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**Previous Year Paper
(Civil) 27 June 2022 Shift 1**

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Participant ID	
Participant Name	
Test Center Name	
Test Date	27/06/2022
Test Time	8:30 AM - 10:30 AM
Subject	Junior Engineer (Civil) or Section Officer (Civil)

Section : Mental Ability

Q.1 Select the correct mirror image of the given combination when the mirror is placed at 'PQ' as shown below.

y B E f g Z |
P
Q

- Ans
- A. λ B E f g Z
 - B. λ B E f g Z
 - C. λ B E f g Z
 - D. λ B E f g Z

Question ID : 1841222298

Q.2 What approximate value should come in place of the question mark (?) in the following expression?

$$4.993 \times 14.031 + 19.981 \div 4.0098 - 34.9889 \div 6.9982 = ?$$

- Ans
- A. 70
 - B. 60
 - C. 65
 - D. 45

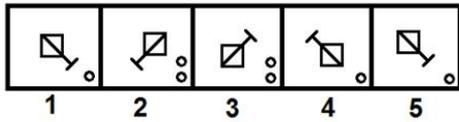
Question ID : 1841222302

Q.3 Three of the following four letter cluster pairs are alike in some manner and one is different. Identify the one which is different.

- Ans
- A. FJDS : VGMI
 - B. SNRT : WUQV
 - C. EQCZ : CFTH
 - D. MOYB : YBQP

Question ID : 1841222294

Q.4 The figures given below are numbered 1 to 5. Which two figures should be interchanged so that the figures follow a particular pattern to form a correct figure series?



- Ans
- A. 2 and 3
 - B. 2 and 5
 - C. 3 and 4
 - D. 1 and 2

Question ID : 1841222295

Q.5 Select the figure amongst the option figures which has the same characteristics as the figure given below.

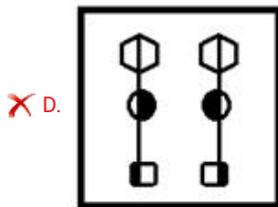
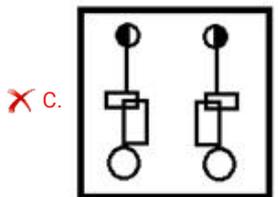
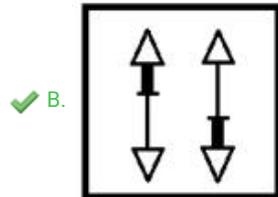
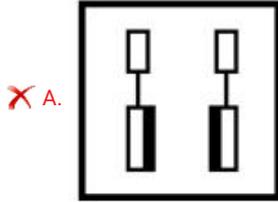


- Ans
- A.
 - B.
 - C.
 - D.

Question ID : 1841222297

Q.6 Three of the following four option figures are similar in a certain manner while one is different. Choose the odd one out.

Ans



Question ID : 1841222296

Q.7 Select the letter cluster that will replace the question mark (?) in the following series.
CZT, ACP, YFL, WIH, ?

- Ans
- A. VLD
 - B. UMD
 - C. ULD
 - D. ULE

Question ID : 1841222287

Q.8 The classes of six subjects i.e. Hindi, English, French, German, Music and Drama are held from Monday to Saturday. English class is just before French. Music class is neither held on Friday nor on Saturday. Drama class is just after Music class. English class is on Wednesday. Only one subject is taught between German and English classes. Which subject is taught on Tuesday?

- Ans
- A. Drama
 - B. German
 - C. Hindi
 - D. Music

Question ID : 1841222283

Q.9 शमिता की माता पलक, गौरंग की माता के पति की इकलौती पुत्री है। पलक के पति का गौरंग के पिता से क्या संबंध है?

- Ans A. ससुर
 B. दामाद
 C. साला/जीजा
 D. पिता

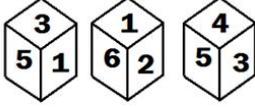
Question ID : 1841222290

Q.10 Select the option that is related to the third term in the same way as the second term is related to the first term.
 KZ-11 : OE-15 :: UK-19 : _____

- Ans A. YP-26
 B. YP-25
 C. YP-23
 D. YQ-23

Question ID : 1841222292

Q.11 एक ही पासे की तीन अलग-अलग स्थितियां दिखाई गई हैं, जिनके छह फलक 1 से 6 तक क्रमांकित हैं। उस संख्या का चयन करें जो '2' दर्शाने वाले फलक के विपरीत फलक पर होगी।



- Ans A. 6
 B. 4
 C. 3
 D. 5

Question ID : 1841222299

Q.12 दो कथन दिए गए हैं, जिसके बाद दो निष्कर्ष क्रमांकित I और II दिए गए हैं। कथनों को सत्य मानते हुए, भले ही वे सामान्य रूप से ज्ञात तथ्यों से भिन्न प्रतीत होते हों, निर्णय लें कि कौन सा/से निष्कर्ष कथनों का तार्किक रूप से अनुसरण करता/करते है/हैं।

कथन :

सभी संगीतकार, डॉक्टर हैं।

कुछ संगीतकार, किसान हैं।

निष्कर्ष:

I. कुछ डॉक्टर, किसान हैं।

II. सभी डॉक्टर, किसान हैं।

- Ans A. केवल निष्कर्ष I अनुसरण करता है
 B. केवल निष्कर्ष II अनुसरण करता है
 C. निष्कर्ष I और II दोनों अनुसरण करते हैं
 D. न तो निष्कर्ष I और न ही II अनुसरण करता है

Question ID : 1841222285

Q.13 The letters given below are numbered. Which option represents the correct arrangement of letters to form a meaningful word?

D	P	C	T	O	R	U
1	2	3	4	5	6	7

- Ans
- A. 2, 5, 6, 1, 7, 3, 4
 - B. 2, 6, 5, 1, 7, 4, 3
 - C. 2, 6, 1, 5, 7, 3, 4
 - D. 2, 6, 5, 1, 7, 3, 4

Question ID : 1841222288

Q.14 Anil and Sarthak are standing in a park facing each other at the time of evening. The shadow of Anil falls to the right of Sarthak, which direction is Sarthak facing?

- Ans
- A. West
 - B. South
 - C. North
 - D. East

Question ID : 1841222289

Q.15 Which number will replace the question mark (?) in the following series?
33, 42, 67, 116, 197, ?

- Ans
- A. 318
 - B. 216
 - C. 342
 - D. 272

Question ID : 1841222300

Q.16 Three of the following four letter-clusters are alike in some manner and one is different. Identify the one which is different.

- Ans
- A. XADG
 - B. VYBE
 - C. PRVX
 - D. GJMP

Question ID : 1841222293

Q.17 छह विद्यार्थी रवि, प्रिशा, मौली, सना, ज़ोया और वीना अलग-अलग आयु के हैं। रवि, मौली से बड़ा है। प्रिशा, सना से बड़ी है। वीरा, रवि से बड़ी है। ज़ोया, रवि से बड़ी है। मौली, प्रिशा से बड़ी है। वीरा एक अन्य विद्यार्थी से छोटी है। सबसे बड़ा कौन है?

- Ans
- A. मौली
 - B. प्रिशा
 - C. ज़ोया
 - D. रवि

Question ID : 1841222286

Q.18 यदि A @ B का अर्थ है 'A, B की पुत्री है'
A # B का अर्थ है 'A, B की माता है'
A & B का अर्थ है 'A, B का पति है'
तो निम्नलिखित में से किस व्यंजक का अर्थ है 'R, U का दामाद है'?

- Ans A. C # K & R @ U
 B. R # C & K @ U
 C. C # R & K @ U
 D. U # C & K @ R

Question ID : 1841222291

Q.19 Three of the following four number triads are alike in some manner and one is different. Identify the one which is different.

- Ans A. (5, 206, 9)
 B. (6, 43, 17)
 C. (3, 148, 11)
 D. (4, 73, 3)

Question ID : 1841222301

Q.20 पांच व्यक्ति P, Q, R, S और T एक इमारत के पांच अलग-अलग तलों पर रहते हैं। तल संख्या 1, 2, 3, 4 और 5 नीचे से ऊपर को है। S, तल 5 पर नहीं रहता है। T, तल 2 पर नहीं रहता है। Q न तो तल 4 और न ही तल 5 पर रहता है। R, T के ठीक ऊपर रहता है। R और P के तलों के बीच दो तल हैं। P तल 2 पर नहीं रहता है। सबसे ऊपरी तल पर कौन रहता है?

- Ans A. P
 B. R
 C. Q
 D. S

Question ID : 1841222284

Section : General Awareness

Q.1 अल्पसंख्यक कार्य मंत्रालय को सामाजिक न्याय और अधिकारिता मंत्रालय से अलग करके वर्ष ____ में बनाया गया था।

- Ans A. 2000
 B. 2002
 C. 2010
 D. 2006

Question ID : 1841222307

Q.2 In which year Industrial Finance Corporation of India (IFCI) was set up?

