
 - (2) is increased
 - (3) becomes zero
 - (4) remains unchanged

24. A suspension cable, having supports at the same level, has a span of 30 m and a maximum dip of 3 m. The cable is loaded with a uniformly distributed load of 10 kN/m throughout its length. Find the Horizontal Pull in the cable.
- (1) 375 kN
 - (2) 275 kN
 - (3) 475 kN
 - (4) 140 kN

25. Match the following :

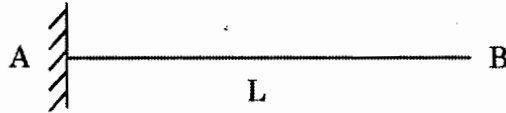
| <i>Cable subjected to</i> | <i>Shape of Cable</i> |
|------------------------------------|-----------------------|
| (a) Single concentrated point load | (i) Triangular |
| (b) Uniform load/horizontal length | (ii) Parabola |
| (c) Uniform load along its length | (iii) Catenary |

Answer options :

| | (a) | (b) | (c) |
|-----|-------|-------|-------|
| (1) | (ii) | (iii) | (i) |
| (2) | (i) | (ii) | (iii) |
| (3) | (iii) | (ii) | (i) |
| (4) | (i) | (iii) | (ii) |

26. A parabolic three-pinned arch has a span of 20 m and central rise 4 m. It is loaded with a uniformly distributed load of 20 kN/m for a length of 8 m from the left end support. Find the horizontal thrust at supports.
- (1) 48 kN
 - (2) 8 kN
 - (3) 80 kN
 - (4) 98 kN

27. Influence line diagram (ILD) for the shear force at the support of the cantilever beam is



Answer options :

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

28. A three-hinged parabolic arch of span 20 m has a central rise of 5 m. Find the rise of the arch crown, if the temperature rises through 30°C . Take coefficient of linear expansion for the arch material as 12×10^{-6} per $^\circ\text{C}$.

- (1) 28 mm (2) 81 mm (3) 58 mm (4) 18 mm

29. The order of flexibility matrix of a structure is

- (1) Equal to the number of redundant forces
 (2) More than the number of redundant forces
 (3) Less than the number of redundant forces
 (4) Equal to the number of redundant forces plus three

30. A uniformly distributed load of 50 kN/m longer than span, rolls over a beam of 25 m span. Using Influence lines, determine the maximum shear force.

- (1) 125 kN (2) 225 kN (3) 260 kN (4) 525 kN

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31. A three-hinged parabolic arch of span 20 m and rise 4 m carries uniformly distributed load of 20 kN/m on the entire span. What will be the horizontal thrust H at the support ?
- (1) 500 kN (2) 250 kN (3) 125 kN (4) 200 kN
-
32. A simply supported beam has a span of 20 m. A uniformly distributed load of 20 kN/m and 5 meters long crosses the span. Find maximum bending moment.
- (1) 520 kN.m (2) 320 kN.m (3) 420 kN.m (4) 240 kN.m
-
33. When a rolling train is moving on a girder, then absolute maximum bending moment will be obtained when
- (1) maximum load is placed on the middle of the girder.
- (2) maximum load is placed such that middle of girder is equidistant from maximum load and resultant load.
- (3) resultant load is placed on the middle of the girder and other loads are placed accordingly.
- (4) maximum load is placed on the middle of the girder and other loads are placed accordingly.
-
34. "A steel section in which all fibers are stressed to yield stress at failure."
The above statement is true for _____.
- (1) plastic and compact sections
- (2) compact section only
- (3) semi-compact section only
- (4) plastic section only
-
35. As per IS-800 : 2007, the factored design moment 'M', at any section, in a beam due to external actions, shall satisfy _____.
- (1) $M \leq M_d$ (2) $M \geq M_d$ (3) $M = 2M_d$ (4) $2M = M_d$
-
36. The partial safety factor for the material of bolts is _____.
- (1) 1.0 (2) 1.10 (3) 1.15 (4) 1.25

41. While designing the butt welds, which of the following conditions is most appropriate for tapering ?
- (1) Difference in thickness of parts exceeds 50% of the thickness of thinner plate or 6 mm.
 - (2) Difference in thickness of parts exceeds 75% of the thickness of thinner plate or 9 mm.
 - (3) Difference in thickness of parts exceeds 25% of the thickness of thinner plate or 3 mm.
 - (4) None of the above

42. According to IS-800 : 2007, the design strength of tension members under axial tension as governed by yielding of gross section is given by _____ .

$$(1) T_{dg} = \frac{A_g \cdot \gamma_{mo}}{f_y}$$

$$(2) T_{dg} = \frac{\gamma_{mo} \cdot f_y}{A_g}$$

$$(3) T_{dg} = \frac{A_g \cdot f_y}{\gamma_{mo}}$$

$$(4) T_{dg} = A_g \cdot \gamma_{mo} \cdot f_y$$

43. The deflection at a node of pin-jointed truss using strain-energy method is given by _____ .

$$(1) \delta = \sum P^2 UL / AE$$

$$(2) \delta = \sum PUL / AE$$

$$(3) \delta = \sum PUL^2 / AE$$

$$(4) \delta = \sum PUL / AE^2$$

44. According to IS-800 : 2007, the maximum effective slenderness ratio for compression flange of a beam against lateral torsional buckling is _____ .

(1) 150

(2) 180

(3) 250

(4) 300

45. The maximum strain in concrete at the outermost compression fibre is taken as _____ in bending.

(1) 0.3500

(2) 0.0350

(3) 0.0035

(4) 0.00035

46. The minimum area of tension reinforcement shall not be less than _____ of effective cross-section area of beam (i.e. bd), for Fe 500 grade of steel is used as reinforcement.

(1) 0.12%

(2) 0.15%

(3) 0.17%

(4) 0.20%

47. Design bond stress for M20 grade concrete in limit state method for plain bars in tension shall be _____ N/mm^2 .

(1) 1.4

(2) 1.2

(3) 1.6

(4) 1.8

48. When the lever arm of a reinforced concrete beam is Z and width of beam is b , then the maximum shear stress in a beam subjected to shear force F will be equal to
- (1) $\frac{F \cdot b}{Z}$ (2) $\frac{F}{b \cdot Z}$ (3) $\frac{F \cdot Z}{b}$ (4) $F \cdot Z \cdot b$
-
49. According to IS-456 : 2000, the area of tension reinforcement should not be less than _____ for slab with HYSD bars.
- (1) 0.12% of A_g (2) 0.15% of A_g
 (3) 0.18% of A_g (4) 0.20% of A_g
-
50. What is the effective depth of slab of size 4.5 m \times 6 m if modification factor is 1.5 and live load on slab is 4.0 kN/m² ? Assume all edges of the slab are discontinuous.
- (1) 100 mm (2) 115 mm (3) 125 mm (4) 150 mm
-
51. Recommended value of effective length of compression member, which is "effectively held in position and restrained against rotation at both ends" is _____.
- (1) 1.0 L (2) 0.75 L (3) 1.2 L (4) 0.65 L
-
52. For design purposes, the compressive strength of concrete in the structure shall be assumed to be _____ times the characteristic strength of concrete for design of flexure member using limit state method.
- (1) 0.50 (2) 0.67 (3) 0.87 (4) 1.50
-
53. As per IS-456 : 2000, the ratio of the ultimate load carrying capacity of helically reinforced column to that of similar member with lateral ties or rings is
- (1) 1.10 (2) 1.05 (3) 1.00 (4) 1.20
-
54. The lever arm in a singly reinforced beam is equal to _____.
- (Where d = Distance between the top of beam and the centre of steel bars
 n = Depth of neutral axis below the top of beam)
- (1) $\frac{d - n}{3}$ (2) $\frac{2d - n}{3}$ (3) $\frac{3d - n}{3}$ (4) $\frac{4d - n}{3}$
-
55. A rectangular water tank is designed for total height of 3.3 m and bottom area of tank is 50 m² with L/B ratio of 2. If the free board is considered as 0.30 m above water level, then for what capacity is water tank to be designed ?
- (1) 1,65,000 liters
 (2) 1,80,000 liters
 (3) 1,25,000 liters
 (4) 1,50,000 liters

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56. Pick up the correct statement with respect to tendon profile.
- (a) In general, moments resulting from prestressing should vary in the same way as those moments due to the applied load and act in the opposite sense.
 - (b) The tendon profiles used for continuous spans are closely related to variation of bending moment due to the dead and live loads.

