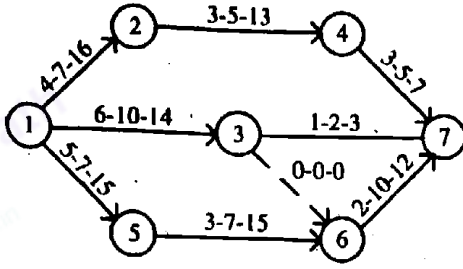


- 1 The critical path of the network shown in figure :



- (A) 1-2-47 (B) 1-3-7
(C) 1-3-6-7 (D) 1-5-6-7
- 2 The number of sleepers used per rail length on the track is known as
(A) sleeper strength (B) sleeper density
(C) sleeper ratio (D) all of the above
- 3 જો PREMONITION શબ્દને 68530492904 કોડ દ્વારા દર્શાવવામાં આવે તો MONITOR શબ્દને કેવી રીતે દર્શાવી શકાય ?
(A) 3049802 (B) 3029408
(C) 3049208 (D) 3049258
- 4 It has been observed for critical depth y_{cr} in a rectangular channel carrying a constant discharge that
1. specific energy is maximum
2. Froude number = 1.0
3. specific energy = 1.33 y_{cr}
4. specific force is minimum
Which of the above observation are correct ?
(A) 1, 2 and 3 (B) 2, 3 and 4
(C) 1 and 4 (D) 2 and 4
- 5 760 વ્યક્તિના સમૂહમાં 510 હિન્દી બોલી શકે છે, 360 અંગ્રેજી બોલી શકે છે. તો કેટલા લોકો હિન્દી અને અંગ્રેજી બંને બોલી શકે ?
(A) 110 (B) 220
(C) 175 (D) 127

- (A) centring
- (B) adjustment of levels
- (C) adjustment of needle
- (D) adjustment of van

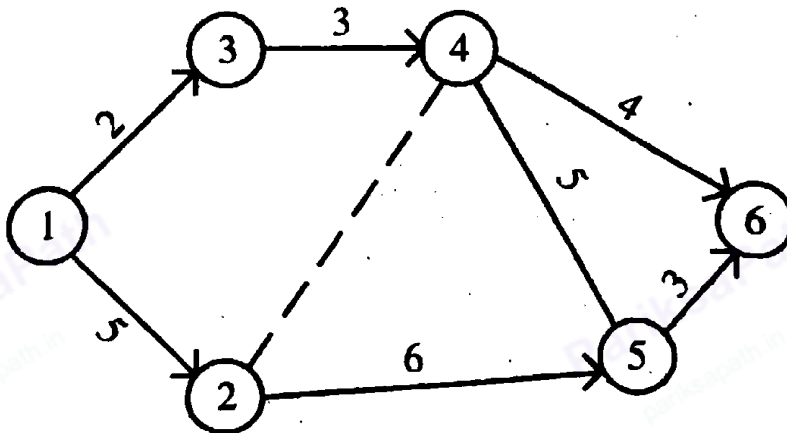
7 શબ્દકોશ પ્રમાણે સાચો ક્રમ દર્શાવતો વિકલ્પ શોધો.

- (A) નેહારી, નેસ, નેવાણી, નેપથ્ય
- (B) નેપથ્ય, નેવાણી, નેસ, નેહારી
- (C) નેસ, નેહારી, નેપથ્ય, નેવાણી
- (D) નેવાણી, નેપથ્ય, નેહારી, નેસ

8 The minimum compressive strength in timber is a direction :

- (A) Inclined at 90° to the grains
- (B) Inclined at 60° to the grains
- (C) Inclined at 43° to the grains
- (D) Parallel to the grains

9 From the network shown in the figure (the number on each arrow denotes the time duration of activity in days), the earliest start time, in days for activity 5-6 is :

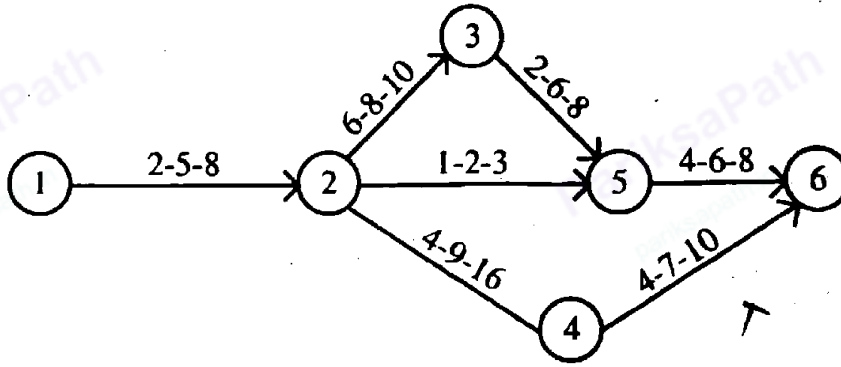


- (A) 5
- (B) 11
- (C) 14
- (D) 6

following :

- (A) While going to the lake, the elephants crushed the rabbits.
(B) The bus crushing the beggars at Lal Darwaja yesterday.
(C) The tinymen were crush by the giant in the middle of the sea.
(D) The car would crushed the toy.

- 11 Calculate the earliest expected time of event 5 in the network shown in fig :



- (A) 14.3 (B) 8
(C) 18.67 (D) 13

- 12 આદિજાતિનાં બાળકોને શિક્ષણમાં સહાય આપતી 'એકલવ્ય મોડેલ રેસિડેન્શિયલ યોજના' અન્વયે કેટલું આવકનું ધોરણ નક્કી કરવામાં આવેલ છે ?