- Ans A. 1970
 B. 1975
 C. 1956
 D. 1948

Question ID : 1841222317

Q.3 In which state first Khelo India university games 2020 were organized?

- Ans A. Punjab
 B. Odisha
 C. Bihar
 D. Gujrat

Question ID : 1841222308

Q.4 In which year the National Anti-Doping Agency [NADA] was established by Government of India?

- Ans A. 1995
 B. 2000
 C. 1998
 D. 2005

Question ID : 1841222309

Q.5 Which article of the constitution mentions about the language to be used in parliament?

- Ans A. Article - 122
 B. Article - 120
 C. Article - 114
 D. Article - 116

Question ID : 1841222322

Q.6 निम्न में से कौन सा नृत्य उड़ीसा, झारखंड और पश्चिम बंगाल के क्षेत्र में सामरिक परंपराओं, मंदिर के अनुष्ठानों और लोक संगीत और लोकप्रिय प्रदर्शन का मिश्रण है?

- Ans A. सत्रीया नृत्य
 B. छऊ
 C. मोहिनीअट्टम
 D. कुचिपुड़ी

Question ID : 1841222314

Q.7 Shanti Swarup Bhatnagar Prize for Science and Technology is bestowed upon any citizen of India engaged in research in any field of science and technology up to the age of ____.

- Ans A. 45 years
 B. 40 years
 C. 35 years
 D. 30 years

Question ID : 1841222305

Q.8 In which state Kumbhalgarh fort is situated?

- Ans A. Madhya Pradesh
 B. Rajasthan
 C. Gujrat
 D. Himachal Pradesh

Question ID : 1841222313

Q.9 The National Minorities Development & Finance Corporation (NMDFC) was incorporated in the year ____.

- Ans A. 2003
 B. 1984
 C. 1994
 D. 1999

Question ID : 1841222306

Q.10 The distinct zone in the ocean below which the salinity increases sharply is known as ____.

- Ans A. Hydration
 B. Insolation
 C. Halocline
 D. Infiltration

Question ID : 1841222318

Q.11 The DART Mission is developed by ____.

- Ans A. ISRO
 B. EXA
 C. NASA
 D. CENS

Question ID : 1841222304

Q.12 In which year a bomb was thrown at Viceroy Hardinge while he was making his state entry into Delhi?

- Ans A. 1912
 B. 1908
 C. 1905
 D. 1901

Question ID : 1841222311

Q.13 Which article of the constitution mentions that "No person who is not a citizen of India shall, while he holds any office of profit or trust under the State, accept without the consent of the President any title from any foreign State"?

- Ans A. Article – 18 (3)
 B. Article – 19 (1)
 C. Article - 15 (2)
 D. Article – 22 (2)

Question ID : 1841222321

Q.14 In which year Vernacular press act was passed by British government?

- Ans A. 1872
 B. 1878
 C. 1867
 D. 1885

Question ID : 1841222312

Q.15 In which year in India air transport was launched between Allahabad and Naini?

- Ans A. 1911
 B. 1890
 C. 1903
 D. 1885

Question ID : 1841222319

Q.16 निम्न में से कौन सा एक गलत है?

- Ans A. जिस वस्तु में कार्य करने की क्षमता होती है, उसे ऊर्जायुक्त कहा जाता है। ऊर्जा की वही इकाई होती है जो कार्य की है।
 B. शक्ति को कार्य करने की दर के रूप में परिभाषित किया जाता है। शक्ति की एस आई (SI) इकाई वॉट होती है।
 $1 W = 2 J/S$
 C. प्रकृति में ऊर्जा अनेक रूपों में उपस्थित है।
 D. यदि वस्तु का विस्थापन शून्य है, तो वस्तु पर बल द्वारा किया गया कार्य शून्य होगा।

Question ID : 1841222320

Q.17 दिल्ली सल्तनत के दौरान 'दीवान-ए-इंशा' का विभाग किस से संबंधित था?

- Ans A. सार्वजनिक कार्यों से
 B. धार्मिक मामलों से
 C. राज्य पत्राचार से
 D. व्यापार मामलों से

Question ID : 1841222310

Q.18 National Good Laboratory Practice Compliance Monitoring Authority (NGCMA) was established by the Department of Science & Technology (DST), Government of India in the year _____.

- Ans A. 2012
 B. 2022
 C. 2009
 D. 2002

Question ID : 1841222303

Q.19 National Council of Science Museums (NCSM) is located at:

- Ans A. Patna
 B. Bhopal
 C. Kolkata
 D. Jaipur

Question ID : 1841222315

Q.20 Which of the following community celebrate festival of 'Pateti'?

- Ans A. Buddhists
 B. Parsi
 C. Sikhs
 D. Jains

Question ID : 1841222316

Section : Arithmetic Ability

Q.1 The price of diesel was first increased by 10% and then decreased by 5%. What is the net percentage change in final price of diesel?

- Ans A. 3.5%
 B. 4.5%
 C. 5.0%
 D. 4.0%

Question ID : 1841222328

Q.2 The volume of a cylindrical pillar is $616 m^3$ and its curved surface area is $176 m^2$. What is the ratio of its diameter to its height?

- Ans A. 7 : 3
 B. 7 : 2
 C. 3 : 2
 D. 5 : 3

Question ID : 1841222339

Q.3 Rs. 25,000 becomes Rs. 33,000 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 4%, then what amount (in Rs.) will Rs. 25,000 become in 4 years?

- Ans A. 37,250
 B. 36,250
 C. 37,500
 D. 37,000

Question ID : 1841222331

Q.4 The value of the fraction

$$\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} + \frac{1}{5 \times 6} + \dots + \frac{1}{19 \times 20} \text{ is :}$$

- Ans A. 0.9325
 B. 0.9450
 C. 0.9175
 D. 0.9500

Question ID : 1841222324

Q.5 The perimeter of a rectangle is 132 m and its width is 28 m. What is its length (in metre)?

- Ans A. 46
 B. 38
 C. 32
 D. 52

Question ID : 1841222338

Q.6 The number of students in three sections of tenth standard in the ratio 3 : 4 : 5. If 21 students are increased in each section, then this ratio changes to 10 : 13 : 16. What was the total number of students in three sections in the beginning?

- Ans A. 732
 B. 768
 C. 756
 D. 812

Question ID : 1841222329

Q.7 The following tables shows the percentage-wise distribution of lecturers and ratio of males and females' lecturers in five different subjects A, B, C, D and E in a certain University during the year 2021. Total number of lecturers is 1200.

Subjects	% distribution	Ratio of Males : Females
A	32	5 : 3
B	20	1 : 3
C	18	5 : 1
D	14	2 : 5
E	16	3 : 5

Total number of female lecturers in a subject A is what percent of total number of lecturers in a subject A?

- Ans**
- A. 37.5%
 - B. 39.5%
 - C. 40.8%
 - D. 42.5%

Question ID : 1841222341

Q.8 The value of $2^5 + 29 \times 3 + 52 \div 4 - 26$ is :

- Ans**
- A. 106
 - B. 126
 - C. 132
 - D. 119

Question ID : 1841222327

Q.9 The value of $3.\overline{278}$ is :

- Ans**
- A. $3\frac{1}{6}$
 - B. $3\frac{2}{9}$
 - C. $3\frac{46}{168}$
 - D. $3\frac{1}{9}$

Question ID : 1841222323

Q.10 A cone and sphere have the same radius of 15 cm. If the cone and sphere have the same volume, then the height of the cone (in cm) is:

- Ans**
- A. 60
 - B. 76
 - C. 68
 - D. 72

Question ID : 1841222340

Q.11 A train passes two forests of length 2400 m and 1600 m in 80 seconds and 60 seconds respectively. What is the length of the train (in m)?

- Ans
- A. 720
 - B. 840
 - C. 780
 - D. 800

Question ID : 1841222335

Q.12 The following table represents the classification of 100 students on the basis of marks obtained by them in two different papers I and II in an entrance examination during the year 2020.

Subject	Out of 50 marks				
	40 and above	30 and above	20 and above	10 and above	0 and above
Paper I	14	38	68	86	100
Paper II	10	26	60	82	100
Aggregate	12	30	62	84	100

What is the percentage of the total number of students scoring at least 80% marks in Paper I on those who have secured at least 60% marks in aggregate? (nearest to an integer)

- Ans
- A. 45
 - B. 42
 - C. 38
 - D. 47

Question ID : 1841222342

Q.13 If the seller marks an item cost up by 20% and sells it at a discount of 15%, then what is the percentage of profit on an article?

- Ans
- A. 2
 - B. 3
 - C. 4
 - D. 5

Question ID : 1841222330

Q.14 If L.C.M. and product of any two positive numbers are 245 and 980 respectively, then find the HCF of these two numbers.

- Ans
- A. 12
 - B. 8
 - C. 7
 - D. 4

Question ID : 1841222325

Q.15 32 workers can build a school compound wall in 15 days. If 8 workers, who are only a third as efficient as those in the first group, then how many days will be able to complete such a compound wall?