Answer options :

- (1) Both (a) and (b) are correct
- (2) Both (a) and (b) are incorrect
- (3) (a) is correct and (b) is incorrect
- (4) (a) is incorrect and (b) is correct

-
57. _____ and flexural rigidity are two fundamental properties by which short term deflections are determined.

- (1) Shear force
- (2) Bending moment
- (3) Torsional force
- (4) Twisting moment

-
58. In pre-tensioned work, the cover of concrete measured from the outside of the prestressing tendon shall be at least _____.

- (1) 20 mm
- (2) 30 mm
- (3) 40 mm
- (4) 50 mm

-
59. Pick up the correct statement with respect to losses in prestress.

- (a) The total residual shrinkage strain is larger in pre-tensioned members after transfer of prestress in comparison with post-tensioned members.
- (b) There will be no loss due to elastic deformation of concrete under simultaneous tensioning and anchoring.

Answer options :

- (1) Both (a) and (b) are correct
- (2) Both (a) and (b) are incorrect
- (3) (a) is correct; (b) is incorrect
- (4) (a) is incorrect; (b) is correct

-
60. The distance required at the end of a pre-tensioned tendon for developing the maximum tendon stress by bond is known as _____.

- (1) Anchorage length
- (2) Development length
- (3) Transmission length
- (4) Bearing length

- 61.** What is the definition of anchorage in the case of post-tensioning ?
- (1) A device used to anchor the tendon to the concrete member
 - (2) A device used to anchor the tendon during hardening of concrete
 - (3) A device used to transfer the stress
 - (4) A device used to stress the cables
-
- 62.** The loss of prestress is due to creep of concrete obtained as the product of _____ of the prestressing steel and the ultimate creep strain of concrete fibre.
- (1) Modulus of Elasticity
 - (2) Shear modulus
 - (3) Bulk modulus
 - (4) None of the above
-
- 63.** Due to which reasons is high-strength concrete necessary in prestressed concrete ?
- (1) To design commercial anchorage for prestressing steel
 - (2) High-strength concrete is less liable to shrinkage cracks
 - (3) High-strength concrete offers high resistance in tension and shear, as well as in bond and bearing
 - (4) All of the above
-
- 64.** A loss of prestress will affect the _____ distribution on the section of the member.
- (1) Strain
 - (2) Stress
 - (3) Shear
 - (4) Bending
-
- 65.** Which of the following systems is used for pre-tensioning ?
- (1) Magnel Balton System
 - (2) Freyssinet System
 - (3) Gifford Udall System
 - (4) Hoyer's Long Line Method
-
- 66.** What will be the loss of stress due to anchorage slip in a post-tensioned beam, if 'A' is the cross-section area of section, E_s = Modulus of elasticity of steel, E_c = Modulus of elasticity of concrete, Δ = Slip of anchorage, P = Prestressing force and L = Length of cables ?
- (1) $\frac{PL}{AE_s}$
 - (2) $\frac{\Delta E_c}{L}$
 - (3) $\frac{\Delta E_s}{LE_c}$
 - (4) $\frac{\Delta E_s}{L}$

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67. Match soil type and method giving highest degree of compaction, and select the correct answer using the options given below :

| <i>Soil type</i> | <i>Method of Compaction</i> |
|-------------------|-----------------------------|
| (a) Sand | (i) Kneading |
| (b) Silt | (ii) Vibration |
| (c) Confined clay | (iii) Impact |

Answer options :

| | (a) | (b) | (c) |
|-----|-------|-------|-------|
| (1) | (ii) | (i) | (iii) |
| (2) | (i) | (ii) | (iii) |
| (3) | (iii) | (ii) | (i) |
| (4) | (i) | (iii) | (ii) |

68. The inventory control mechanism in ABC analysis is based on _____.

| | |
|--------------------------|-------------------------|
| (1) Value of consumption | (2) Movement from store |
| (3) Necessity | (4) None of the above |

69. While designing structural elements for safety against fire, the fire resistance rating of these elements should be as per Codal provisions in

| | |
|--------------------|--------------------|
| (1) IS-641 : 1988 | (2) IS-646 : 1982 |
| (3) IS-1435 : 1977 | (4) IS-1642 : 1989 |

70. The time period available, if succeeding activity starts as early as possible and preceding activity ends as late as possible, is called as

| | |
|-----------------------|-----------------------|
| (1) Free Float | (2) Total Float |
| (3) Independent Float | (4) Interfering Float |

71. Safety measures to be adopted at the time of excavation should adhere to Codal provisions as per

| | |
|--------------------|--------------------|
| (1) IS-3764 : 1972 | (2) IS-4130 : 1991 |
| (3) IS-1256 : 1958 | (4) IS-800 : 1958 |

72. It is observed that the project duration is lengthened for increase in critical activity duration and vice versa. These activities are called as
- (1) Neutral Critical Activities
 - (2) Reverse Critical Activities
 - (3) Normal Critical Activities
 - (4) Proportional Critical Activities

-
73. An activity in the PERT network has $t_0 = 1$, $t_m = 4$ and $t_p = 7$. How much will be expected duration of the activity ?
- (1) 5 (2) 4 (3) 12 (4) 3

-
74. Which of the following are applicable to ladder networks ?
- (a) These are more or less extensions of the arrow networks.
 - (b) These are useful for repetitive works.
 - (c) There are no dummy activities at all in such networks.

Answer options :

- (1) Only (b) (2) Only (a) and (b)
(3) All of the above (4) Only (b) and (c)

-
75. The process in which the highest value EET (Earliest Event Time) is determined by adding activity duration to the EETs of the preceding event is called as
- (1) Pass (2) Backward Pass
(3) Forward Pass (4) Critical Pass

-
76. Which of the following remarks is/are applicable to the bottom-slewing tower cranes ?
- (a) They have height limitations
 - (b) They can be erected and dismantled quickly
 - (c) They are suitable for high rise construction
 - (d) Anchoring the crane with some fixed support is not possible

Answer options :

- (1) Only (a), (b) and (d)
(2) Only (b) and (c)
(3) All of the above
(4) Only (c)

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77. The first and most important step in computing critical path in PERT network is to
- (1) Reduce three-time probabilistic network into a single time deterministic model.
 - (2) Convert three-time activity durations estimate into single event estimate.
 - (3) Analysing one-time estimate with the three-time event estimates.
 - (4) Convert uncertainties in events into activity certainties.
-

78. The FEM can be directly created from the _____ .
- | | |
|----------------|---------------------|
| (1) Good model | (2) Bad model |
| (3) CAD model | (4) Excellent model |
-

79. If $\phi(x) = x - \frac{f(x)}{f'(x)}$, then the condition for convergence of Newton-Raphson method is
- | | |
|--------------------|--------------------|
| (1) $\phi(x) > 1$ | (2) $\phi(x) < 1$ |
| (3) $\phi'(x) < 1$ | (4) $\phi'(x) > 1$ |
-

80. How will you improve the accuracy of the trapezoidal rule ?

Consider the following statements for the answer :

- (a) The integration interval shall be divided into a number of segments.
- (b) The composite trapezoidal rule shall be used.
- (c) The accuracy of the rule cannot be increased.

Which of the above statements is/are correct ?