- (A) વાર્ષિક રૂ. 12,000/-
(B) વાર્ષિક રૂ. 6,000/-
(C) વાર્ષિક રૂ. 4,800/-
(D) કોઈ આવકમર્યાદા નક્કી કરવામાં આવેલ નથી

- 13 Carbon monoxide has more affinity with haemoglobin than oxygen for about

- (A) 2000 times (B) 100 times
(C) 200 times (D) 20 times

- (A) આનન (B) વદન
(C) દીદાર (D) સદન

15 No signals are provided in case of

- (A) ruling gradient
(B) momentum gradient
(C) pusher gradient
(D) station yards gradient

16 In CPM, the cost slope is determined by

- (A) $\frac{\text{Crash cost}}{\text{Normal Cost}}$ (B) $\frac{\text{Crash cost} - \text{Normal cost}}{\text{Normal time} - \text{Crash time}}$
(C) $\frac{\text{Normal Cost}}{\text{Crash cost}}$ (D) $\frac{\text{Normal time} - \text{Crash time}}{\text{Crash cost} - \text{Normal cost}}$

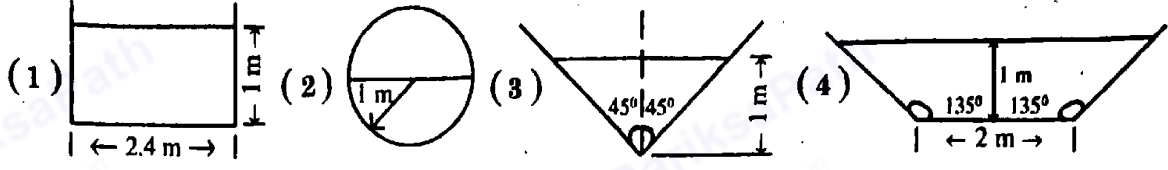
17 The neutral axis of a balanced section is called

- (A) balanced neutral axis
(B) critical neutral axis
(C) equivalent neutral axis
(D) all of the above

18 ગુજરાત સરકારના સિંચાઈ વિભાગ દ્વારા 'મુક્તેશ્વર સિંચાઈ યોજના' કઈ નદી ઉપર કરવામાં આવેલ છે ?

- (A) બાલારામ નદી (B) સરસ્વતી નદી
(C) સીપુ નદી (D) શેત્રુંજી નદી

different sections as shown below :



Which of the following sequences shows their hydraulic radii, arranged in descending order ?

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

20 તાજેતરમાં ભારતના વડાપ્રધાનશ્રી નરેન્દ્રભાઈ મોદી દ્વારા ખુલ્લો મૂકાયેલ “ભુપેન હજારીકા ટ્રિજ” બ્રહ્મપુત્રા નદીની કઈ ટ્રીબ્યુટરી નદી (ઉપનદી) ઉપર બાંધવામાં આવેલ છે ?

- (A) માનસ નદી (B) કોલોન્ગા નદી
(C) તિસ્તા નદી (D) લોહિત નદી

21 The rail chairs are generally made of

- (A) cast iron (B) low carbon steel
(C) high carbon steel (D) stainless steel

22 નીચે આપેલ તળપદા શબ્દનું શિષ્ટ રૂપ વિકલ્પમાંથી શોધો.

સરાયાં

- (A) કામા (B) ફળદ્રુપ
(C) અવાજ (D) લુચ્ચો

23 The bricks are crystallised and disintegrated during burning because of

- (A) Excess lime
(B) The oxidation of iron pyrites
(C) Alkalies
(D) Vegetation & organic matter in brick earth

- (A) storm water
- (B) industrial wastes
- (C) overhead flow
- (D) industrial wastes and storm water

25 Find out the correct sentence from the following :

- (A) Jay type as good as Soham.
- (B) Jay teypes as better as than Soham.
- (C) Jay types as well as Soham.
- (D) Jay not type as good as Soham.

26 If 'f' is friction faction, then Chezy's coefficient is proportional to

- (A) f
- (B) $\sqrt{f}$
- (C) $\frac{1}{f}$
- (D) $\frac{1}{\sqrt{f}}$

27 MS Word માં મેક્રો માટેની શોર્ટકટ કી કઈ છે ?

- (A) Ctrl + F8
- (B) Alt + F8
- (C) Shift + F8
- (D) Ctrl + Alt + F8

28 True meridians

- (A) are parallel to each other
- (B) converge at a point called pole
- (C) converge near equator
- (D) none of the above

29 'કેવલ્યગીતા' કૃતિના રચયિતાનું નામ જણાવો.

- (A) નરસિંહરાવ દિવેટિયા
- (B) અખો
- (C) રમણભાઈ નીલકંઠ
- (D) પ્રેમાનંદ

- 30 When the bitumen is being distilled to a definite viscosity or penetration without further treatment, it is known as the
- (A) Plastic bitumen (B) Cut-block bitumen
(C) Straight run bitumen (D) Blown bitumen
- 31 A milestone chart
- (A) depicts the delay of job
(B) shows the inter dependence of various jobs
(C) shows the events in chronological, but not in a logical sequence
(D) all of the above
- 32 Irrigation canals are generally aligned along
- (A) contour line (B) water shed
(C) straight line (D) valley line
- 33 યોગ્ય વિકલ્પ પસંદ કરી ખાલી જગ્યા પૂરો :
W-144,, S-100, Q-81, O-64
- (A) U-121 (B) U-122
(C) V-121 (D) V-128
- 34 Available moisture may be defined as the
- (A) moisture content at permanent wilting point
(B) difference in water content of the soil between field capacity and permanent wilting
(C) maximum moisture holding capacity
(D) all of the above
- 35 ફતેહપુરા તાલુકો રાજ્યના કયા જિલ્લામાં આવેલ છે ?
- (A) જૂનાગઢ (B) રાજકોટ
(C) દાહોદ (D) સુરત

(A) Nominal strength $\times$ Factor of safety

(B) $\frac{\text{Ultimate bearing power}}{\text{Factor of safety}}$

(C) $\frac{\text{Ultimate tensile strength}}{\text{Factor of safety}}$

(D) $\frac{\text{Ultimate compressive strength}}{\text{Factor of safety}}$

37 નીચે આપેલ વાક્યમાંથી રેખાંકિત ક્રિયાવિશેષણનો પ્રકાર જણાવો.