- Ans A. 180
 B. 156
 C. 132
 D. 120

Question ID : 1841222334

Q.16 The compound interest (in Rs.) on Rs. 15,625 at 16% per annum for 9 months, compounded quarterly, is:

- Ans A. 1951
 B. 2037
 C. 1823
 D. 2013

Question ID : 1841222332

Q.17 The ratio between the speeds of two cars is 6 : 5. If the first car runs 360 kms in 3 hours, then what is the speed (in km/hr) of the second car?

- Ans A. 100
 B. 90
 C. 80
 D. 120

Question ID : 1841222336

Q.18 A person A can do a piece of work in 24 days and a person B can do the same work in 32 days. If they together work on it for 6 days, then how much work left?

- Ans A. $\frac{3}{8}$
 B. $\frac{7}{16}$
 C. $\frac{5}{16}$
 D. $\frac{9}{16}$

Question ID : 1841222333

Q.19 The average of nine consecutive odd numbers is 239. What is the sixth number in the ascending order?

- Ans A. 241
 B. 247
 C. 233
 D. 235

Question ID : 1841222337

Q.20 If $4^2 \times 32^2 \times 64 \times 81 \times \sqrt{5184} \div (8^4 \times 9^3) = 2^k$, then find the value of k .

- Ans A. 10
 B. 13
 C. 11
 D. 12

Question ID : 1841222326

Section : General English

Q.1 Select the sentence part which has an error in spelling. If there is no error, select 'No error'.
 People should be made aware of the potential issues surrounding screen use during bedtime.

- Ans A. screen use during bedtime.
 B. No error
 C. People should be made aware of
 D. the potential issues surrounding

Question ID : 1841222355

Q.2 Select the most appropriate antonym of the given word.
 STURDY

- Ans A. solid
 B. durable
 C. fragile
 D. powerful

Question ID : 1841222350

Q.3 Select the sentence part which has an error in spelling. If there is no error, select 'No error'.
 Whether World War I caused the Russian Revolution, or only hasened the collapse of the monarchy, is a question that historians continue to debate.

- Ans A. or only hasened the collapse of the monarchy,
 B. No error
 C. is a question that historians continue to debate.
 D. Whether World War I caused the Russian Revolution,

Question ID : 1841222354

Q.4 Select the sentence which is meaningful and grammatically correct.

- Ans A. I have finished reading the novel that she gave me last Sunday.
 B. Last Sunday that she gave me I have finished reading the novel.
 C. The novel finished reading that she gave me Last Sunday I have.
 D. The novel finished reading I have last Sunday that she gave me.

Question ID : 1841222357

Q.5 Select the most appropriate option to fill in the blank.
 Last weekend, Rani and her husband _____ Bharatpur Bird Sanctuary and saw some migratory birds from Siberia.

- Ans A. visiting
 B. visit
 C. visited
 D. have visited

Question ID : 1841222346

Q.6 Complete the following proverb.
 birds of a feather _____

- Ans A. look alike
 B. flock together
 C. keep close
 D. live together

Question ID : 1841222352

Q.7 Select the most appropriate option to fill in the blank.
 They happily leaned _____ the wall and talked.

- Ans A. into
 B. to
 C. across
 D. against

Question ID : 1841222343

Q.8 Identify the adverb in the following sentence.
 At the end of the day, she got completely exhausted so she decided to abandon the factory job.

- Ans A. abandon
 B. completely
 C. so
 D. exhausted

Question ID : 1841222345

Q.9 Select the sentence which is meaningful and grammatically correct.

- Ans A. One of my friends has a lovely old cottage in Goa.
 B. A lovely old cottage one of my friends has in Goa.
 C. In Goa a lovely old cottage has one of my friends.
 D. My cottage in Goa has one of a lovely old friends.

Question ID : 1841222356

Q.10 Select the most appropriate synonym of the given word.
INCIDENT

- Ans A. extent
 B. anger
 C. aroma
 D. event

Question ID : 1841222348

Q.11 Select the most appropriate synonym of the given word.
COMPOSE

- Ans A. excite
 B. disturb
 C. upset
 D. create

Question ID : 1841222347

Q.12 Select the most appropriate option to fill in the blank.
India abstained _____ voting on the Ukraine Russia issue.

- Ans A. for
 B. with
 C. against
 D. from

Question ID : 1841222344

Q.13 Select the most appropriate antonym of the given word.
COMBAT

- Ans A. fight
 B. oppose
 C. attack
 D. surrender

Question ID : 1841222349

Q.14 Select the most appropriate option to fill in the blanks in the given two sentences.
The ____ looks unpredictable. I am not sure ____ it will rain.

- Ans
- A. Whether; weather
 - B. Weather; weather
 - C. Whether; whether
 - D. Weather; whether

Question ID : 1841222351

Q.15 Select the most appropriate idiom to fill in the blank.
The boy was frightened when he saw a ferocious looking man coming towards him and ____.

- Ans
- A. took to his heels
 - B. took him to task
 - C. picked a quarrel
 - D. kicked up a row

Question ID : 1841222353

Comprehension:

Read the following passage and answer the questions given after it.

Fruit juice has been falling out of favour for its high sugar content, low fiber and low nutritional value. Now parents have another reason for pulling the plug: heavy metals. According to a study, measurable levels of Cadmium, inorganic arsenic, mercury or lead were found in every single one of the 45 products it tested from major brands. Almost half the juices had metal levels so high they were deemed harmful, with seven of the products posting heavy metal concentrates high enough to harm children who drink as little as half a cup a day. The risks they assessed were all due to persistent daily intake over an extended period of time.

Whether you are an adult or a child, it is a good idea to reduce the amount of non-refrigerated ready to drink juices.

To be fair, it would be impossible to remove all heavy metals from food and drinks, since some can occur naturally. Toxins can enter foods through water, air, soil or in product packaging. In some of the juices tested, the level of a single metal was not concerning, but combined they could have an adverse effect on children's developing brain and nervous systems.

Organic juice or juice that is marketed for children, is not necessarily any safer. In general, grape juice and juice blends were found to have the highest average metal levels.

SubQuestion No : 16

Q.16 The main theme of the passage is:

- Ans
- A. parents concern about the fruit juices
 - B. effect of fruit juices on children
 - C. heavy metals in packaged juices
 - D. preparation of packaged juices

Question ID : 1841222359

Comprehension:

Read the following passage and answer the questions given after it.

Fruit juice has been falling out of favour for its high sugar content, low fiber and low nutritional value. Now parents have another reason for pulling the plug: heavy metals. According to a study, measurable levels of Cadmium, inorganic arsenic, mercury or lead were found in every single one of the 45 products it tested from major brands. Almost half the juices had metal levels so high they were deemed harmful, with seven of the products posting heavy metal concentrates high enough to harm children who drink as little as half a cup a day. The risks they assessed were all due to persistent daily intake over an extended period of time.

Whether you are an adult or a child, it is a good idea to reduce the amount of non-refrigerated ready to drink juices.

To be fair, it would be impossible to remove all heavy metals from food and drinks, since some can occur naturally. Toxins can enter foods through water, air, soil or in product packaging. In some of the juices tested, the level of a single metal was not concerning, but combined they could have an adverse effect on children's developing brain and nervous systems.

Organic juice or juice that is marketed for children, is not necessarily any safer. In general, grape juice and juice blends were found to have the highest average metal levels.

SubQuestion No : 17

Q.17 'pulling the plug' in the passage means:

- Ans A. prevent something from happening
- B. pulling out a plug
- C. continuing to do something
- D. charging a device

Question ID : 1841222360

Comprehension:

Read the following passage and answer the questions given after it.

Fruit juice has been falling out of favour for its high sugar content, low fiber and low nutritional value. Now parents have another reason for pulling the plug: heavy metals. According to a study, measurable levels of Cadmium, inorganic arsenic, mercury or lead were found in every single one of the 45 products it tested from major brands. Almost half the juices had metal levels so high they were deemed harmful, with seven of the products posting heavy metal concentrates high enough to harm children who drink as little as half a cup a day. The risks they assessed were all due to persistent daily intake over an extended period of time.

Whether you are an adult or a child, it is a good idea to reduce the amount of non-refrigerated ready to drink juices.

To be fair, it would be impossible to remove all heavy metals from food and drinks, since some can occur naturally. Toxins can enter foods through water, air, soil or in product packaging. In some of the juices tested, the level of a single metal was not concerning, but combined they could have an adverse effect on children's developing brain and nervous systems.

Organic juice or juice that is marketed for children, is not necessarily any safer. In general, grape juice and juice blends were found to have the highest average metal levels.

SubQuestion No : 18

Q.18 The presence of heavy metals in fruit juices adversely affects children's.

- Ans A. nervous system
- B. skeletal system
- C. respiratory system
- D. digestive system

Question ID : 1841222363

Comprehension:

Read the following passage and answer the questions given after it.