- | | |
|--------------|----------------------|
| (1) Only (c) | (2) Only (a) and (b) |
| (3) Only (a) | (4) Only (b) |
-

81. Apply Gauss-Jordan method to solve the following equations :

$$x + y + z = 9$$

$$2x - 3y + 4z = 13$$

$$3x + 4y + 5z = 40$$

- | | |
|---------------------------|---------------------------|
| (1) $x = 1, y = 2, z = 3$ | (2) $x = 3, y = 2, z = 1$ |
| (3) $x = 1, y = 3, z = 5$ | (4) $x = 2, y = 1, z = 3$ |
-

82. The bisection method is also known as

- (1) Binary chopping
- (2) Quaternary chopping
- (3) Tri-region chopping
- (4) Hex region chopping

83. The curve in a Simpson's rule passing through the coordinates of a parabola has a polynomial of _____ .

- | | |
|-----------------|------------------|
| (1) First order | (2) Second order |
| (3) Third order | (4) Fourth order |

84. Gauss-Seidal method is being used to solve the following system of equations :

$$3x_1 - 0.1x_2 - 0.2x_3 = 7.85$$

$$0.1x_1 + 7x_2 - 0.3x_3 = -19.3$$

$$0.3x_1 - 0.2x_2 + 10x_3 = 71.4$$

In the first step x_2 and x_3 are set to zero. So what will be approximate estimate of ' x_1 ' in the first step ?

- | | |
|--------------|---------------|
| (1) 2.616667 | (2) -193.00 |
| (3) 238.00 | (4) -2.794524 |

85. Which of the following indicates the formula for Simpson's rule ?

- (1) $\Delta = \left(\frac{d}{3}\right) \times [(O_0 + O_n) + 4 \times (O_1 + O_3 + \dots) + 2 \times (O_2 + O_4 + \dots)]$
- (2) $\Delta = \left(\frac{d}{3}\right) \times [(O_0 + O_n) + 2 \times (O_1 + O_3 + \dots) + 2 \times (O_2 + O_4 + \dots)]$
- (3) $\Delta = \left(\frac{d}{3}\right) \times \left[\frac{(O_0 + O_n)}{2} + 4 \times (O_1 + O_3 + \dots) + 2 \times (O_2 + O_4 + \dots)\right]$
- (4) $\Delta = \left(\frac{d}{3}\right) \times [(O_0 + O_n) + 2 \times (O_1 - O_3 + \dots) + 4 \times (O_2 + O_4 + \dots)]$

86. Which of the following is/are the technique/s for improving solutions as regards to the Gauss Elimination Method ?
- (a) Use of more significant figures
 - (b) Pivoting if necessary
 - (c) Scaling if necessary

Answer options :

- (1) Only (a)
- (2) Only (c)
- (3) All of the above
- (4) None of the above

-
87. The procedure adopted in the Gauss-Jordan method in solving linear simultaneous equations is
- (1) It is required to assume initial approximate values of the variables.
 - (2) It reduces the given system of equations to a diagonal matrix.
 - (3) It reduces the given system of equations to an equivalent triangular matrix.
 - (4) The given matrix is factored into lower and upper triangular matrices.

-
88. The reasons that the Gauss Elimination technique is called "naive" are listed below. Which of the following is/are correct ?
- (a) "Division by zero" can occur during elimination.
 - (b) "Division by zero" can occur during back-substitution.
 - (c) The technique cannot be employed to transcendental equations.

Answer options :

- (1) Only (c)
- (2) Only (b) and (c)
- (3) Only (a) and (b)
- (4) All of the above

89. Which stones are considered unsuitable for construction ?

- (1) Stones having specific gravity less than 2.5
- (2) Stones having specific gravity greater than 2.5
- (3) Stones having specific gravity in between 5.0 and 7.0
- (4) Stones having specific gravity in between 3.5 and 4.5

90. Which part of National Building Code issued by BIS is for Fire Safety ?

- (1) Part I
- (2) Part III
- (3) Part IV
- (4) Part II

91. The properties of ideal fire-resisting materials are

- (a) It should not get disintegrated due to heat.
- (b) It should not expand excessively due to heat.
- (c) It should contract rapidly on cooling.

Which of the above statements is/are correct ?

- (1) Only (a) and (b)
- (2) Only (b)
- (3) All of the above
- (4) None of the above

92. As per IS-10262 : 2009, how much should the target strength of concrete be ?

- (1) Characteristic Compressive Strength + 1.2 times Standard deviation
- (2) Characteristic Compressive Strength + 1.75 times Standard deviation
- (3) Characteristic Compressive Strength + 1.65 times Standard deviation
- (4) Characteristic Compressive Strength + 1.80 times Standard deviation

93. The total area of mezzanine floor in a building should not exceed _____, generally as per building bye laws.

- (1) $\frac{1}{3}$ of the plot area
- (2) $\frac{1}{3}$ of the plinth area
- (3) $\frac{1}{2}$ of the plot area
- (4) $\frac{1}{2}$ of the plinth area

94. Which of the following is *not* the type of formwork used for concreting ?

- (1) Standard
- (2) Universal
- (3) Elementary
- (4) Special

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95. Which range of slump (in mm) shall be adopted for vibrated concrete ?
- (1) 12 to 25 (2) 50 to 100
(3) 5 to 10 (4) 25 to 50
-
96. A base in an oil paint performs functions such as
- (a) Gives opacity to the paint.
(b) Increases resistance to abrasion.
(c) Prevents formation of shrinkage cracks.
- Which of the above function/s is/are correct ?
- (1) All of the above (2) Only (a)
(3) Only (a) and (c) (4) Only (b)
-
97. The ashlar masonry in which the exposed edges of stones are bevelled off at an angle of 45° is called
- (1) Ashlar fine masonry
(2) Ashlar rough tooled masonry
(3) Ashlar quarry faced masonry
(4) Ashlar chamfered masonry
-
98. Portland Cement is produced by burning ingredients at what temperature ?
- (1) 250°C
(2) 458°C
(3) 2300°C
(4) 1450°C
-
99. A RCC beam spans for 7.5 m. When will you allow removal of props for the same ?
- (1) Any time after 7 days
(2) Any time after 14 days
(3) Any time after 21 days
(4) Any time after 3 days
-
100. Which IS code has classified the bricks according to their compressive strength ?
- (1) IS-762 : 1998 (2) IS-10262 : 2000
(3) IS-1077 : 1992 (4) IS-456 : 1978

सूचना - (पृष्ठ 1 वरून पुढे.....)

- (8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या “परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82” यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.
- (9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.

नमुना प्रश्न

Pick out the correct word to fill in the blank :

Q. No. 201. I congratulate you _____ your grand success.

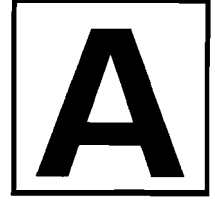
- (1) for (2) at
(3) on (4) about

ह्या प्रश्नाचे योग्य उत्तर “(3) on” असे आहे. त्यामुळे या प्रश्नाचे उत्तर “(3)” होईल. यास्तव खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक “(3)” हे वर्तुळ पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201. (1) (2) (3) (4)

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

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सूचना

- (1) सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.
- (2) आपला परीक्षा-क्रमांक ह्या चौकोनात न विसरता बॉलपेनने लिहावा.

| | | | | | | | | | |
|-----------------|--|--|--|--|--|--|--|--|--|
| परीक्षा-क्रमांक | | | | | | | | | |
|-----------------|--|--|--|--|--|--|--|--|--|

केंद्राची संकेताक्षरे

शेवटचा अंक
- (3) वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे न विसरता नमूद करावा.
- (4) या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तरक्रमांक नमूद करताना तो संबंधित प्रश्नक्रमांकासमोर छायांकित करून दर्शविला जाईल याची काळजी घ्यावी. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.
- (5) सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नाकडे वळावे. अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.
- (6) उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही. एकापेक्षा जास्त उत्तरे नमूद केल्यास ते उत्तर चुकीचे धरले जाईल व त्या चुकीच्या उत्तराचे गुण वजा केले जातील.
- (7) प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवारांच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच “उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची दिलेल्या चार उत्तरांपैकी सर्वात योग्य उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चुकीच्या उत्तरांसाठी 25% किंवा 1/4 गुण वजा/कमी करण्यात येतील”.

ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवारांला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या “परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम-82” यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरुद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा



कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

1. The relationship between porosity ($n\%$), air content ($a_c\%$) and percentage air voids ($n_a\%$) is given by

- (1) $n = n_a a_c$ (2) $a_c = n n_a$
 (3) $n_a = n \cdot a_c$ (4) $a_c = n - n_a$

2. For a soil OMC is 27%. If the water content is decreased to 24%, the maximum dry density of soil will _____.

- (1) Increase (2) Decrease
 (3) Remain same (4) None of the above

3. Given that for a soil deposit :

k_o = Coefficient of earth pressure at rest

k_p = Coefficient of passive earth pressure

k_a = Coefficient of active earth pressure

and μ = Poisson's ratio

The value of $(1-\mu)/\mu$ is given by

- (1) k_a/k_p (2) k_o/k_a
 (3) k_p/k_a (4) $1/k_o$

4. Match the following :

- | | |
|-------------------------------------|---------------|
| (a) Earth pressure | (i) Hansen |
| (b) Slope stability | (ii) Hiley |
| (c) Bearing capacity | (iii) Culmann |
| (d) Pile capacity by dynamic method | (iv) Bishop |

Answer options :

- | | (a) | (b) | (c) | (d) |
|-----|-------|-------|------|-------|
| (1) | (iii) | (iv) | (ii) | (i) |
| (2) | (iii) | (iv) | (i) | (ii) |
| (3) | (iv) | (iii) | (ii) | (i) |
| (4) | (iv) | (ii) | (i) | (iii) |

5. Two footings, one circular and other square are founded in pure clay. The diameter of the circular footing is the same as the side of the square footing. The ratio of their net ultimate bearing capacity

- (1) is 1.3
 (2) is $\frac{1}{1.3}$
 (3) is unity
 (4) cannot be determined without some more data

6. A temporary structure constructed in a river/lake to provide a working area for the purpose of excluding water during construction is known as
- | | |
|-------------|---------------|
| (1) Caisson | (2) Conduit |
| (3) Levee | (4) Cofferdam |

7. For the design of strap footing, which of the following assumptions is *not* made ?
- (1) The soil pressure varies linearly.
 - (2) The strap is perfectly rigid.
 - (3) The strap is weightless.
 - (4) The interior footing is centrally loaded.

8. Match the following :

| | |
|----------------------|--|
| (a) End bearing pile | (i) To protect water front structures |
| (b) Tension pile | (ii) To resist against horizontal pull from sheet piling |
| (c) Anchor pile | (iii) Transfer load to rock |
| (d) Fender pile | (iv) To resist uplift due to hydrostatic pressure |

Answer options :

| | (a) | (b) | (c) | (d) |
|-----|-------|------|------|------|
| (1) | (iii) | (i) | (ii) | (iv) |
| (2) | (iii) | (i) | (iv) | (ii) |
| (3) | (iii) | (iv) | (ii) | (i) |
| (4) | (iii) | (ii) | (iv) | (i) |

9. The diameter of the main cell of a cellular cofferdam is usually kept as

| | |
|--------------------|--------------------|
| (1) 0.5 H to 0.6 H | (2) 0.7 H to 0.8 H |
| (3) 1.0 H to 1.2 H | (4) 1.5 H to 2.0 H |

10. The specific volume of a fluid is the reciprocal of _____ .

| | |
|---------------------|----------------------|
| (1) density | (2) relative density |
| (3) specific weight | (4) specific gravity |

11. The most economical section of an open channel is one for which

| | |
|------------------------------|-------------------------------|
| (1) area of section is least | (2) wetted perimeter is least |
| (3) discharge is minimum | (4) depth of flow is critical |

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12. Which law is given in the following statement ?

“The pressure or intensity of pressure at a point in a static fluid is equal in all directions.”

- (1) Newton’s law (2) Pascal’s law
(3) Ohm’s law (4) Second law of Thermodynamics

13. The metacentric height is the distance between the

- (1) centre of gravity of the floating body and the centre of buoyancy.
(2) centre of gravity of the floating body and the metacentre.
(3) metacentre and centre of buoyancy.
(4) original centre of buoyancy and new centre of buoyancy.

14. A piezometer gives _____ .

- (1) local atmospheric pressure (2) small magnitude of pressure
(3) large vacuum pressure (4) total head

15. When fluid is at rest, shear stress is _____ .

- (1) + 1 (2) - 1
(3) Zero (4) None of the above

16. In network of pipes, for correct distribution of flow,

- (1) the head loss around each elementary circuit must be zero.
(2) the head loss in all circuits is the same.
(3) the elevation of hydraulic grade line is assumed for each junction.
(4) elementary circuits are replaced by equivalent pipe.

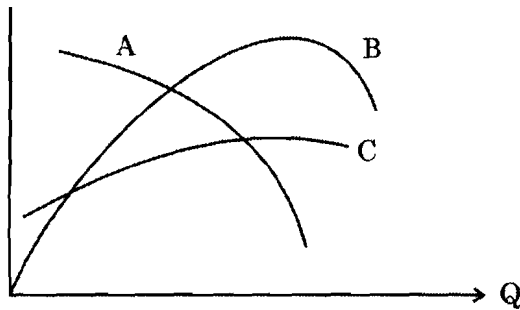
17. A body floats in stable equilibrium if the _____ .

- (1) metacentre is above the Centre of Gravity
(2) metacentric height is zero
(3) Centre of Gravity is above the centre of buoyancy
(4) Centre of Gravity is below or at the centre of buoyancy

18. The coefficient of velocity is determined experimentally by using the relation (with standard notations)

- (1) $C_v = \sqrt{\frac{y^2}{4xH}}$ (2) $C_v = \sqrt{\frac{x^2}{4yH}}$
(3) $C_v = \sqrt{\frac{4xH}{y^2}}$ (4) $C_v = \sqrt{\frac{4yH}{x^2}}$

19. The operating characteristic curves of a centrifugal pump are shown in the figure below, curve A is for



- (1) Head (2) Efficiency
(3) Power (4) None of the above
-
20. A turbine develops 8000 kW when running at a speed of 130 rpm and under a head of 30 m. The specific speed of the turbine will be

$$\text{Given : } \sqrt{8000} = 89.44$$

$$H^{5/4} = 70.2104$$

- (1) 110 rpm (2) 146 rpm
(3) 216 rpm (4) 166 rpm
-
21. During a certain period, the load of the plant is varying from 12000 kW to 26000 kW. Calculate the load factor.

- (1) 0.8308 (2) 0.6308
(3) 0.9308 (4) 0.7308
-

22. An air vessel in the delivery side of a reciprocating pump

- (1) maintains steady discharge output.
(2) prevents cavitation in the system.
(3) enables suction head to be increased.
(4) enables the pump to run at higher speed.
-

23. The capacity factor is the ratio of

- (1) maximum load to the plant capacity.
(2) actual capacity to the rated capacity.
(3) average load to the plant capacity.
(4) energy output to the available energy within the capacity and characteristics of the plant.
-

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24. The velocity heads of water at the inlet and outlet sections of a draft tube fitted in a reaction turbine are 4.0 m and 0.5 m respectively. The frictional and other losses in the draft tube are 0.50 m. What is the efficiency of the draft tube ?

- (1) 25% (2) 50% (3) 75% (4) 90%
-

25. The reciprocating pump is called as

- (1) negative displacement pump
(2) positive displacement pump
(3) zero displacement pump
(4) All of the above
-

26. Kaplan turbine is suitable for the condition of

- (1) low head and high discharge
(2) high head and low discharge
(3) medium head and medium discharge
(4) All of the above
-

27. Which of the following statements pertaining to centrifugal pump installation is *incorrect* ?

- (1) The discharge control valve is fitted in the suction pipe.
(2) The suction pipe has larger diameter as compared to that of the delivery pipe.
(3) The suction pipe is provided with a foot valve and a strainer.
(4) The discharge control valve is fitted in the delivery pipe.
-

28. A canal is 10 km long and has an average width of 10 m over its length. The evaporation as measured in a Class-A PAN is 0.10 cm/day. What would be the volume of water evaporated (in m³) in a week ? Consider the Pan-coefficient equal to 0.70.

- (1) 100 m³ (2) 490 m³
(3) 1000 m³ (4) 4900 m³
-

29. According to National Commission on Agriculture (1976), which of the following does *not* come in the category of drought ?