આજે એને મુખે કેવી રેખા આનંદની ઢળી ?

(A) ક્રમવાચક

(B) સંભાવનાવાચક

(C) પ્રમાણવાચક

(D) સમયવાચક

38 The major principle of an organisation is

(A) span of management

(B) unity of command

(C) delegation of authority

(D) all of the above

39 For a particular activity of a project, time estimates received from two engineers X & Y are as following, state who is more certain about the time of completion :

	T_o	T_m	T_p
X	4	6	8
Y	3	5	8

(A) Engineer X is more certain

(B) Engineer Y is more certain

(C) Both are equally certain

(D) Cannot be determined

40 Frame question to get the underlined part as answer.

Mr. Joshi taught science to his neighbours

- (A) Whom did Mr. Joshi teach Science ?
- (B) Who taught Mr. Joshi Science ?
- (C) How does Mr. Joshi taught Science ?
- (D) When does Mr. Joshi teach Science ?

41 The process in which chlorination is done beyond the break point is called

- (A) pre chlorination
- (B) post chlorination
- (C) super chlorination
- (D) break point chlorination

42 સમુદ્રી સૂક્ષ્મજીવો અને લીલ પ્રાથમિક ઉત્પાદક હોય તેવી ખોરાક શ્રેણીના આખરી ઉપભોક્તા પસંદ કરો.

- (A) સમુદ્રી સૂક્ષ્મજીવો
- (B) મોટી માછલીઓ
- (C) નાની માછલીઓ
- (D) ઉપરોક્ત તમામ

43 Super-elevation is expressed as

- (A) the difference of heights of two edges of the carriage-way to the width of the carriage-way
- (B) the difference of radii of curves
- (C) the difference of the road gradients
- (D) none of the above

44 ખોટી જોડણી શોધો.

- (A) ધધૂડો
- (B) ધુધવાટ
- (C) ખુલ્લું
- (D) કોટુબિંક

45 Which among the following is spatial data ?

- (A) Colour
- (B) Texture
- (C) Streets
- (D) Quantity

- (A) remains same at different places
- (B) varies from place to place
- (C) does not vary with temperature
- (D) none of the above

47 The stopping sight distance (S) of a vehicle for Indian highways is given by

$$(A) S = 0.28Vt + \frac{0.01V^2}{\eta} \quad (B) S = 0.28Vt + \frac{0.01\eta}{V^2}$$

$$(C) S = 0.01Vt + \frac{0.28V^2}{\eta} \quad (D) S = 0.01Vt + \frac{0.28\eta}{V^2}$$

where V = Speed of the vehicle in kmph,
 t = Brake reaction time in seconds,
 η = Efficiency of brakes in percent.

48 સત્તાનું પ્રતિનિધાન હોવું એ કેવા પ્રકારની પ્રક્રિયા છે ?

- (A) રાજકીય
- (B) વહીવટી
- (C) સામાજિક
- (D) કાયદાકીય

49 Which of the following method is employed to manufacture pre-stressed concrete sleepers for the railways ?

- (A) Post-tensioning
- (B) Pre-tensioning
- (C) Pre-tensioning followed by post-tensioning
- (D) Partial pre-stressing

50 60 વિદ્યાર્થીના સમૂહમાં 30 વિદ્યાર્થી ક્રિકેટ રમે છે. 25 વિદ્યાર્થી હોકી રમે છે. 15 વિદ્યાર્થી એક પણ રમત રમતા નથી. તો બંને રમત રમતા વિદ્યાર્થીઓની સંખ્યા શોધો.

- (A) 10
- (B) 15
- (C) 20
- (D) 25

- (A) when two columns are spaced close to each other
- (B) when two columns are spaced far apart
- (C) under a set of columns
- (D) under a set of walls

52 નીચેનામાંથી સમાસનું કયું જોડકું સાચું છે ?

- (A) રેલગાડી - તત્પુરુષ
- (B) જીતુમામા - કર્મધારય
- (C) સરસિજ - બહુવ્રીહિ
- (D) નીલકંઠ - અવ્યયીભાવ

53 The reason for providing curves on a highway is

- (A) to provide access to a particular locality
- (B) restriction imposed by some unavoidable reasons of land
- (C) preservation of existing amenities
- (D) all of the above

54 The neutral axis in a T-beam section falls

- (A) within the flange
- (B) outside the flange
- (C) either (A) or (B)
- (D) none of the above

55 Arrange the jumbled parts to make a meaningful sentence :

the new ball / bent down / and touched / a brave boy
 1 2 3 4

- (A) 4231
- (B) 2143
- (C) 3142
- (D) 2314

- (A) the rails can be easily fixed and taken out from the sleeper without moving them
- (B) it can provide sufficient bearing area for the rail
- (C) it can provide sufficient effective bearing area on the balast
- (D) all of the above

57 DPIનું પૂરું નામ શું છે ?

- (A) Data Per Inch
- (B) Desk Per Inch
- (C) Delta Per Inch
- (D) Dots Per Inch

58 For making impermeable concrete, the process contains

- (A) through mixing
- (B) proper compaction
- (C) proper curing
- (D) all of the above

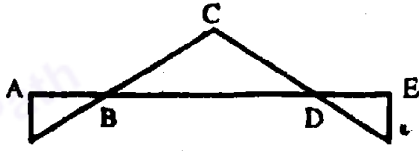
59 હેમચંદ્રાચાર્યએ કોની વિનંતીને અનુલક્ષીને અલંકારશાસ્ત્ર, છંદશાસ્ત્ર વિગેરે તૈયાર કર્યા ?