Fruit juice has been falling out of favour for its high sugar content, low fiber and low nutritional value. Now parents have another reason for pulling the plug: heavy metals. According to a study, measurable levels of Cadmium, inorganic arsenic, mercury or lead were found in every single one of the 45 products it tested from major brands. Almost half the juices had metal levels so high they were deemed harmful, with seven of the products posting heavy metal concentrates high enough to harm children who drink as little as half a cup a day. The risks they assessed were all due to persistent daily intake over an extended period of time.

Whether you are an adult or a child, it is a good idea to reduce the amount of non-refrigerated ready to drink juices.

To be fair, it would be impossible to remove all heavy metals from food and drinks, since some can occur naturally. Toxins can enter foods through water, air, soil or in product packaging. In some of the juices tested, the level of a single metal was not concerning, but combined they could have an adverse effect on children's developing brain and nervous systems.

Organic juice or juice that is marketed for children, is not necessarily any safer. In general, grape juice and juice blends were found to have the highest average metal levels.

SubQuestion No : 19

Q.19 Which is the latest reason that fruit juices are falling out of favour with parents?

- Ans
- A. high sugar content
 - B. low nutritional value
 - C. low fiber content
 - D. presence of heavy metals

Question ID : 1841222361

Comprehension:

Read the following passage and answer the questions given after it.

Fruit juice has been falling out of favour for its high sugar content, low fiber and low nutritional value. Now parents have another reason for pulling the plug: heavy metals. According to a study, measurable levels of Cadmium, inorganic arsenic, mercury or lead were found in every single one of the 45 products it tested from major brands. Almost half the juices had metal levels so high they were deemed harmful, with seven of the products posting heavy metal concentrates high enough to harm children who drink as little as half a cup a day. The risks they assessed were all due to persistent daily intake over an extended period of time.

Whether you are an adult or a child, it is a good idea to reduce the amount of non-refrigerated ready to drink juices.

To be fair, it would be impossible to remove all heavy metals from food and drinks, since some can occur naturally. Toxins can enter foods through water, air, soil or in product packaging. In some of the juices tested, the level of a single metal was not concerning, but combined they could have an adverse effect on children's developing brain and nervous systems.

Organic juice or juice that is marketed for children, is not necessarily any safer. In general, grape juice and juice blends were found to have the highest average metal levels.

SubQuestion No : 20

Q.20 How do metals enter the fruit juices?

- Ans
- A. they are added by the fruit sellers
 - B. they are added by juice packaging companies
 - C. they enter through air, water and soil naturally
 - D. they enter due to pesticides sprinkled on the crops

Question ID : 1841222362

Q.1 'साहसिक, कुम्भिल तथा मोषक पर्यायवाची शब्द हैं।

- Ans A. दस्यु के
 B. कमल के
 C. असुर के
 D. कुबेर के

Question ID : 1841222373

Q.2 'वह प्रति दिन देर से घर लौटता है।' वाक्य की क्रिया में कौन-सा काल है?

- Ans A. संदिग्ध वर्तमान काल
 B. सामान्य वर्तमान काल
 C. संभाव्य वर्तमान काल
 D. अपूर्ण वर्तमान काल

Question ID : 1841222377

Q.3 निम्नलिखित में से किस में विसर्ग संधि नहीं है?

- Ans A. दुर्दशा
 B. निष्फल
 C. निर्भय
 D. संशय

Question ID : 1841222371

Q.4 निम्नलिखित में से किस में व्यंजन संधि नहीं है?

- Ans A. तत्पर
 B. उल्लास
 C. सत्कार
 D. नायक

Question ID : 1841222370

Q.5 निम्नलिखित में से गुणवाचक विशेषण नहीं है?

- Ans A. नमकीन
 B. जला
 C. कठोर
 D. दर्जन

Question ID : 1841222367

Q.6 निम्नलिखित में से किस शब्द की रचना गुण संधि से हुई है?

- Ans A. नयन
 B. गिरीश
 C. एकैक
 D. देवेश

Question ID : 1841222369

Q.7 किस वाक्य में सार्वनामिक विशेषण का प्रयोग हुआ है?

- Ans A. मुझे थोड़ा दूध चाहिये, बच्चे भूखे हैं।
 B. आदमी धीरे धीरे जा रहा है।
 C. गाय काली है।
 D. वह कुत्ता दौड़ रहा है।

Question ID : 1841222366

Q.8 निम्नलिखित में से किस वाक्य में संभाव्य भविष्य कालिक क्रिया का प्रयोग है?

- Ans A. हम सब शहर जाएंगे।
 B. हो सकता है, मेहमान कल ही आ जाएं।
 C. लड़के ने गाना गाया होगा।
 D. माँ खाना बना रही थीं।

Question ID : 1841222378

Q.9 'फूल झड़ना' मुहावरे का सही अर्थ है।

- Ans A. सत्य वचन बोलना
 B. पतझड़ का आरम्भ
 C. प्रिय वचन बोलना
 D. बसंत ऋतु का आगमन

Question ID : 1841222375

Q.10 'उगले तो अंधा, खाए तो कोढ़ी' लोकोक्ति का सही अर्थ है।

- Ans A. निर्णय का विरोध करना।
 B. विपरीत कार्य करना।
 C. हर हालत में मुसीबत।
 D. दुविधा में पड़ना।

Question ID : 1841222376

Q.11 'यमुना' का पर्यायवाची शब्द नहीं है।

- Ans A. कालिंदी
 B. रवितनया
 C. प्रमदा
 D. कृष्णा

Question ID : 1841222372

Q.12 निम्नलिखित में से किस वाक्य में अपादान कारक का प्रयोग नहीं हुआ है?

- Ans A. बच्चा सुबह से दोपहर तक सोता रहा।
 B. वह घर से बाहर गया।
 C. मेरे हाथ से काम नहीं हो रहा है।
 D. नीरज दिल्ली से आया है।

Question ID : 1841222364

Q.13 निम्नलिखित में से किस वाक्य में क्रिया-विशेषण का प्रयोग हुआ है?

- Ans A. राम पानी पीता है।
 B. ईश्वर सबकी रक्षा करता है।
 C. राम धीरे धीरे पढ़ता है।
 D. वह गया था।

Question ID : 1841222365

Q.14 'उद्योग' का संधि विच्छेद है।

- Ans A. उत्+योग
 B. ऊद+योग
 C. उत+योग
 D. उद्=योग

Question ID : 1841222368

Q.15 निम्नलिखित शब्द युग्म में से विलोम की दृष्टि से कौन-सा युग्म सुमेलित नहीं है।

- Ans A. सत्संग-कुसंग
 B. निर्भय-सभय
 C. सटा-हटा
 D. समर्थ-सामर्थ्य

Question ID : 1841222374

Comprehension:

निम्नलिखित गद्यांश को ध्यान पूर्वक पढ़ें और पार्श्वों के उत्तर दें।

भारतवर्ष सदा कानून को धर्म को रूप में देखता आ रहा है। आज-कल एकाएक कानून और धर्म में अंतर कर दिया गया है। धर्म को धोखा नहीं दिया जा सकता, कानून को दिया जा सकता है। यही कारण है कि जो लोग धर्मवीर हैं, वे कानून की त्रुटियों से लाभ उठाने में संकोच नहीं करते। इस बात के पर्याप्त प्रमाण खोजे जा सकते हैं कि समाज के ऊपरी वर्ग में चाहे जो भी होता रहा हो, भीतर-भीतर भारतवर्ष अभी यह अनुभव कर रहा है कि धर्म कानून से बड़ी चीज है। अब भी सेवा, ईमादारी, सच्चाई और आध्यात्मिकता के मूल्य बने हुए हैं। वे दब अवश्य गए हैं, लेकिन नष्ट नहीं हुए। आज भी वह मनुष्य से प्रेम करता है, महिलाओं का सम्मान करता, झूठ और चोरी को गलत समझता है, दूसरोंको पीड़ा पहुंचाने को पाप समझता है। हर आदमी अपने व्यक्तिगत जीवन में इस बात का अनुभव करता है।

SubQuestion No : 16

Q.16 भारतवर्ष में कौन-सा मूल्य नहीं है?

- Ans A. सामाजिक समरसता का
 B. प्रेम करने का
 C. चोरी को गलत समझने का
 D. महिलाओं के सम्मान का

Question ID : 1841222382

Comprehension:

निम्नलिखित गद्यांश को ध्यान पूर्वक पढ़ें और पार्शनों के उत्तर दें।

भारतवर्ष सदा कानून को धर्म को रूप में देखता आ रहा है। आज-कल एकाएक कानून और धर्म में अंतर कर दिया गया है। धर्म को धोखा नहीं दिया जा सकता, कानून को दिया जा सकता है। यही कारण है कि जो लोग धर्मवीर हैं, वे कानून की त्रुटियों से लाभ उठाने में संकोच नहीं करते। इस बात के पर्याप्त प्रमाण खोजे जा सकते हैं कि समाज के ऊपरी वर्ग में चाहे जो भी होता रहा हो, भीतर-भीतर भारतवर्ष अभी यह अनुभव कर रहा है कि धर्म कानून से बड़ी चीज है। अब भी सेवा, ईमादारी, सच्चाई और आध्यात्मिकता के मूल्य बने हुए हैं। वे दब अवश्य गए हैं, लेकिन नष्ट नहीं हुए। आज भी वह मनुष्य से प्रेम करता है, महिलाओं का सम्मान करता, झूठ और चोरी को गलत समझता है, दूसरोंको पीड़ा पहुंचाने को पाप समझता है। हर आदमी अपने व्यक्तिगत जीवन में इस बात का अनुभव करता है।

SubQuestion No : 17

Q.17 गद्यांश के अनुसार किसको धोखा नहीं दिया जा सकता है?