- (1) Grain Drought
(2) Meteorological Drought
(3) Hydrological Drought
(4) Agricultural Drought
-

30. Channel routing is the computation of
- (1) changes in the shape of the outflow hydrograph when the flow has passed through a channel.
 - (2) changes in the shape of the inflow hydrograph while a flood wave passes through a channel downstream.
 - (3) the quantity of storage in a channel.
 - (4) changes in the direction of outflow from the channel.
-
31. Which of the following is *not* a direct stream flow determination technique ?
- | | |
|--------------------------|-----------------------|
| (1) Dilution technique | (2) Ultrasonic method |
| (3) Area-Velocity method | (4) Slope area method |
-
32. Lysimeter is used to measure
- | | |
|------------------------|---------------------|
| (1) Infiltration | (2) Evaporation |
| (3) Evapotranspiration | (4) Vapour pressure |
-
33. A unit hydrograph consists of one unit of
- (1) effective rainfall duration
 - (2) peak discharge
 - (3) hydrograph time base
 - (4) direct runoff due to 1 cm effective rainfall
-
34. The runoff volume above ϕ -Index is usually known as
- | | |
|------------------|---------------------|
| (1) Afflux | (2) Rainfall Excess |
| (3) Infiltration | (4) True Runoff |
-
35. A Hyetograph is a plot of
- (1) time against water
 - (2) time against air
 - (3) the intensity of rainfall against the time interval
 - (4) flood against time
-
36. The basic assumptions of the unit hydrograph theory are
- (1) non-linear response and time invariance
 - (2) time invariance and linear response
 - (3) linear response and linear time variance
 - (4) non-linear time variance and linear response

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45. A steady sloping open channel placed along a dam abutment or through a flank is called as

- | | |
|--------------------|---------------------------|
| (1) Ogee spillway | (2) Trough spillway |
| (3) Shaft spillway | (4) Side channel spillway |

46. Match the pair :

- | | |
|------------------------|------------|
| (a) Jayakar Committee | (i) 1934 |
| (b) IRC formation | (ii) 1952 |
| (c) CRRI Establishment | (iii) 1956 |
| (d) NH Act | (iv) 1927 |

Answer options :

- | | (a) | (b) | (c) | (d) |
|-----|------|------|-------|-------|
| (1) | (iv) | (ii) | (i) | (iii) |
| (2) | (ii) | (iv) | (i) | (iii) |
| (3) | (ii) | (i) | (iii) | (iv) |
| (4) | (iv) | (i) | (ii) | (iii) |

47. As per IRC, the reaction time considered for OSD calculation is _____ seconds.

- | | | | |
|-------|---------|---------|---------|
| (1) 2 | (2) 2.5 | (3) 2.7 | (4) 1.7 |
|-------|---------|---------|---------|

48. As per 3rd 20 Year Road Plan, the length of National Highways is given by area of country divided by _____.

- | | | | |
|--------|--------|--------|--------|
| (1) 20 | (2) 25 | (3) 50 | (4) 75 |
|--------|--------|--------|--------|

49. Consider the following statements about camber :

- Camber is the slope provided to road surface in the transverse direction.
- It is provided to remove the rainwater from pavement surface as quickly as possible.
- Value of camber does not depend on the amount of rainfall.

Which of the above statements are correct ?

- | | |
|-----------------|----------------------|
| (1) (a) and (b) | (2) (b) and (c) |
| (3) (a) and (c) | (4) All of the above |

50. The ruling design speed recommended by IRC for National Highways passing through rolling terrain is _____.

- | | | | |
|--------------|-------------|-------------|-------------|
| (1) 120 kmph | (2) 40 kmph | (3) 20 kmph | (4) 80 kmph |
|--------------|-------------|-------------|-------------|

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

51. Consider the following statements about phases of highway planning :

- (a) Assessment of requirement of road length for an area.
- (b) Preparation of Master Plan showing the phasing in Five Year Plan or annual plan.

Which of the above statements is/are correct ?

- (1) Only (a) is correct.
 - (2) Only (b) is correct.
 - (3) Neither (a) nor (b) are correct.
 - (4) Both (a) and (b) are correct.
-

52. The consistency of paving grade bitumen is determined by _____ .

- (1) Ductility test
 - (2) Viscosity test
 - (3) Softening point test
 - (4) Penetration test
-

53. As per IRC, the passenger car unit for a motorcycle in rural areas is _____ .

- (1) 0.50
 - (2) 0.75
 - (3) 0.80
 - (4) 1.00
-

54. Tie bars in cement concrete pavement are used across _____ .

- (1) Contraction joints
 - (2) Expansion joints
 - (3) Construction joints
 - (4) Longitudinal joints
-

55. Consider the following statements about estimation of flood discharge for bridge design :

- (a) It can be estimated by using empirical formula such as Dicken's formula.
- (b) It can be estimated by using rational method.
- (c) It can be estimated by using Area-Velocity method.

Which of the above statements is/are correct ?

- (1) Only (c)
 - (2) (a) and (c)
 - (3) (b) and (c)
 - (4) All of the above
-

56. For vehicular traffic, minimum roadway width for two-lane bridge is _____ .

- (1) 425 cm
 - (2) 750 cm
 - (3) 200 cm
 - (4) 300 cm
-

57. From the following methods, which is *not* used to work out safe bearing capacity of an existing bridge ?

- (1) Correlation method
 - (2) Load testing method
 - (3) Impact method
 - (4) Theoretical method
-

58. Find the *incorrect* answer.

'Force acting on bridge foundation', is

- (1) Self-weight of foundation
- (2) Weight of superstructure
- (3) Uplift pressure
- (4) Earth pressure

59. It is considered reasonable to design bridges for flood occurring once in _____ years and to design culverts for floods occurring once in _____ years.

- (1) 100, 30
- (2) 100, 40
- (3) 100, 20
- (4) 100, 50

60. Weep holes are provided in which of the following components of bridge ?

- (1) Foundation
- (2) Abutment
- (3) Pier
- (4) Slab

61. Which of the following is *not* used to estimate maximum discharge through stream ?

- (1) Dickens formula
- (2) Inglis formula
- (3) Chezy formula
- (4) Khosla formula

62. Abutment pier is used in construction of

- (1) Culvert
- (2) Slab drain
- (3) Minor bridge
- (4) Arch bridge

63. Which of the following statements is/are correct regarding afflux ?

- (a) Greater the afflux, greater will be the velocity under the downstream side of bridge.
- (b) Greater the afflux, lesser will be the depth of foundation required.

Answer options :

- (1) Only (a)
- (2) Only (b)
- (3) Both (a) and (b)
- (4) Neither (a) nor (b)

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

64. Consider the following statements related to tunnel lighting :

- (a) The spacing of lights will depend on size of light source.
- (b) The spacing of lights will depend on tunnel dimensions.
- (c) It is desirable to have few lights of more wattage.
- (d) It is desirable to have more lights of small wattage.

Which of the above statements are correct ?

- (1) (a) and (b)
- (2) (a), (c) and (d)
- (3) (a), (b) and (d)
- (4) (b) and (c)

65. Which of the following statements is/are correct ?

The open cut is not desirable because

- (a) It requires shorter lengths due to approaches.
- (b) The maintenance cost of railway tracks and pavements is very high.
- (c) It requires larger locomotives due to grades.
- (d) It will require more time for construction.

Answer options :

- (1) (a) and (b) are correct
- (2) (a), (c) and (d) are correct
- (3) (b), (c) and (d) are correct
- (4) (b) and (c) are correct

66. Which of the following shape of tunnel gives self-cleansing velocity in dry weather flow and proves to be quite effective in resisting external as well as internal pressures ?

- (1) Circular section
- (2) Rectangular section
- (3) Egg-shaped section
- (4) Horseshoe form

67. Consider the following statements with respect to electric detonators used in blasting operations :

- (a) They are safe and certain.
- (b) They do not permit successive firing of holes with required delay.
- (c) They are not waterproof.
- (d) The process of ignition is smoother as compared to blasting fuse.

Which of the above statements is/are *incorrect* ?

- (1) Only (a) and (b)
- (2) Only (b) and (c)
- (3) Only (a), (b) and (c)
- (4) Only (a), (c) and (d)

68. Which of the following methods is *not* the popular method of tunneling in rocks ?

- (1) Full-face method
 - (2) New Zealand method
 - (3) Drift method
 - (4) Heading and Benching method
-

69. Which of the following options is the governing factor in deciding the size of shaft provided in tunnel during construction ?