- (A) ભીમદેવ સોલંકી
- (B) સિદ્ધરાજ જયસિંહ
- (C) જગદ્ગુરુ શંકરાચાર્ય
- (D) આચાર્ય કુમારપાળ

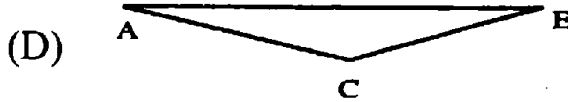
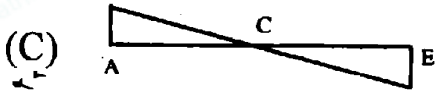
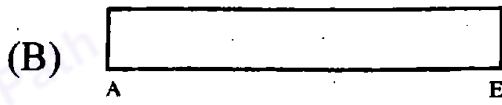
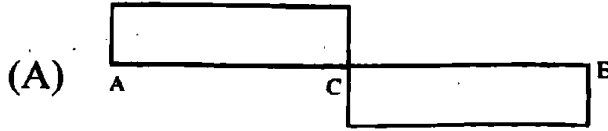
60 The application of elastic theory to the beams is based on the assumption that

- (A) at any cross-section, plane sections before bending remain plane after bending
- (B) all tensile stresses are taken up by reinforcement alone and none by the concrete
- (C) steel reinforcement is free from initial stresses when it is embedded in concrete
- (D) all of the above

figure.



The shear force distribution in the beam is represented by



62 In pre-tensioning process of pre-stressing, the tendons are

- (A) bonded to the concrete
- (B) partially bonded to the concrete
- (C) not bonded to the concrete
- (D) generally bonded but sometimes remain unbonded to the concrete

63 પંચાયતો માટેની મતદાર યાદીમાં નામની નોંધણી માટે કયો કાયદો લાગુ પડે છે ?

- (A) ફોજદારી કાર્યવાહી અધિનિયમ
- (B) લોકપ્રતિનિધિત્વ ધારો
- (C) ભારતીય દંડ સંહિતા
- (D) ગુજરાત પંચાયત ધારો-1993

- (A) relative brightness of the object
- (B) the spatial arrangement of visibly discernable objects
- (C) the frequency of the tonal changes
- (D) all of the above

65 નેશનલ ડીઝાસ્ટર મેનેજમેન્ટ ઓથોરિટીના અધ્યક્ષ કોણ હોય છે ?

- (A) રાષ્ટ્રપતિ
- (B) વડાપ્રધાન
- (C) સંરક્ષણમંત્રી
- (D) ગૃહમંત્રી

66 Scour valve are provided at

✖

- (A) street corner to control the flow of water
- (B) every depression and dead ends to drain out the waste water that may collect there
- (C) foot of rising main along the slope to prevent back running of water
- (D) every summit of rising mains

67 The first stage of a large construction work to

✖

- (A) contract
- (B) design
- (C) conception
- (D) study and evaluation

- (A) ~~0.2~~ to 0.4 m (B) 0.4 to 0.6 m
(C) ~~0.6~~ to 0.9 m (D) 0.9 to 1.6 m

69 નીચે આપેલ શબ્દનો સાચો સમાનાર્થી શબ્દ જણાવો.

દ્રવ્ય

- (A) ~~પાણી~~ (B) પશુ
(C) ~~વસુ~~ (D) તસુ

70 The distance y from pipe boundary, at which the point velocity is equal to average velocity for turbulent flow, is $\uparrow$

- (A) 0.223 R (B) 0.423 R
(C) 0.577 R (D) 0.707 R

71 Give a single word for :

'A person who gets money by cheating.'

- (A) ~~Swindler~~ (B) Ragpicker
(C) ~~Honest~~ (D) Dacoit

72 According to Lacey's equation, the scour depth is equal to $\uparrow$

- (A) ~~0.47~~ $\left(\frac{Q}{f}\right)^{1/2}$ (B) $0.47 \left(\frac{Q}{f}\right)^{1/3}$
(C) ~~0.47~~ $\left(\frac{Q}{f}\right)^{1/4}$ (D) $0.47 \left(\frac{Q}{f}\right)^{1/5}$

73 રમેશ એક કામ 40 દિવસમાં પૂરું કરે છે. જ્યારે મહેશ તે જ કામ 60 દિવસમાં પૂરું કરે છે. જો તે સાથે કામ શરૂ કરે છે. 10 દિવસ પછી બીમારીને કારણે રમેશ કામ કરવાનું બંધ કરે છે. બાકીનું કામ કરવામાં મહેશને દિવસ લાગે.