- Ans A. समाज को
 B. धर्म को
 C. देश को
 D. कानून को

Question ID : 1841222380

Comprehension:

निम्नलिखित गद्यांश को ध्यान पूर्वक पढ़ें और पार्शनों के उत्तर दें।

भारतवर्ष सदा कानून को धर्म को रूप में देखता आ रहा है। आज-कल एकाएक कानून और धर्म में अंतर कर दिया गया है। धर्म को धोखा नहीं दिया जा सकता, कानून को दिया जा सकता है। यही कारण है कि जो लोग धर्मवीर हैं, वे कानून की त्रुटियों से लाभ उठाने में संकोच नहीं करते। इस बात के पर्याप्त प्रमाण खोजे जा सकते हैं कि समाज के ऊपरी वर्ग में चाहे जो भी होता रहा हो, भीतर-भीतर भारतवर्ष अभी यह अनुभव कर रहा है कि धर्म कानून से बड़ी चीज है। अब भी सेवा, ईमादारी, सच्चाई और आध्यात्मिकता के मूल्य बने हुए हैं। वे दब अवश्य गए हैं, लेकिन नष्ट नहीं हुए। आज भी वह मनुष्य से प्रेम करता है, महिलाओं का सम्मान करता, झूठ और चोरी को गलत समझता है, दूसरोंको पीड़ा पहुंचाने को पाप समझता है। हर आदमी अपने व्यक्तिगत जीवन में इस बात का अनुभव करता है।

SubQuestion No : 18

Q.18 'पर्याप्त' का विलोम शब्द है।

- Ans A. प्रचुर
 B. विपुल
 C. अपर्याप्त
 D. काफी

Question ID : 1841222383

Comprehension:

निम्नलिखित गद्यांश को ध्यान पूर्वक पढ़ें और पार्शनों के उत्तर दें।

भारतवर्ष सदा कानून को धर्म को रूप में देखता आ रहा है। आज-कल एकाएक कानून और धर्म में अंतर कर दिया गया है। धर्म को धोखा नहीं दिया जा सकता, कानून को दिया जा सकता है। यही कारण है कि जो लोग धर्मवीर हैं, वे कानून की त्रुटियों से लाभ उठाने में संकोच नहीं करते। इस बात के पर्याप्त प्रमाण खोजे जा सकते हैं कि समाज के ऊपरी वर्ग में चाहे जो भी होता रहा हो, भीतर-भीतर भारतवर्ष अभी यह अनुभव कर रहा है कि धर्म कानून से बड़ी चीज है। अब भी सेवा, ईमादारी, सच्चाई और आध्यात्मिकता के मूल्य बने हुए हैं। वे दब अवश्य गए हैं, लेकिन नष्ट नहीं हुए। आज भी वह मनुष्य से प्रेम करता है, महिलाओं का सम्मान करता, झूठ और चोरी को गलत समझता है, दूसरोंको पीड़ा पहुंचाने को पाप समझता है। हर आदमी अपने व्यक्तिगत जीवन में इस बात का अनुभव करता है।

SubQuestion No : 19

Q.19 सेवा, इमादारी, सच्चाई और आध्यात्मिकता को क्या कहा गया है?

- Ans
- A. कर्म
 - B. धर्म
 - C. कृत्य
 - D. मूल्य

Question ID : 1841222384

Comprehension:

निम्नलिखित गद्यांश को ध्यान पूर्वक पढ़ें और पार्शनों के उत्तर दें।

भारतवर्ष सदा कानून को धर्म को रूप में देखता आ रहा है। आज-कल एकाएक कानून और धर्म में अंतर कर दिया गया है। धर्म को धोखा नहीं दिया जा सकता, कानून को दिया जा सकता है। यही कारण है कि जो लोग धर्मवीर हैं, वे कानून की त्रुटियों से लाभ उठाने में संकोच नहीं करते। इस बात के पर्याप्त प्रमाण खोजे जा सकते हैं कि समाज के ऊपरी वर्ग में चाहे जो भी होता रहा हो, भीतर-भीतर भारतवर्ष अभी यह अनुभव कर रहा है कि धर्म कानून से बड़ी चीज है। अब भी सेवा, ईमादारी, सच्चाई और आध्यात्मिकता के मूल्य बने हुए हैं। वे दब अवश्य गए हैं, लेकिन नष्ट नहीं हुए। आज भी वह मनुष्य से प्रेम करता है, महिलाओं का सम्मान करता, झूठ और चोरी को गलत समझता है, दूसरोंको पीड़ा पहुंचाने को पाप समझता है। हर आदमी अपने व्यक्तिगत जीवन में इस बात का अनुभव करता है।

SubQuestion No : 20

Q.20 धर्मवीर क्या करने में संकोच नहीं करते?

- Ans
- A. (कानून की) त्रुटियों का लाभ उठाने में
 - B. धर्म और कानून को समान समझने में
 - C. एक दूसरे का सम्मान करने में
 - D. दूसरों को पीड़ा पहुंचाने में

Question ID : 1841222381

Section : Discipline1

Q.1 The following tests are related to lubricants:

1. Pour point: it is the temperature at which oil ceases to flow when cooled under standard conditions.
2. Cloud point: it is the temperature at which the cloudiness appears in a sample of oil owing to separation of wax under standard conditions.

Select the correct option.

- Ans
- A. Both are false
 - B. 1 is true and 2 is false
 - C. Both are true
 - D. 1 is false and 2 is true

Question ID : 1841222389

Q.2 A spring is stretched by 40 mm by the application of a force. Find the work done, if the force required to stretch 1 mm of the spring is 10 N.

- Ans
- A. 10 J
 - B. 6 J
 - C. 8 J
 - D. 12 J

Question ID : 1841222400

Q.3 The centroid of semicircle with radius 3 m about its diameter axis is given by:

- Ans
- A. $\frac{12}{\pi}$ m
 - B. $\frac{4}{\pi}$ m
 - C. $\frac{2\pi}{3}$ m
 - D. $\frac{\pi}{4}$ m

Question ID : 1841222395

Q.4 Select the correct option from the difference between the Network theorems in electrical engineering.

1. Thevenin's theorem provides an equivalent voltage source and an equivalent series resistance,
2. Norton's theorem provides an equivalent Current source and an equivalent parallel resistance.

- Ans
- A. 1 is true and 2 is false
 - B. 2 is true and 1 is false
 - C. Both are false
 - D. Both are true

Question ID : 1841222402

Q.5 Classification of Internal combustion engines based on thermodynamic cycle is:

- Ans A. Single cylinder
 B. Two stroke
 C. Otto
 D. Petrol

Question ID : 1841222404

Q.6 What is cofactor of 7 for the determinant given below:

$$\begin{vmatrix} 3 & -2 & 4 \\ 2 & 1 & 0 \\ 7 & 11 & 6 \end{vmatrix}$$

- Ans A. -10
 B. -8
 C. -4
 D. -12

Question ID : 1841222390

Q.7 An electrical iron carrying 4A at 120V. Find resistance of the device?

- Ans A. 40 Ω
 B. 50 Ω
 C. 20 Ω
 D. 30 Ω

Question ID : 1841222401

Q.8 A pulley 2 m in diameter is keyed to a shaft which makes 240 r.p.m. Find the linear velocity of a particle on the periphery of the pulley.

- Ans A. 7π , m/s
 B. 6π , m/s
 C. 8π , m/s
 D. 4π , m/s

Question ID : 1841222397

Q.9 A truck starting from rest is accelerated at the rate of 0.5 m/s^2 . Find the distance covered by the truck in 20 seconds?

- Ans A. 130 m
 B. 140 m
 C. 100 m
 D. 120 m

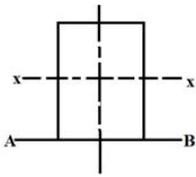
Question ID : 1841222399

Q.10 The integral value of $\int_0^{\frac{\pi}{2}} \cos^2 x \, dx$ is:

- Ans
- A. 2π
 - B. π
 - C. $\frac{\pi}{4}$
 - D. $\frac{\pi}{2}$

Question ID : 1841222392

Q.11 Moment of inertia of a rectangle having depth D and breadth B about its centroidal X-X axis is given by:



- Ans
- A. $\frac{BD^3}{3}$
 - B. $\frac{BD^3}{12}$
 - C. $\frac{DB^3}{12}$
 - D. $\frac{DB^3}{3}$

Question ID : 1841222396

Q.12 Which of the following heat transfer method does not require any medium?