- (1) Amount of muck to be removed
 - (2) Hoisting system used
 - (3) Size of muck car
 - (4) All of the above
-

70. What should be the interval for cross-sectioning the tunnel accurately ?

- | | |
|---------------|----------------|
| (1) 1 M – 2 M | (2) 4 M – 6 M |
| (3) 2 M – 4 M | (4) 8 M – 15 M |
-

71. Consider the following factors :

- (a) Nature of rock
- (b) Method of tunnelling
- (c) Profile of tunnel
- (d) Depth of lift

Which of the factors stated above affect the quantity of explosives required for blasting ?

- | | |
|-----------------|----------------------|
| (1) (b) and (c) | (2) (a) and (b) |
| (3) (c) and (d) | (4) All of the above |
-

72. Which of the following is *not* the type of lighting used in tunnels ?

- (1) Lamps and lanterns using burning oil
 - (2) Gobar gas lighting
 - (3) Coal gas lighting
 - (4) Acetylene lighting
-

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

73. How much percentage of the total BOD is the first stage BOD for sewage ?
(1) 90% (2) 100% (3) 99% (4) 98.5%

74. Which of the following points are valid for design of sewage treatment plants ?
(a) It is better to provide more than one unit for each treatment process.
(b) Preferably by-passes should be avoided for all units.
(c) Hydraulic design should ensure self-cleaning velocity wherever required.

Answer options :

- (1) Only (a) and (b) (2) Only (b) and (c)
(3) Only (a) and (c) (4) All of the above

75. Which of the following statements are applicable to Bangalore method of composting ?

- (a) Biodegradable solid waste and night soil is placed in alternate layers, in earthen trenches.
(b) It is primarily anaerobic in nature.
(c) The fill is turned regularly for 3 months.
(d) The fill is covered with 15 cm layer of earth.

Answer options :

- (1) Only (a), (b) and (c) (2) Only (a), (b) and (d)
(3) Only (a) and (c) (4) Only (b) and (c)

76. A list of advantages of the activated sludge process is given below. Which of them is/are **not** correct ?

- (a) Smaller area of land is required
(b) Efficiency of the process is high
(c) Less quantity of sludge is produced
(d) No fly nuisance

Answer options :

- (1) Only (a) and (d) (2) Only (b) and (d)
(3) Only (c) (4) Only (d)

77. Those streams which dry up in summer and contain water only during rainfall are known as

- (1) Intermittent streams
- (2) Dry streams
- (3) Rainy streams
- (4) Perennial streams

78. Name the Indian Standard Code used for basic requirements of water supply in India.

- | | |
|----------------|---------------|
| (1) IS : 12183 | (2) IS : 1343 |
| (3) IS : 456 | (4) IS : 1172 |

79. Which of the following is a disadvantage of mechanical flocculators in case of water treatment ?

- (1) Dead spaces in the corners
- (2) Less capacity of tank is required
- (3) Better floc formation
- (4) More flexible in operation

80. Which of the following formulae clearly define moisture content in solid waste ?

Where a = Initial mass of sample as delivered

b = Mass of sample after drying

- | | |
|---|---|
| (1) $\left(\frac{a-b}{a}\right) \times 100$ | (2) $\left(\frac{b-a}{b}\right) \times 100$ |
| (3) $\left(\frac{a+b}{a}\right) \times 100$ | (4) $\left(\frac{a}{a+b}\right) \times 100$ |

81. In case of air pollution, particle size of cement dust and fly ash falls in the range of

- (1) 0.001 to 0.01 μm
- (2) 0.01 to 100 μm
- (3) 100 to 1000 μm
- (4) 1000 to 2000 μm

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82. A curve provided to change the horizontal alignment from infinite at the straight end to desired radius of the circular curve gradually is called

- (1) Compound Curve (2) Vertical Curve
(3) Reverse Curve (4) Transition Curve

83. Which of the following is *not* an indirect method of measuring distances ?

- (1) Tacheometry
(2) Odometer
(3) Trigonometric Levelling
(4) Electromagnetic Distance Measurement

84. What correction needs to be applied for observed staff reading in levelling for curvature correction for a distance of 1000 m ?

- (1) 0.0785 m (2) 0.06783 m
(3) 0.0785 km (4) 0.112 km

85. The bisector of the angle of tilt which meets the photograph at a point, which in a vertical aerial photograph coincides with photo-nadir point and the principal point is called as

- (1) Nadir Point (2) Principal Point
(3) Isocentre (4) Plumb Point

86. The distance AB on the ground on a plan drawn to a scale of 1 cm = 50 m was found to be 50 m. Later it was detected that the surveyor wrongly used a scale of 1 cm = 40 m in the calculations. Find the true ground length of the line AB.

- (1) 500 m (2) 625 m (3) 2000 m (4) 200 m

87. Which are multiplying and additive constants of tacheometry respectively ?

- (1) 100 and 0 (2) 0 and 100
(3) 125 and 10 (4) 10 and 125

88. In order to obtain the exact volume, in case the cross-sectional areas are calculated by the end area formula, the prismatic correction

- (1) is additive (2) may be additive or subtractive
(3) None of the above (4) is subtractive

89. Which of the following is *not* a method of geodetic surveying ?

- (1) Triangulation (2) Precise Traversing
(3) Tacheometric Surveying (4) Trilateration

90. The contour interval for a particular map is

- (1) kept constant (2) made variable
(3) made irregular (4) made plane

91. In hydrographic surveying, if the speed of sound in water is v , the time interval between the transmitter and receiver is t , the depth h is given by the formula

- (1) $h = 2vt$ (2) $h = vt^2$ (3) $h = vt + \frac{1}{2}gt^2$ (4) $h = \frac{1}{2}vt$

92. In view of the general principles of specification writing, which of the following statement/s is/are **not** correct ?

- (a) The specification writer should give reasons for what he specifies.
(b) Cross-references should be minimized, and only titles be referred, if need be.
(c) All items affecting the cost of the work should be included and described in detail.
(d) Commercial sizes should be specified as far as possible.

Answer options :

- (1) Only (a) (2) Only (b)
(3) Only (b) and (c) (4) None of the above

93. Which of the following is **not** an approximate method of Estimate ?

- (1) Annual Repair or Maintenance Estimate
(2) Plinth Area Estimate
(3) Cubical Content Estimate
(4) Service Unit Method

94. What is the volume of coarse aggregate required to make 100 m^3 of finished concrete of grade M-15 ?

Take the dry volume to wet volume ratio as 1.54.

- (1) 76 m^3 (2) 88 m^3 (3) 96 m^3 (4) 106 m^3

95. Which of the following statement/s is/are applicable to cost-plus type contracts, generally ?

- (a) Early completion of the work is possible.
(b) A better quality work is produced.
(c) A lot of account-keeping is required.
(d) It is commonly employed for public works.

Answer options :

- (1) Only (d) (2) Only (a), (b) and (c)
(3) Only (a), (b) and (d) (4) Only (a)

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

96. The net annual income from a property deducting all outgoings is ₹ 3,00,000. What would be the capitalized value of the property, if the rate of interest is 10% per annum ?
- (1) ₹ 3,00,000 (2) ₹ 33,00,000
(3) ₹ 30,00,000 (4) ₹ 3,30,000
-

97. Which of the following are the items to be included for computing the cost of owning and operating construction equipment ?
- (a) Running costs
(b) Investment costs
(c) Cost of maintenance and repairs
(d) Depreciation

Answer options :

- (1) All of the above
(2) Only (a) and (b)
(3) Only (a), (b) and (c)
(4) Only (a), (b) and (d)
-

98. The following is **not** a purpose of valuation of a property :
- (1) Assessment of different Taxes
(2) Fixation of Rent
(3) Security for Loans or Mortgage
(4) Rate Analysis
-

99. Find out the book value, after 6 years of an asset costing ₹ 10 lakh originally, assuming 10 years as life of the asset and the scrap value of ₹ 1 lakh. (Assume straight line depreciation) Select the correct option.
- (1) ₹ 4.6 lakh (2) ₹ 5.4 lakh
(3) ₹ 4.0 lakh (4) ₹ 6.0 lakh
-

100. If cement and steel are supplied by the Department and **not** by the contractor, then the percentage of profit on steel and cement in Rate Analysis is deducted by
- (1) 20% (2) 15%
(3) 25% (4) 10%
-

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

सूचना - (पृष्ठ 1 वरून पुढे.....)