- (A) ~~24~~ (B) 30
(C) 35 (D) 45

- 74 Optical square is based on the principal of optical
(A) reflection (B) refraction
(C) double reflection (D) double refraction

- 75 The overflow rate for plain sedimentation tanks is about
(A) 500 to 750 litres/hour/m²
(B) 1000 to 1250 litres/hour/m² ✗
(C) 1250 to 1500 litres/hour/m²
(D) 1500 to 2000 litres/hour/m² ✗

- 76 Most widespread air pollutants are
(A) SO_x (B) NO_x
(C) CO (D) hydrocarbons

- 77 છંદનો પ્રકાર વિકલ્પમાંથી શોધો.
પ્રસરી રહી ચોપાસ^{૧૩} શાખાઓ શૈલરાજની ૧૬
ન જણાય જશે કેવી સંધ્યા એ મધ્ય આજની ૧૪
(A) મનહર ✗ (B) અનુષ્ટુપ
(C) ચોપાઈ (D) દોહરો

- 78 Sewage sickness signifies
✗ (A) diseases caused by sewage
(B) soil pores getting clogged aoej preventing free circulation of air when sewage is continuously applied on land
(C) raw sewage is applied and used for irrigating vegetables which is eaten raw
(D) disposal of septic sewage on land

- 79 200 kWh બરાબર કેટલા જૂલ ?
(A) 7.2×10^8 (B) 3.6×10^6
(C) 7.2×10^6 (D) 36×10^6

80 When the pH value of water is more than 7, it represents.....
water.

- (A) neutral (B) acidic
(C) alkaline (D) none of the above

81 “જળ એ જ જીવન છે” માનવ જીવનના અસ્તિત્વમાં પાણીનું મહત્વ અને તેના સંચય તથા યોગ્ય/મર્યાદિત વપરાશ માટે પ્રતિવર્ષ ‘વિશ્વ જળ દિન’ ઉજવવામાં આવે છે. આ દિવસ એટલે -

- (A) 22મી માર્ચ (B) 23મી જૂન
(C) 19મી મે (D) 22મી મે

82 Lining of a canal is necessary

- (A) to minimise the seepage losses in canal
(B) to prevent erosion of bed and sides due to high velocities
(C) to increase the discharge in canal section by increasing the velocity
(D) all of the above

83 For satisfactory working of a sludge digestion unit, the pH range of digested sludge should be maintained in the range of

- (A) 3 to 5 (B) 6.5 to 8
(C) 8.5 to 10 (D) all of the above

84 નીચે આપેલ શબ્દનો સમાસ ઓળખાવો.

યશાંકી

- (A) કન્ધ (B) ઉપપદ
(C) તત્પુરુષ (D) બહુવ્રીહિ

85 For a rectangular foundation of width b , the eccentricity of the load should not be greater than

- (A) $b/3$ (B) $b/4$
(C) $b/5$ (D) $b/6$

- (A) with hands (B) with marbles
(C) with force (D) with stream

87 According to Indian standards, the consumption of water per capita per day for nursing homes, boarding schools and hostels is

- (A) 85 liters (B) 100 liters
(C) 115 liters (D) 135 liters

88 વેપારી એક ક્રિકેટ બેટ રૂ. 380માં ખરીદે છે. આ બેટ પર તે એવી કિંમત છાપે છે કે જેથી તેનાં પર 5% વળતર આપવા છતાં તેને 25% નફો મળે છે. તો વેપારીએ બેટ પર રૂ. કિંમત છાપેલી હશે.

- (A) 675 (B) 512
(C) 500 (D) 480

89 Which among the following GPS technique require 4-satellite tracking at all times ?

- (A) Differential GPS (B) Static GPS
(C) Kinematic GPS (D) Pseudostatic GPS

90 Most dangerous hydrocarbon found in the automobile exhaust are

- (A) methanes (B) olefins
(C) alkynes (D) ketones

91 50 m size particle is removed from gas by

- (A) gravity settling chamber (B) centrifugal collector
(C) wet scrubbers (D) fabric filters

92 પ્રસિદ્ધ કવિ મણિલાલ નભુભાઈનું જન્મસ્થળ જણાવો.

- (A) ધંધુકા (B) નરિયાદ
(C) ડભોઈ (D) ચોટીલા

93 PERT calculation yield a project length of 50 weeks with a variance of 16, within how many weeks would you expect the project to be completed with the probability of 95%

- (A) 50 weeks (B) 57 weeks
(C) 60 weeks (D) 65 weeks ✗

94 સાવલી તાલુકો ગુજરાત રાજ્યના કયા જિલ્લામાં આવેલ છે ?

- (A) સાબરકાંઠા (B) દાહોદ
(C) વડોદરા (D) ડાંગ

95 Under Indian conditions, the average per capita contribution of BOD is

- (A) 10 to 20 gm/d (B) 20 to 35 gm/d
(C) 35 to 50 gm/d (D) 50 to 70 gm/d

96 ગુજરાતના સુપ્રસિદ્ધ સંગીતકાર અવિનાશ વ્યાસને 1970માં ભારત સરકાર દ્વારા કયો એવોર્ડ આપી સન્માનિત કરવામાં આવ્યા હતા ?

- (A) પદ્મશ્રી (B) પદ્મવિભૂષણ
(C) પદ્મભૂષણ (D) સંગીતરત્ન

97 A uniform simply supported beam is subjected to a clockwise moment M at the left end. The moment required at the right end of the beam so that the rotation of right end is zero is equal to

- (A) 2 M (B) M ✗
(C) $\frac{M}{2}$ (D) $\frac{M}{3}$

98 The gradients of trace cuts for hill roads are kept

- (A) 10 to 20% easier than the ruling gradient
(B) 20 to 25% easier than the ruling gradient
(C) 10 to 20% steeper than the ruling gradient
(D) 20 to 25% steeper than the ruling gradient

99 રેખાંકિત પદનો કૃદંતનો પ્રકાર શોધી જણાવો.