- Ans
- A. Conduction
 - B. Convection
 - C. Radiation
 - D. Dispersion

Question ID : 1841222386

Q.13 The following are laws of refraction.

I Law : The incident ray, the refracted ray and the normal to the refracting surface at the point of incidence are in the same plane.

II law : The ratio of the sine of the angle of incidence to the cos of the angle of refraction is a constant for any two given medium for one particular colour of light.

Select the correct option.

- Ans
- A. Both laws are false
 - B. I law is false and II law is true
 - C. I law is true and II law is false
 - D. Both laws are true

Question ID : 1841222387

Q.14 Which of the following is polymerization, the polymer formed from monomer without the loss of any material?

- Ans
- A. Radical polymerization
 - B. Condensation polymerization
 - C. Ionic polymerization
 - D. Addition polymerization

Question ID : 1841222388

Q.15 Differentiate $Y = \log(\sec^2 x)$ w.r. t. X

- Ans
- A. $\frac{dy}{dx} = 2\text{Cosec}X$
 - B. $\frac{dy}{dx} = 2\tan X$
 - C. $\frac{dy}{dx} = 2\sin X$
 - D. $\frac{dy}{dx} = 2\cos X$

Question ID : 1841222391

Q.16 Wheatstone bridge or network consists of ____.

- Ans
- A. three resistances connected in the form of a equilateral
 - B. four resistances connected in the form of a quadrilateral
 - C. six resistances connected in the form of a hexagonal
 - D. five resistances connected in the form of a pentagonal

Question ID : 1841222385

Q.17 Which of the following statement is correct?

- Ans A. The force of friction depend upon the area of contact
 B. The static friction is always higher than the limiting friction
 C. The force of friction always acts in a direction to that in which the body is moving
 D. The magnitude of limiting friction bears a constant ratio to the normal reaction between the two surfaces

Question ID : 1841222398

Q.18 Principle of moments is given by:

- Ans A. Varignon
 B. Newton
 C. Einstein
 D. Lami

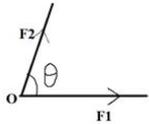
Question ID : 1841222394

Q.19 Which of the the following method is used for improvement of power factor of a circuit?

- Ans A. Use of static capacitors
 B. Use of arc and induction furnaces
 C. Use of Transformers
 D. Use of Induction motors

Question ID : 1841222403

Q.20 The two forces F1 and F2 are acting at point and the angle between them is θ as shown in figure. The resultant force is given by:



- Ans A. $R = \sqrt{F1^2 + 2F1F2\cos\theta + F2^2}$
 B. $R = \sqrt{F1^2 + 2F1F2\sin\theta + F2^2}$
 C. $R = \sqrt{F1^2 + 2F1F2\cos\theta - F2^2}$
 D. $R = \sqrt{F1^2 + 2F1F2\tan\theta + F2^2}$

Question ID : 1841222393

Q.1 Whitish appearance, damage usually starting from edges and corners followed by cracking and spalling of concrete is due to _____.

- Ans A. Sulphate attack
 B. Sea-water effect
 C. Acid attack
 D. Chloride attack

Question ID : 1841222423

Q.2 Match the following refrigerants with refrigerators:

Refrigerant	Refrigerator
1. Ammonia	A. In marine refrigerators
2. Carbon dioxide	B. In Air conditioners
3. Sulphur dioxide	C. In vapour absorption refrigerators
4. Freon - 22	D. In household refrigerators

- Ans A. 1-D; 2-A; 3-C; 4-B
 B. 1-B; 2-A; 3-D; 4-C
 C. 1-C; 2-D; 3-A; 4-B
 D. 1-C; 2-A; 3-D; 4-B

Question ID : 1841222406

Q.3 Size of a standard modular burnt clay brick as per IS 1077-1992 is:

- Ans A. 10 × 9 × 9 cm
 B. 19 × 9 × 9 cm
 C. 20 × 9 × 9 cm
 D. 20 × 10 × 10 cm

Question ID : 1841222416

Q.4 According to BS 8500 - 2:2006, recycled concrete aggregate (RCA), is allowed to contain how much percentage of masonry?

- Ans A. Up to 10%
 B. Up to 5%
 C. Up to 6.5%
 D. Up to 7%

Question ID : 1841222424

Q.5 What is the ideal case for making economical concrete mix?

- Ans A. Sample which gives minimum bulk density
 B. Sample which gives maximum bulk density
 C. Sample which gives maximum specific gravity
 D. Sample which gives maximum voids

Question ID : 1841222422

Q.6 Which of the following is not a defect in paints?

- Ans A. Flashing
 B. Grinning
 C. Foxiness
 D. Blistering

Question ID : 1841222419

Q.7 The water absorption of aggregates is determined by measuring the decrease in mass of a saturated and surface dry sample after oven drying for how many hours?

- Ans A. 36 hours
 B. 48 hours
 C. 12 hours
 D. 24 hours

Question ID : 1841222421

Q.8 Match the following:

Temporary structures	Uses
1. Formwork	A. Temporary supports used to support unsafe buildings
2. Scaffolding	B. It is used to repair and strengthening or renewal of the foundation of an existing building
3. Shoring	C. Is generally used for all temporary works for holding concrete etc.
4. Underpinning	D. Is generally used for the temporary structure used to support the concrete formwork and workmen

Select the correct option.

- Ans A. 1-D; 2-C; 3-A; 4-B
 B. 1-C; 2-A; 3-D; 4-B
 C. 1-C; 2-D; 3-A; 4-B
 D. 1-B; 2-D; 3-A; 4-C

Question ID : 1841222413

Q.9 Which of the following is a stratified rock?

- Ans A. Basalt
 B. Trap
 C. Granite
 D. Marble

Question ID : 1841222415

Q.10 According to the National Building Code of India, industrial buildings fall under the category of _____.

- Ans
- A. Group - E
 - B. Group - F
 - C. Group - A
 - D. Group - G

Question ID : 1841222407

Q.11 Half brick wall is to be constructed with _____.

- Ans
- A. bat in 1:5 cement mortar
 - B. stretchers in 1:5 cement mortar
 - C. closure in 1:5 cement mortar
 - D. header in 1:5 cement mortar

Question ID : 1841222410

Q.12 The inner curve of the arch is known as:

- Ans
- A. Voussoirs
 - B. Intrados
 - C. Haunch
 - D. Spandril

Question ID : 1841222411

Q.13 The vertical member in the middle of the window frame which subdivides the window is called:

- Ans
- A. holdfast
 - B. Rebate
 - C. Mullion
 - D. Transom

Question ID : 1841222412

Q.14 Which of the following types of steel is used in the manufacture of rails?

- Ans
- A. Tungsten steel
 - B. Bessemer steel
 - C. Cast steel
 - D. Magnese steel

Question ID : 1841222420

Q.15 Match the following components of stair with their definition and select the correct option.

Components of stair	definition
1. Scotia	A. Underside of a staircase
2. Soffit	B. The moulding provided under the nosing to improve the elevation of steps.
3. Newel	C. Member supporting the handrail
4. Baluster	D. The post usually provided at the beginning and end of the flights supporting the handrails.

- Ans
- A. 1-B; 2-D; 3-A; 4-C
 - B. 1-B; 2-C; 3-D; 4-A
 - C. 1-D; 2-A; 3-B; 4-C
 - D. 1-B; 2-A; 3-D; 4-C

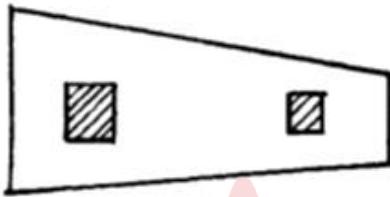
Question ID : 1841222414

Q.16 The common type of defect caused due to seasoning of timber is:

- Ans
- A. Knots
 - B. Rupture
 - C. Checks
 - D. Shakes

Question ID : 1841222417

Q.17 Identify the following foundation plan shown in figure:



- Ans
- A. Rectangular column footing
 - B. Raft foundation
 - C. Combined footing
 - D. Pier foundation

Question ID : 1841222408

Q.18 The hydraulic property of lime is due to the presence of:

- Ans
- A. Clay
 - B. Sulphates
 - C. Magnesium Carbonate
 - D. Silica

Question ID : 1841222418

Q.19 The stones used at the corners of the wall is called as _____.

- Ans A. Closure
 B. Quoin
 C. Perpend
 D. Reveals

Question ID : 1841222409

Q.20 The ratio of work required to compress fluid ideally to the actual work required to drive the compressor is known as:

- Ans A. Adiabatic work
 B. Isothermal work
 C. Volumetric efficiency
 D. Isothermal efficiency

Question ID : 1841222405

Section : Discipline3

Q.1 Compatible admixture with the given cement or vice-versa will also reduce the problem of slump loss. Cement with low Tricalcium Alluminate (C_3A) content will be of use in this regard. Which grade of cement shows better result?