- (8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या “परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82” यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.
- (9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वतःबरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.

नमुना प्रश्न

Pick out the correct word to fill in the blank :

Q. No. 201. I congratulate you _____ your grand success.

- (1) for (2) at
(3) on (4) about

ह्या प्रश्नाचे योग्य उत्तर “(3) on” असे आहे. त्यामुळे या प्रश्नाचे उत्तर “(3)” होईल. यास्तव खालीलप्रमाणे प्रश्न क्र. 201 समोरील उत्तर-क्रमांक “(3)” हे वर्तुळ पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. 201. (1) (2) (3) (4)

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

परीक्षेचे नांव : महाराष्ट्र राजपत्रित तांत्रिक सेवा मुख्य परीक्षा - २०२२

परीक्षेचा दिनांक : २३ एप्रिल, २०२३.

महाराष्ट्र स्थापत्य अभियांत्रिकी मुख्य परीक्षा २०२२

विषय : पेपर क्रमांक - १

(जाहिरात क्रमांक : १३/२०२३)

महाराष्ट्र लोकसेवा आयोगामार्फत दिनांक २३ एप्रिल, २०२३ रोजी आयोजित 'महाराष्ट्र राजपत्रित तांत्रिक सेवा (मुख्य) स्पर्धा परीक्षा - २०२२ मधील स्थापत्य अभियांत्रिकी (मुख्य) परीक्षा (पेपर क्रमांक - १)' या परीक्षेची प्रथम उत्तरतालिका उमेदवारांच्या माहितीसाठी आयोगाच्या संकेतस्थळावर प्रसिध्द करण्यात आली आहे. सदर उत्तरतालिकेसंदर्भात उमेदवारांना हरकती सादर करावयाच्या असल्यास त्यांनी आयोगाकडून दिनांक १७ नोव्हेंबर, २०२१ व १ जुलै, २०२२ रोजी संकेतस्थळावर प्रसिध्द केलेल्या प्रसिध्दीपत्रकातील तरतुदीनुसारच ऑनलाईन पध्दतीने सादर कराव्यात. २. विहीत ऑनलाईन पध्दती व्यतिरिक्त अन्य कोणत्याही नमुन्यातील अथवा अन्य कोणत्याही मार्गाने/पध्दतीने सादर केलेल्या हरकती कोणत्याही परिस्थितीत स्वीकारल्या जाणार नाहीत. यासंदर्भात दिनांक २२ मे, २०२३ पर्यंत आयोगाकडे प्राप्त झालेल्या हरकतींचीच दखल घेतली जाईल.

उत्तरतालिका - KEY

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 1 | 1 | 4 | 1 | 1 |
| 2 | 1 | 1 | 2 | 1 |
| 3 | 4 | 2 | 1 | 4 |
| 4 | 4 | 3 | 1 | 3 |
| 5 | 4 | 3 | 3 | 1 |
| 6 | 2 | 4 | 1 | 3 |
| 7 | 2 | 1 | 1 | 2 |
| 8 | 2 | 2 | 4 | 2 |
| 9 | 3 | 2 | 2 | 3 |
| 10 | 1 | 3 | 4 | 1 |
| 11 | 4 | 2 | 4 | 1 |
| 12 | 4 | 1 | 1 | 3 |
| 13 | 1 | 1 | 1 | 3 |
| 14 | 4 | 4 | 4 | 2 |
| 15 | 1 | 2 | 3 | 3 |
| 16 | 1 | 1 | 1 | 1 |
| 17 | 1 | 4 | 3 | 2 |
| 18 | 2 | 3 | 2 | 1 |
| 19 | 1 | 3 | 2 | 1 |
| 20 | 1 | 3 | 3 | 3 |
| 21 | 3 | 2 | 1 | 2 |
| 22 | 2 | 4 | 1 | 3 |
| 23 | 4 | 3 | 3 | 1 |
| 24 | 1 | 3 | 3 | 3 |
| 25 | 2 | 2 | 2 | 1 |

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 26 | 3 | 2 | 3 | 3 |
| 27 | 3 | 1 | 1 | 2 |
| 28 | 4 | 4 | 2 | 2 |
| 29 | 1 | 4 | 1 | 1 |
| 30 | 2 | 2 | 1 | 1 |
| 31 | 2 | 2 | 3 | 4 |
| 32 | 3 | 3 | 2 | 4 |
| 33 | 2 | 4 | 3 | 3 |
| 34 | 1 | 1 | 1 | 3 |
| 35 | 1 | 2 | 3 | 1 |
| 36 | 4 | 1 | 1 | 1 |
| 37 | 2 | 1 | 3 | 4 |
| 38 | 1 | 3 | 2 | 4 |
| 39 | 4 | 1 | 2 | 4 |
| 40 | 3 | 1 | 1 | 2 |
| 41 | 3 | 4 | 1 | 2 |
| 42 | 3 | 2 | 4 | 2 |
| 43 | 2 | 4 | 4 | 3 |
| 44 | 4 | 4 | 3 | 1 |
| 45 | 3 | 1 | 3 | 4 |
| 46 | 3 | 1 | 1 | 4 |
| 47 | 2 | 4 | 1 | 1 |
| 48 | 2 | 3 | 4 | 4 |
| 49 | 1 | 1 | 4 | 1 |
| 50 | 4 | 3 | 4 | 1 |

Date:- 17th May, 2023

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 51 | 4 | 2 | 2 | 1 |
| 52 | 2 | 2 | 2 | 2 |
| 53 | 2 | 3 | 2 | 1 |
| 54 | 3 | 1 | 3 | 1 |
| 55 | 4 | 1 | 1 | 3 |
| 56 | 1 | 3 | 4 | 2 |
| 57 | 2 | 3 | 4 | 4 |
| 58 | 1 | 2 | 1 | 1 |
| 59 | 1 | 3 | 4 | 2 |
| 60 | 3 | 1 | 1 | 3 |
| 61 | 1 | 2 | 1 | 3 |
| 62 | 1 | 1 | 1 | 4 |
| 63 | 4 | 1 | 2 | 1 |
| 64 | 2 | 3 | 1 | 2 |
| 65 | 4 | 2 | 1 | 2 |
| 66 | 4 | 3 | 3 | 3 |
| 67 | 1 | 1 | 2 | 2 |
| 68 | 1 | 3 | 4 | 1 |
| 69 | 4 | 1 | 1 | 1 |
| 70 | 3 | 3 | 2 | 4 |
| 71 | 1 | 2 | 3 | 2 |
| 72 | 3 | 2 | 3 | 1 |
| 73 | 2 | 1 | 4 | 4 |
| 74 | 2 | 1 | 1 | 3 |
| 75 | 3 | 4 | 2 | 3 |

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 76 | 1 | 4 | 2 | 3 |
| 77 | 1 | 3 | 3 | 2 |
| 78 | 3 | 3 | 2 | 4 |
| 79 | 3 | 1 | 1 | 3 |
| 80 | 2 | 1 | 1 | 3 |
| 81 | 3 | 4 | 4 | 2 |
| 82 | 1 | 4 | 2 | 2 |
| 83 | 2 | 4 | 1 | 1 |
| 84 | 1 | 2 | 4 | 4 |
| 85 | 1 | 2 | 3 | 4 |
| 86 | 3 | 2 | 3 | 2 |
| 87 | 2 | 3 | 3 | 2 |
| 88 | 3 | 1 | 2 | 3 |
| 89 | 1 | 4 | 4 | 4 |
| 90 | 3 | 4 | 3 | 1 |
| 91 | 1 | 1 | 3 | 2 |
| 92 | 3 | 4 | 2 | 1 |
| 93 | 2 | 1 | 2 | 1 |
| 94 | 2 | 1 | 1 | 3 |
| 95 | 1 | 1 | 4 | 1 |
| 96 | 1 | 2 | 4 | 1 |
| 97 | 4 | 1 | 2 | 4 |
| 98 | 4 | 1 | 2 | 2 |
| 99 | 3 | 3 | 3 | 4 |
| 100 | 3 | 2 | 4 | 4 |

Date:- 17th May, 2023

परीक्षेचे नांव : महाराष्ट्र राजपत्रित तांत्रिक सेवा मुख्य परीक्षा - २०२२

परीक्षेचा दिनांक : २३ एप्रिल, २०२३.