તે કેડ બાંધીને રમે છે.

(A) વર્તમાનકૃદંત

(B) સંબંધક ભૂતકૃદંત

(C) ભૂતકૃદંત

(D) વિધ્યર્થકૃદંત

100 Negative errors are caused in chain, when its length is

(A) more than the standard length

(B) less than the standard length

(C) equal to the standard length

(D) uncertain

101 Give synonym of 'Defeat'

(A) beat

(B) conquer

(C) both (A) and (B)

(D) depend

102 A footing which supports two or more columns is termed as

(A) combined footings

(B) raft footing

(C) strap footing

(D) none of the above

103 નીચે દર્શાવેલ જોડકાં યોગ્ય રીતે જોડો :

(a) હેલિકોપ્ટર

(1) જહોન લોગી બેઈર્ડ

(b) ટેલિવિઝન

(2) રોન્ટજન

(c) રેડિયો

(3) ઈગોર સિકોસ્કી

(d) એક્સરે મશીન

(4) જી. માર્કોની

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

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

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

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

104 The occurrence of the completion of an activity, is called its

(A) head event

(B) tail event

(C) dual role event

(D) none of the above

$$(A) \quad L = \frac{V^3}{CR}$$

$$(B) \quad L = \frac{V^3}{16CR}$$

$$(C) \quad L = \frac{V^3}{24CR}$$

$$(D) \quad L = \frac{V^3}{48CR}$$

where C = Rate of change of radial acceleration in m/s^3 ,

R = Radius of circular curve in metres, and

V = Speed of the vehicle in kmph.

106 The standard height of a standard rain gauge is

(A) 10 cm

(B) 20 cm

(C) 30 cm

(D) 40 cm

107 રૂઢિપ્રયોગનો સાચો અર્થ શોધો.

છાતી પર લાળા

(A) અત્યંત દુઃખદ સ્થિતિ

(B) હિંમત હોવી

(C) મદાનગી હોવી

(D) છપ્પનની છાતી હોવી

108 In remote sensing system, the system which works as both the receiver and the transmitter is known as,

(A) Framing system

(B) Active system

(C) Passive system

(D) Scanning system

109 BIOSનું પૂરું નામ શું છે ?

(A) Basic Input Output Source

(B) Basic Input Output System

(C) Basic Input Output Section

(D) Basic Input Output Solution

110 Dissolved oxygen in streams is

- (A) maximum at noon
- (B) minimum at noon
- (C) maximum at midnight
- (D) same throughout the day

111 “પાસ પાસેના મૂળાક્ષરો વચ્ચે એકી સંખ્યામાં મૂળાક્ષરો છોડવામાં આવે છે.” નીચેનામાંથી કઈ શ્રેણીમાં આ નિયમ પળાય છે ?

- (A) FIMRX
- (B) EIMQV
- (C) BDHLR
- (D) MPRUX

112 In a high-rate trickling filter, the problem of ponding can be solved by

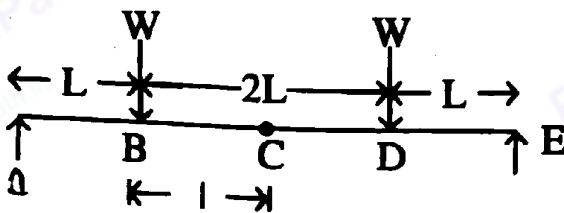
- (A) flooding and raking
- (B) chlorination and supply of air
- (C) raking and chlorination
- (D) flooding and supply of air

113 અલંકારનો પ્રકાર વિકલ્પમાંથી શોધો.

રખે છેયો થાકી જાય.

- (A) ઉપમા
- (B) પ્રાસસાંકળી
- (C) ઉત્પ્રેક્ષા
- (D) રૂપક

114 Which portions of the loaded beam shown in the given figure is subjected to pure bending ?



- (A) AB
- (B) DE
- (C) AE
- (D) BD

- (A) humble (B) guilty
(C) smooth (D) gentle

116 A two way slab

- (A) may be simply supported on the four edges, with corners not held down and carrying uniformly distributed load
(B) may be simply supported on the four edges, with corners held down and carrying uniformly distributed load
(C) may have edges fixed or continuous and carrying uniformly distributed load
(D) all of the above

117 150 મીટર લાંબી ટ્રેઈન 40.5 સેકન્ડમાં 300 મીટરનું બોગદું પાર કરે છે. તો ટ્રેઈનની ઝડપ કિ.મી./કલાકમાં શોધો.

- (A) 13.33 (B) 26.67
(C) 40 (D) 66.67

118 A column is restrained against rotation at one end and against translation at the other end. The Euler's critical buckling load for this column will be

- (A) $\frac{4\pi^2 EI}{l^2}$ (B) $\frac{2\pi^2 EI}{l^2}$
(C) $\frac{\pi^2 EI}{l^2}$ (D) $\frac{\pi^2 EI}{4l^2}$

119 'નરસિંહ રા માલ્હરા' કૃતિના રચયિતાનું નામ જણાવો.