- Ans A. 33
 B. 53
 C. 23
 D. 43

Question ID : 1841222425

Q.2 Find the delta for a crop when its duty is 864 hectares / cumec on the field, the base period of this crop is 120 days.

- Ans A. 1.1 m
 B. 1.3 m
 C. 1.0 m
 D. 1.2 m

Question ID : 1841222437

Q.3 Which type of cross drainage work is generally provided when a large canal and a stream approach each other practically at the same level.

- Ans A. Level crossing
 B. Syphon
 C. Super passage
 D. Aqueduct

Question ID : 1841222440

Q.4 Formation which contains large quantity of water but cannot yield water is called:

- Ans A. Aquitard
 B. Aquiclude
 C. Aqueduct
 D. Aquifer

Question ID : 1841222429

Q.5 An orifice of cross sectional area 0.05 m^2 discharges water with a velocity of 2 m/s . If coefficient of discharge $C_d = 0.6$, determine actual discharge.

- Ans A. $0.02 \text{ m}^3/\text{sec}$
 B. $0.08 \text{ m}^3/\text{sec}$
 C. $0.04 \text{ m}^3/\text{sec}$
 D. $0.06 \text{ m}^3/\text{sec}$

Question ID : 1841222444

Q.6 The point through which the resultant pressure acts is known as _____ and is always expressed in terms of depth from the liquid surface.

- Ans A. Total pressure
 B. Centre of pressure
 C. Barometric pressure
 D. Hydrostatic Pressure

Question ID : 1841222441

Q.7 A curve which gives an instantaneous picture of the location of the fluid particles, which have passed through a given point is called:

- Ans A. Contour Line
 B. Streak Line
 C. Steam Line
 D. Path Line

Question ID : 1841222443

Q.8 What type of cropping is an offspring of parents belonging to different characteristic groups of the same genetic group?

- Ans A. Hybrid cropping
 B. Crop rotation
 C. Traditional cropping
 D. Parent cropping

Question ID : 1841222435

Q.9 Select correct option related to Artisian aquifers:

- Ans A. The pressure of the water is higher than that of the atmosphere
 B. The pressure of the water is phreatic
 C. The pressure of the water is equal to the atmosphere
 D. The pressure of the water is lower than that of the atmosphere

Question ID : 1841222438

Q.10 Identify the correct sequence of domestic water treatment process in the water treatment plant.

- Ans A. coagulation - filtration - sedimentation - disinfection
 B. coagulation - sedimentation - filtration - disinfection
 C. disinfection - sedimentation - coagulation - filtration
 D. filtration - sedimentation - coagulation - disinfection

Question ID : 1841222430

Q.11 The minimum and average velocity developed in sewers for the removal of impurities are respectively:

- Ans A. 0.4 m/s and 0.9 m/s
 B. 0.4 m/s and 0.8 m/s
 C. 0.35 m/s and 0.85 m/s
 D. 0.45 m/s and 0.9 m/s

Question ID : 1841222431

Q.12 Which grade of cement is specially designed to lay Indian railways?

- Ans A. OPC-T 40 Special Grade Cement
 B. IRS-T 40 Special Grade Cement
 C. PPC-T 40 Special Grade Cement
 D. High Strength Cement

Question ID : 1841222426

Q.13 Which type of cement is used for under water concrete?

- Ans A. Blast furnace slag cement
 B. Portland pozzolana cement
 C. Quick setting cement
 D. High alumina cement

Question ID : 1841222427

Q.14 The area irrigated by the unit discharge of water flowing continuously for the duration of the base period of a crop is defined as:

- Ans
- A. Crop Period
 - B. Base Period
 - C. Duty
 - D. Delta (Δ)

Question ID : 1841222439

Q.15 According to IS10500-2012, The maximum permissible limit of turbidity in drinking water in the absence of alternate source of water is:

- Ans
- A. 5 NTU
 - B. 30 NTU
 - C. 10 NTU
 - D. 20 NTU

Question ID : 1841222428

Q.16 Which of the following raingauge is NOT used to measure Intensity of rainfall?

- Ans
- A. Float type
 - B. Tipping bucket
 - C. Weighing type
 - D. Symon

Question ID : 1841222436

Q.17 The atmospheric pressure at sea level (above absolute zero) is called:

- Ans
- A. Standard Atmospheric Pressure
 - B. Gauge Pressure
 - C. Positive gauge Pressure
 - D. Absolute Pressure

Question ID : 1841222442

Q.18 Pneumoconiosis is caused due to inhalation of which one of the following?

- Ans
- A. Cadmium
 - B. Lead
 - C. Silica dust
 - D. NOx

Question ID : 1841222434

Q.19 The average sewage flow from a city is 80×10^6 l/d. If the average 5 day BOD is 200 mg/l, compute the population equivalent of sewage. Assume per capita BOD sewage per day is 80g.

- Ans
- A. 3×10^5
 - B. 2×10^6
 - C. 4×10^6
 - D. 2×10^5

Question ID : 1841222432

Q.20 If a sewer drain carrying a discharge of 2 cumecs outfalls into a river carrying a discharge of 10 cumecs and having DO equal to 8 mg/l the resultant DO of the mix will be equal to:

- Ans
- A. 10.5 mg/l
 - B. 5 mg/l
 - C. 6.7 mg/l
 - D. 7.2 mg/l

Question ID : 1841222433

Section : Discipline4

Q.1 Which of the following file format is not supported by AutoCAD?

- Ans
- A. .dxf
 - B. .doc
 - C. .shp
 - D. .dwg

Question ID : 1841222458

Q.2 What is the section modulus Z of a solid shaft of diameter D ?

- Ans
- A. $Z_p = \frac{\pi D^3}{8}$
 - B. $Z_p = \frac{\pi D^2}{4}$
 - C. $Z_p = \frac{\pi D^2}{16}$
 - D. $Z_p = \frac{\pi D^3}{16}$

Question ID : 1841222451

Q.3 The distance between the adjoining faces of the running rail and the check rail/wing rail at the nose of the crossing is called:

- Ans A. Flangeway clearance
 B. Turnout
 C. Throw of the switch
 D. Heel Divergence

Question ID : 1841222464

Q.4 According IRC, what is the height of eye level of the driver and height of the object above the road surface in the case sight distance?

- Ans A. 1.1 m and 0.11m
 B. 1 m and 0.1 m
 C. 1.5 m and 0.5 m
 D. 1.2 m and 0.15 m

Question ID : 1841222460

Q.5 What is the plasticity index requirement for the base course in the earth road?

- Ans A. <12%
 B. <10%
 C. <6%
 D. <8%

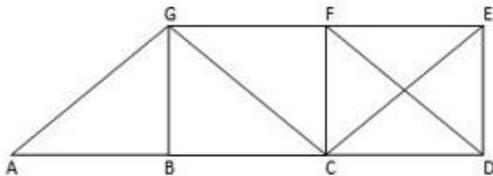
Question ID : 1841222462

Q.6 The ratio of power developed by the runner to the power supplied by the jet at the entrance to the turbine is known as:

- Ans A. Overall Efficiency
 B. Mechanical Efficiency
 C. Volumetric Efficiency
 D. Hydraulic Efficiency

Question ID : 1841222445

Q.7 Identify the type of truss shown below:



- Ans A. Deficient truss
 B. Space truss
 C. Redundant truss
 D. Perfect truss

Question ID : 1841222452

Q.8 The Act which is passed to protect the victims of accidents and their families from hardships out of and in the course of employment is:

- Ans
- A. Minimum Wages Act, 1948
 - B. Industrial Dispute Act, 1947
 - C. Workmen Compensation Act, 1923
 - D. Contract Labour Act, 1970

Question ID : 1841222454

Q.9 Which of the following is event based method of construction planning?

- Ans
- A. Critical Path Method (CPM)
 - B. Computer Aided Design (CAD)
 - C. Building Information Management (BIM)
 - D. Program Evaluation and Review Technique (PERT)

Question ID : 1841222453

Q.10 What is short cut command used for "Switch to previous drawing" in AutoCAD?

- Ans
- A. Ctrl + Shift + Tab
 - B. Ctrl + Shift + H
 - C. Ctrl + Tab
 - D. Ctrl + Shift + S

Question ID : 1841222457

Q.11 What is the width of Indian broad gauge rail?

- Ans
- A. 1067 mm
 - B. 1524 mm
 - C. 1676 mm
 - D. 1335 mm

Question ID : 1841222463

Q.12 What is the shear stress τ at the neutral axis for a rectangular section of a beam of width b and depth d subjected to shear force F ?