महाराष्ट्र स्थापत्य अभियांत्रिकी मुख्य परीक्षा २०२२

विषय : पेपर क्रमांक - २

(जाहिरात क्रमांक : १३/२०२३)

महाराष्ट्र लोकसेवा आयोगामार्फत दिनांक २३ एप्रिल, २०२३ रोजी आयोजित 'महाराष्ट्र राजपत्रित तांत्रिक सेवा (मुख्य) स्पर्धा परीक्षा - २०२२ मधील वनसेवा (मुख्य) परीक्षा (पेपर क्रमांक - २)' या परीक्षेची प्रथम उत्तरतालिका उमेदवारांच्या माहितीसाठी आयोगाच्या संकेतस्थळावर प्रसिध्द करण्यात आली आहे. सादर उत्तरतालिकेसंदर्भात उमेदवारांना हरकती सादर करावयाच्या असल्यास त्यांनी आयोगाकडून दिनांक १७ नोव्हेंबर, २०२१ व १ जुलै, २०२२ रोजी संकेतस्थळावर प्रसिध्द केलेल्या प्रसिध्दीपत्रकातील तरतुदीनुसारच ऑनलाईन पध्दतीने सादर कराव्यात.
२. विहित ऑनलाईन पध्दती व्यतिरिक्त अन्य कोणत्याही नमुन्यातील अथवा अन्य कोणत्याही मार्गाने/पध्दतीने सादर केलेल्या हरकती कोणत्याही परिस्थितीत स्वीकारल्या जाणार नाहीत. यासंदर्भात दिनांक २२ मे, २०२३ पर्यंत आयोगाकडे प्राप्त झालेल्या हरकतींचीच दखल घेतली जाईल.

उत्तरतालिका - KEY

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 1 | 3 | 1 | 2 | 3 |
| 2 | 2 | 4 | 4 | 4 |
| 3 | 4 | 4 | 3 | 3 |
| 4 | 2 | 1 | 1 | 2 |
| 5 | 3 | 3 | 4 | 2 |
| 6 | 4 | 3 | 2 | 4 |
| 7 | 1 | 2 | 3 | 4 |
| 8 | 3 | 1 | 1 | 4 |
| 9 | 3 | 1 | 2 | 2 |
| 10 | 1 | 2 | 4 | 1 |
| 11 | 2 | 1 | 1 | 3 |
| 12 | 2 | 2 | 3 | 2 |
| 13 | 2 | 4 | 1 | 3 |
| 14 | 2 | 3 | 4 | 3 |
| 15 | 3 | 4 | 4 | 4 |
| 16 | 1 | 2 | 4 | 1 |
| 17 | 1 | 3 | 1 | 1 |
| 18 | 2 | 2 | 4 | 2 |
| 19 | 1 | 2 | 4 | 4 |
| 20 | 4 | 4 | 2 | 2 |
| 21 | 4 | 3 | 3 | 1 |
| 22 | 1 | 1 | 4 | 3 |
| 23 | 3 | 4 | 3 | 2 |
| 24 | 3 | 2 | 2 | 1 |
| 25 | 2 | 3 | 3 | 4 |

| प्रश्न क्रमांक | उत्तरे | | | |
|----------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 26 | 1 | 1 | 4 | 3 |
| 27 | 1 | 2 | 1 | 1 |
| 28 | 2 | 4 | 3 | 4 |
| 29 | 1 | 1 | 4 | 1 |
| 30 | 2 | 3 | 3 | 1 |
| 31 | 4 | 1 | 2 | 2 |
| 32 | 3 | 4 | 2 | 2 |
| 33 | 4 | 4 | 4 | 3 |
| 34 | 2 | 4 | 4 | 1 |
| 35 | 3 | 1 | 4 | 4 |
| 36 | 2 | 4 | 2 | 1 |
| 37 | 2 | 4 | 1 | 4 |
| 38 | 4 | 2 | 3 | 3 |
| 39 | 3 | 3 | 2 | 2 |
| 40 | 1 | 4 | 3 | 4 |
| 41 | 4 | 3 | 3 | 2 |
| 42 | 2 | 2 | 4 | 3 |
| 43 | 3 | 3 | 1 | 4 |
| 44 | 1 | 4 | 1 | 1 |
| 45 | 2 | 1 | 2 | 3 |
| 46 | 4 | 3 | 4 | 3 |
| 47 | 1 | 4 | 2 | 1 |
| 48 | 3 | 3 | 1 | 2 |
| 49 | 1 | 2 | 3 | 2 |
| 50 | 4 | 2 | 2 | 2 |

| प्रश्न क्रमांक | उत्तरे | | | |
|-------------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 51 | 4 | 4 | 1 | 2 |
| 52 | 4 | 4 | 4 | 3 |
| 53 | 1 | 4 | 3 | 1 |
| 54 | 4 | 2 | 1 | 1 |
| 55 | 4 | 1 | 4 | 2 |
| 56 | 2 | 3 | 1 | 1 |
| 57 | 3 | 2 | 1 | 4 |
| 58 | 4 | 3 | 2 | 4 |
| 59 | 3 | 3 | 2 | 1 |
| 60 | 2 | 4 | 3 | 3 |
| 61 | 3 | 1 | 1 | 3 |
| 62 | 4 | 1 | 4 | 2 |
| 63 | 1 | 2 | 1 | 1 |
| 64 | 3 | 4 | 4 | 1 |
| 65 | 4 | 2 | 3 | 2 |
| 66 | 3 | 1 | 2 | 1 |
| 67 | 2 | 3 | 4 | 2 |
| 68 | 2 | 2 | 2 | 4 |
| 69 | 4 | 1 | 3 | 3 |
| 70 | 4 | 4 | 4 | 4 |
| 71 | 4 | 3 | 1 | 2 |
| 72 | 2 | 1 | 3 | 3 |
| 73 | 1 | 4 | 3 | 2 |
| 74 | 3 | 1 | 1 | 2 |
| 75 | 2 | 1 | 2 | 4 |

| प्रश्न क्रमांक | उत्तरे | | | |
|-------------------|--------|-------|-------|-------|
| | संच A | संच B | संच C | संच D |
| 76 | 3 | 2 | 2 | 3 |
| 77 | 3 | 2 | 2 | 1 |
| 78 | 4 | 3 | 2 | 4 |
| 79 | 1 | 1 | 3 | 2 |
| 80 | 1 | 4 | 1 | 3 |
| 81 | 2 | 1 | 1 | 1 |
| 82 | 4 | 4 | 2 | 2 |
| 83 | 2 | 3 | 1 | 4 |
| 84 | 1 | 2 | 4 | 1 |
| 85 | 3 | 4 | 4 | 3 |
| 86 | 2 | 2 | 1 | 1 |
| 87 | 1 | 3 | 3 | 4 |
| 88 | 4 | 4 | 3 | 4 |
| 89 | 3 | 1 | 2 | 4 |
| 90 | 1 | 3 | 1 | 1 |
| 91 | 4 | 3 | 1 | 4 |
| 92 | 1 | 1 | 2 | 4 |
| 93 | 1 | 2 | 1 | 2 |
| 94 | 2 | 2 | 2 | 3 |
| 95 | 2 | 2 | 4 | 4 |
| 96 | 3 | 2 | 3 | 3 |
| 97 | 1 | 3 | 4 | 2 |
| 98 | 4 | 1 | 2 | 3 |
| 99 | 1 | 1 | 3 | 4 |
| 100 | 4 | 2 | 2 | 1 |