- (A) ભક્તકવિ દયારામ (B) મીરાંબાઈ
(C) મહાકવિ પ્રેમાનંદ (D) નરસિંહ મહેતા

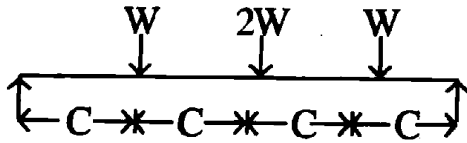
120 When the walls are subjected to heavy loading and the bearing capacity of the soil is very low, then the wall is constructed on

- (A) reinforced concrete footing
- (B) column footing
- (C) lean concrete footing
- (D) none of the above

121 In PERT network, expected project duration is found to be 38 days from the start of the project. The variance is four days, the probability that the project will be completed in 38 days is

- (A) 0.4
- (B) 0.5
- (C) 0.6
- (D) 0.7

122 A simply supported beam is loaded as shown in the below figure. The maximum shear force in the beam will be



- (A) zero
- (B) W
- (C) 2 W
- (D) 4 W

123 સૂર્ય દરેક નક્ષત્રમાં કેટલા દિવસ રહે છે ?

- (A) 30
- (B) 20
- (C) 13.5
- (D) 10.5

124 A bus takes no less than 25 mins to reach a destination and sometimes as much as 48 min. 35 min time is the most frequent time to reach the destination. If this task of the bus is an activity in PERT project, then the expected time to reach the destination by bus is min.

- (A) 25.5
- (B) 48.5
- (C) 35.5
- (D) 30.5

125 'જળ સંચય' અને 'જળ સિંચન' દ્વારા વરસાદી પાણીનો ઉપયોગ કરીને જળ સંરક્ષણ અને ભૂગર્ભજળ રિચાર્જ સંવર્ધન તથા વોટરશેડ વિકાસ જેવા કામો માટેની કેન્દ્ર સરકારની યોજના જણાવો.

- (A) પ્રધાનમંત્રી કૃષિ જળ સિંચન યોજના
- (B) પ્રધાનમંત્રી જળ સિંચન અને સંચય યોજના
- (C) પ્રધાનમંત્રી જળ સિંચન યોજના
- (D) પ્રધાનમંત્રી કૃષિ સિંચાઈ યોજના

126 Plates in the structural steelwork are used to

- (A) Connect steel beams
- (B) Serve as tension members of steel roof truss
- (C) Form built-up sections of steel
- (D) All of the above

127 નીચે આપેલ શબ્દનો સાચો વિરોધી શબ્દ વિકલ્પમાંથી શોધો :

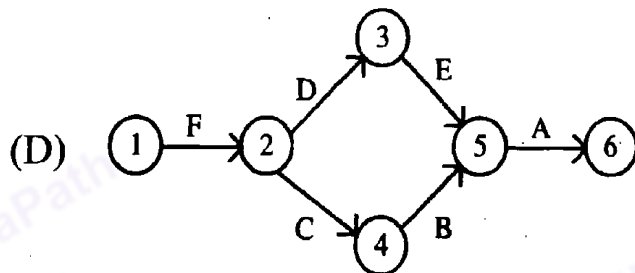
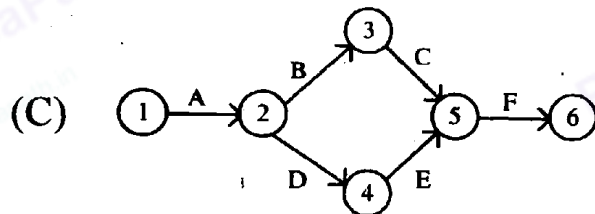
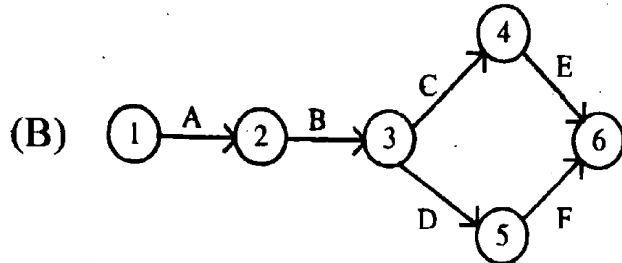
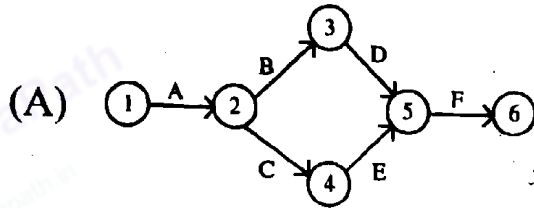
વ્યક્તિ

- (A) સમષ્ટિ
- (B) અવ્યક્તિ
- (C) સુવ્યક્તિ
- (D) અળગું

128 Self purification of stream is retarded by

- (A) higher temperature
- (B) sunlight
- (C) satisfying oxygen demand
- (D) none of the above

- 129 In a project, activities *B* and *C* follows *A*, activity *D* follows *B*, activity *E* follows *C* and activities *D* and *E* precede *F*. The correct network for the projects is



- 130 Give similar word of 'set free'

- (A) free of charge (B) release
(C) start far (D) rise

- 131 Which of the following fluids can be classified as non-Newtonian ?

- (1) Kerosene oil (2) Diesel oil
(3) Human blood (4) Toothpaste
(5) Water

Select the correct answer using the codes given below :

- (A) 1 and 2 (B) 3 and 4
(C) 2 and 5 (D) 1 and 5

132 બાબકોની જાતીય સતામણી કેસમાં ઝડપી ન્યાય મળે તે માટે ભારતની કેન્દ્ર સરકારે કયો કાયદો અમલી બનાવ્યો છે ?