- Ans
- A. $\tau = 2 \frac{F}{bd}$
 - B. $\tau = \frac{F}{bd}$
 - C. $\tau = 1.5 \frac{F}{bd}$
 - D. $\tau = 2.5 \frac{F}{bd}$

Question ID : 1841222449

Q.13 The ration of lateral strain to the longitudinal strain is called:

- Ans A. Shear modulus
 B. Bulk modulus
 C. Poisson's ratio
 D. Young's modulus

Question ID : 1841222446

Q.14 According to Indian Road Congress, the roads are classified into:

- Ans A. National highways, State highways, Major district roads, Other district roads only
 B. National highways, State highways, Major district roads, only
 C. National highways, State highways only
 D. National highways, State highways, Major district roads, Other district roads, Village roads

Question ID : 1841222459

Q.15 What is the full form of CADD?

- Ans A. Computer Aided Design and Drafting
 B. Computer Aided Design and Detailing
 C. Computer Aided Design and Drawing
 D. Computer Aided Design and Data

Question ID : 1841222456

Q.16 A beam is said to be pure bending, when

- Ans A. Bending stress is zero
 B. Shear force is zero
 C. Moment force is zero
 D. Torsional force is zero

Question ID : 1841222448

Q.17 Pensky Marten closed cup equipment is used to find:

- Ans A. Solubility test
 B. Specific gravity test
 C. Flash and fire point of bitumen
 D. Ductility of bitumen

Question ID : 1841222461

Q.18 The maximum combined stress σ_{max} when a column of rectangular section is subjected to an eccentric load P is given by:

Note: the eccentricity is about only the axis bisecting the width 'b'.

Where e- eccentricity of the load

A - cross sectional area of column

b - width of column

d - depth of column

Ans

A. $\sigma_{max} = \frac{6Pe}{Ab}$

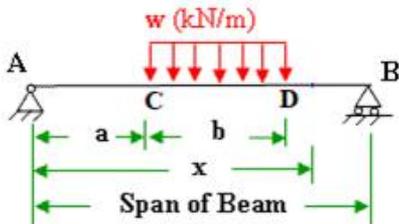
B. $\sigma_{max} = \frac{P}{A}$

C. $\sigma_{max} = \frac{P}{A} \left(1 + \frac{6e}{b} \right)$

D. $\sigma_{max} = \frac{P}{A} \left(1 - \frac{6e}{b} \right)$

Question ID : 1841222450

Q.19 The maximum bending moment for the beam shown in figure loes:



Ans

A. Between CD

B. Between BD

C. At C and D point only

D. Between AC

Question ID : 1841222447

Q.20 Project scheduling involves all the following steps except:

Ans

A. Assign

B. Give

C. Decide

D. Calculate

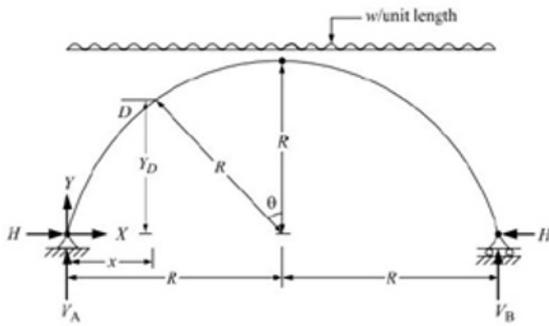
Question ID : 1841222455

Q.1 Which of the following method is not used for calculating earth work?

- Ans
- A. Mean sectional area method
 - B. Prismoidal formula method
 - C. Mid sectional area method
 - D. Quantity survey method

Question ID : 1841222473

Q.2 What is maximum bending moment in the semi circular arch of radius R shown below?



- Ans
- A. $\frac{WR^2}{12}$
 - B. $\frac{WR^3}{8}$
 - C. $\frac{WR^2}{4}$
 - D. $\frac{WR^2}{8}$

Question ID : 1841222484

Q.3 Which method of estimate is used generally for preparing estimate of factory building?

- Ans
- A. Plinth area method
 - B. Unit rate method
 - C. Bay method
 - D. Approximate quantity method

Question ID : 1841222471

Q.4 The design strength of members under axial tension, T , as governed by yielding of gross section, is given by:

Where f_y = yield stress of the material,

A_g = gross area of cross-section, and

γ_{mo} = partial safety factor for failure in tension by yielding

Ans

A. $T = \frac{f_y}{A_g \gamma_{mo}}$

B. $T = \frac{A_g f_y}{4 \gamma_{mo}}$

C. $T = \frac{A_g}{f_y \gamma_{mo}}$

D. $T = \frac{A_g f_y}{\gamma_{mo}}$

Question ID : 1841222468

Q.5 The minimum spacing of _____ the nominal diameter of the fastener as per standard code, in steel structures.

Ans A. 2.5 times

B. 2.0 times

C. 3.0 times

D. 3.5 times

Question ID : 1841222467

Q.6 Degree of static indeterminacy for a propped cantilever beam is:

Ans A. 0

B. 3

C. 1

D. 4

Question ID : 1841222481

Q.7 The maximum bearing pressure between the base plate and the support should not exceed the bearing strength equal to:

Ans A. 0.6 times the smaller of characteristic cube strength of concrete or bedding material (f_{ck})

B. 0.2 times the smaller of characteristic cube strength of concrete or bedding material (f_{ck})

C. 0.8 times the smaller of characteristic cube strength of concrete or bedding material (f_{ck})

D. 0.4 times the smaller of characteristic cube strength of concrete or bedding material (f_{ck})

Question ID : 1841222466

Q.8 Whenever a program needs to be executed, it must be first loaded into the main memory called:

- Ans A. Read Only Memory (ROM)
 B. Random Access Memory (RAM)
 C. Central Processing Unit (CPU)
 D. Direct Memory Access (DMA)

Question ID : 1841222478

Q.9 The estimated value of an asset as a whole without dismantling at the end of its useful life is called:

- Ans A. Book value
 B. Salvage value
 C. Scrap value
 D. Market value

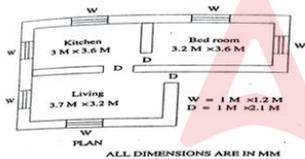
Question ID : 1841222474

Q.10 The effective length of compression member of unsupported length L restrained against rotation and translation at one end and free against rotation and translation at other end is:

- Ans A. $1L$
 B. $0.8L$
 C. $1.2L$
 D. $2.0L$

Question ID : 1841222469

Q.11 Calculate total length of the build plan shown below using centre line method. Thickness of wall is 300 mm in burnt brick.



- Ans A. 42.2 m
 B. 36.3 m
 C. 28.4 m
 D. 34.5 m

Question ID : 1841222475

Q.12 Which of the following is INCORRECT in the case of fixed beam?

- Ans A. Moment at the end is maximum
 B. It is a indeterminate beam.
 C. Ends are restricted against rotation
 D. Slope at the ends are maximum

Question ID : 1841222482

Q.13 Which of the following is NOT an operating system?

- Ans A. Microsoft Office XP
 B. MS DOS
 C. LINUX
 D. Android

Question ID : 1841222477

Q.14 What is the standard values used for measuring Lead and Lift in earthwork estimation?

- Ans A. 15 m and 1.0 m
 B. 30 m and 1.5 m
 C. 10 m and 0.5 m
 D. 25 m and 2.0 m

Question ID : 1841222472

Q.15 Cantilever beam of length l subjected to point load ' W ' at free end. The deflection at free end is given by:



Where EI - flexural rigidity

- Ans A. $\delta_B = \frac{Wl^2}{EI}$
 B. $\delta_B = \frac{Wl^2}{4EI}$
 C. $\delta_B = \frac{3Wl^2}{2EI}$
 D. $\delta_B = \frac{Wl^3}{3EI}$

Question ID : 1841222480

Q.16 A program that translates a source program written in some high-level programming language into machine code for some computer architecture is called:

- Ans A. Translator
 B. Compiler
 C. Interpreter
 D. Processor

Question ID : 1841222479

Q.17 Select the Indian rolled steel section for which depth and weight per meter is written as specification.

- Ans A. Indian standard medium beam (ISMB)
 B. Indian standard steel plates (ISPL)
 C. Indian standard equal angle (ISA)
 D. Indian standard rolled bars (ISRO)

Question ID : 1841222470

Q.18 The Modulus of elasticity structural steel is:

- Ans A. $4.0 \times 10^5 \text{ N/mm}^2$
 B. $0.769 \times 10^5 \text{ N/mm}^2$
 C. $2.0 \times 10^5 \text{ N/mm}^2$
 D. $3.0 \times 10^5 \text{ N/mm}^2$

Question ID : 1841222465

Q.19 The ratio of stiffness of a member meeting at a structural joint to the sum of the stiffness of all members meeting at that joint is known as:

- Ans A. Distribution factor
 B. Carryover factor
 C. Stiffness ratio
 D. Distribution moment

Question ID : 1841222483

Q.20 Calculate the amount required for cement to construct 1 m^3 of RCC beam in 1 : 2 : 4 proportion with an addition of 40% voids in the concrete. Take ₹400 per bag of cement.

- Ans A. ₹2,400
 B. ₹2,000
 C. ₹2,200
 D. ₹2,600

Question ID : 1841222476