- (A) ધી પ્રોટેક્શન ફોર ચિલ્ડ્રન ઓફ સેક્સ્યુઅલ ઓફેન્સીસ એક્ટ-2012
(B) ધી પ્રોટેક્શન ઓફ ચિલ્ડ્રન ફ્રોમ સેક્સ્યુઅલ ઓફેન્સીસ એક્ટ-2012
(C) ધી પ્રોટેક્શન ઓફ ચાઈલ્ડ ફ્રોમ સેક્સ્યુઅલ ઓફેન્સીસ એક્ટ-2012
(D) ધી પ્રોટેક્શન ઓફ ચિલ્ડ્રન અગેઈનસ્ટ સેક્સ્યુઅલ ઓફેન્સીસ એક્ટ-2012

133 The hydrology cycle is expressed by the equation

- (A) $P = E - R$ (B) $P = E + R$
(C) $P = E \times R$ (D) $P = E / R$

where P = Precipitation, E = Evaporation, and R = Run-off.

134 સંધિ જોડો.

ફળ + આગમ

- (A) ફલોગમ (B) ફલાગમ
(C) ફલાફલ (D) ફૂલાગમ

135 The time estimates for 3 activities A, B & C are as follows :

Activity	Optimistic Time	Pessimistic Time	Most Likely Time
A	10	12	14
B	5	10	12
C	6	8	12

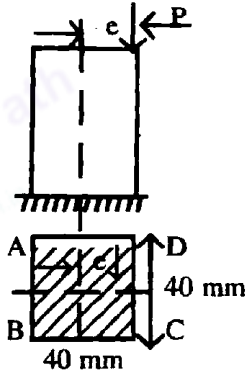
Then,

- (A) Activity A is more reliable
(B) Activity B is more reliable
(C) Activity C is more reliable
(D) Cannot say about reliability

136 The bearing capacity of soils can be improved by

- (A) increasing the depth of footing
- (B) draining the sub-soil water
- (C) ramming the granular material like crushed stone in the soil
- (D) all of the above

137 A column of square section $40 \text{ mm} \times 40 \text{ mm}$, fixed to the ground carries an eccentric load P of 1600 N as shown in the figure.



If stress developed along the edge CD is -1.2 N/mm^2 , the stress along the edge AB will be *

- (A) -1.2 N/mm^2
- (B) $+1 \text{ N/mm}^2$
- (C) $+0.8 \text{ N/mm}^2$
- (D) -0.8 N/mm^2

138 ભારતમાં નેશનલ સ્પોર્ટ્સ ડે ક્યારે ઉજવવામાં આવે છે ?

- (A) 27, જુલાઈ
- (B) 23, ઓક્ટોબર
- (C) 29, ઓગસ્ટ
- (D) 28, માર્ચ

139 The ultimate BOD value of a waste

- (A) increase with temperature
- (B) decreases with temperature
- (C) remains the same at all temperatures
- (D) doubles with every 10°C rise in temperature

140 ગુજરાત રાજ્યના વર્તમાન ગવર્નરશ્રી ઓમપ્રકાશ કોહલીના અગાઉના ગવર્નરનું નામ જણાવો.

- (A) માગરિટ થેચર (B) કમલા બેનીવાલ
(C) નવલકિશોર શર્મા (D) માગરિટ આલ્વા

141 Split strength of concrete can be determined by

- (A) Brazillion test (B) Vicat's apparatus
(C) Cube test (D) Briquettes test

142 સંધિ છોડો.

અભિષિક્ત

- (A) અભિ + શિક્ત (B) અભુ + શિક્ત
(C) અભિઃ + શિક્ત (D) અભિ + શિક્ત

143 Match the columns with the regard to defect in timber.

- | | |
|----------------------------------|----------------|
| (A) Defect due to conversion | (1) Warp |
| (B) Defect due to fungi | (2) Termites |
| (C) Defect due to insect | (3) Wet root |
| (D) Defect due to natural forces | (4) Torn Grain |
| (E) Defect due to seasoning | (5) Knots |

- (A) 1-A, 2-B, 3-C, 4-D, 5-E
(B) 4-A, 3-B, 2-C, 5-D, 1-E
(C) 4-A, 3-B, 2-C, 1-D, 5-E
(D) 2-A, 3-B, 5-C, 4-D, 1-E

144 A device in which dust in a gas is removed by electrostatic attraction is called

- (A) cyclone scrubber (B) fabric filter
(C) electrostatic precipitator (D) none of the above

- (A) good (B) bad
(C) worse (D) best

146 Most commonly used control device for particulate matter is

- (A) filter bey house (B) electronic precipitator
(C) cyclone collector (D) none of the above

147 કયા શહેરમાં ભરાયેલ અધિવેશન સમયે કોંગ્રેસના ભાગલા પછી હતા ?

- (A) હરિપુરા (B) વડોદરા
(C) સુરત (D) અમદાવાદ

148 The number of stirrups resisting shear force, in a reinforced beam, is given by

- (A) $\frac{\text{Shear force}}{\text{Spacing of stirrups}}$ (B) $\frac{\text{Lever arm}}{\text{Spacing of stirrups}}$
(C) $\frac{\text{Spacing of stirrups}}{\text{Lever arm}}$ (D) $\frac{\text{Spacing of stirrups}}{\text{Shear force}}$

149 અત્રે દર્શાવેલ કૃતિઓમાંથી કઈ કૃતિ ભક્ત કવિ નરસિંહ મહેતાની નથી ?

- (A) દાશલીલા (B) સુદામાચરિત્ર
(C) પુત્રવિવાહ (D) દાશયાતુરી

150 For laminar flow in a pipe of circular cross-section, the Darcy's friction factor is

- (A) directly proportional to Reynolds number and independent of pipe wall roughness
(B) directly proportional to pipe wall roughness and independent of Reynolds number
(C) inversely proportional to Reynolds number and directly proportional to pipe wall roughness
(D) none of the above