



CBRT - 2020 Question Paper Grid

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Set Name

Subjects

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Assistant Professor(Civil Engineering)

Itemcode : CE1001

Q1 : A single force and a couple acting in the same plane upon a rigid body

- (a) Balance each other
- (b) Cannot balance each other
- (c) Produce moment of a couple
- (d) Produce a couple

Key: **B**

Itemcode : CE1002

Q2 : The coefficient of friction between two surfaces is the constant of proportionality between the applied force and normal reaction

- (a) At the instant of impending motion
- (b) At an instant after the motion takes place
- (c) At the instant of application of force
- (d) At the instant when the body is at rest

Key: **A**

Itemcode : CE1003

Q3 : According to the law of moments, if a number of coplanar forces acting on a particle are in equilibrium, then

- (a) Their lines of action are at equal distances
- (b) The algebraic sum of their moments about any point in their plane is zero
- (c) The algebraic sum of their moments about any point is equal to the moment of their resultant force about the same point.
- (d) Their algebraic sum is zero

Key: **B**

Itemcode : CE1004

Q4 : When a particle moves with a uniform velocity along a circular path, then the particle has

- (a) tangential acceleration only
- (b) centripetal acceleration only
- (c) both tangential and centripetal acceleration
- (d) none of the mentioned

Key: **B**

Itemcode : CE1005

Q5 : Moment of inertia of a triangular section of base b and height h about an axis passing through the vertex and parallel to the base is _____ times that passing through its Centroid and parallel to its base

- (a) Nine
- (b) Six
- (c) Four
- (d) Two

Key: **A**

Itemcode : CE1006

Q6 : Main difference between Boussinesq and Westergaard's theory is due to

- (a) Consideration of different soil modulus value E
- (b) Poisson's ratio
- (c) Homogeneous nature of soil
- (d) Presence of voids and channels in soil

Key: **B**

Itemcode : CE1007

Q7 : In a compaction test when the compacting effort increases the optimum moisture content

- (a) Decreases
- (b) No change
- (c) Increases
- (d) Unpredictable

Key: **A**

Itemcode : CE1008

Q8 : At liquid limit all soil possess

- (a) Same shear strength of small magnitude
- (b) Same shear strength of large magnitude
- (c) Different shear strengths of small magnitude
- (d) Different shear strengths of large magnitude

Key: **A**

Itemcode : **CE1009**

Q9 : Which of the following are the assumptions of Terzaghi's theory of one-dimensional consolidation?

- 1) Soil is fully saturated and flow is turbulent.
- 2) Flow is one Dimensional
- 3) Hydrodynamic lag is considered while plastic lag is ignored
- 4) Soil is homogeneous and isotropic.

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

Key: **D**

Itemcode : **CE1010**

Q10 The net ultimate bearing capacity of a purely cohesive soil

- (a) depends on the width of the footing and is independent of the depth of the footing
- (b) depends on the width as well as the depth of the footing
- (c) depends on the depth, but is independent of the width of the footing
- (d) is independent of both the width and the depth of the footing

Key: **D**

Itemcode : **CE1011**

Q11 A uniformly distributed load longer than the span of girder moves from left to right. The maximum bending moment at the centre of the span occurs when the uniformly distributed load occupies

- (a) whole span of girder
- (b) right half span of the girder
- (c) left half span of the girder
- (d) none of these

Key: **A**

Itemcode : **CE1012**

Q12 For stable structures, one of the important properties of flexibility and stiffness matrices is that the elements on the

- main diagonal
 - (i) of a stiffness matrix must be positive
 - (ii) of a stiffness matrix must be negative
 - (iii) of a flexibility matrix must be positive
 - (iv) of a flexibility matrix must be negative
- The correct answer is

- (a) (i) and (iii)
- (b) (ii) and (iii)
- (c) (i) and (iv)
- (d) (ii) and (iv)

Key: **A**

Itemcode : **CE1013**

Q13 For a two-hinged arch, if one of the supports settles down vertically, then the horizontal thrust

- (a) Is increased
- (b) Is decreased
- (c) Remains unchanged
- (d) Becomes zero

Key: **C**

Itemcode : **CE1014**

Q14 Degree of static indeterminacy of a rigid-jointed plane frame having 15 members, 3 reaction components and 14 joints is

- (a) 2
- (b) 3
- (c) 6
- (d) 8

Key: **C**

Itemcode : **CE1015**

Q15 Study the following statements

- (i) The displacement method is more useful when degree of kinematic indeterminacy is greater than the degree of static indeterminacy.
- (ii) The displacement method is more useful when degree of kinematic indeterminacy is less than the degree of static indeterminacy.
- (iii) The force method is more useful when degree of static indeterminacy is greater than the degree of kinematic indeterminacy.
- (iv) The force method is more useful when degree of static indeterminacy is less than the degree of kinematic

indeterminacy.
The correct answer is

- (a) (i) and (iii)
- (b) (ii) and (iii)
- (c) (i) and (iv)
- (d) (ii) and (iv)

Key: **D**

Itemcode : **CE1016**

Q16 The stress strain curve of concrete in compression is obtained by testing the cylindrical specimen under :

- (a) Uniform rate of strain
- (b) Uniform rate of stress
- (c) Constant stress condition
- (d) Constant strain condition

Key: **A**

Itemcode : **CE1017**

Q17 The tensile strength of concrete is approximately what percent of compressive strength of concrete :

- (a) 50%
- (b) 20%
- (c) 10%
- (d) 5%

Key: **C**

Itemcode : **CE1018**

Q18 The technique for establishing and maintaining priorities among the various jobs of a project is known as :

- (a) Event flow scheduling technique
- (b) Critical ratio scheduling
- (c) Slotting technique for scheduling
- (d) Short interval scheduling.

Key: **D**

Itemcode : **CE1019**

Q19 Pick up the correct statement from the following :

- (a) CPM analysis is activity oriented
- (b) PERT analysis is event oriented
- (c) CPM does not make any allowance for the uncertainties in the duration of time
- (d) All the above.

Key: **D**

Itemcode : **CE1020**

Q20 Workability of concrete is independent of :

- (a) Mix proportions
- (b) Water content
- (c) Size, shape and texture of aggregate
- (d) None of above

Key: **D**

Itemcode : **CE1021**

Q21 Generally purlins are placed at panel points so as to avoid :

- (a) Axial force in rafter
- (b) Shear force in rafter
- (c) Deflection of rafter
- (d) Bending Moment in rafter

Key: **D**

Itemcode : **CE1022**

Q22 The maximum slenderness ratio of a steel column carrying both dead and superimposed load is :

- (a) 180
- (b) 160
- (c) 200
- (d) 250

Key: **A**

Itemcode : **CE1023**

Q23 The lug angle is :

- (a) Used with single angle member
- (b) Not used with double angle member

- (c) Used with channel member
(d) All of the above

Key: **D**

Itemcode : **CE1024**

Q24 What is the minimum number of anchor bolts provided even if the steel column is subjected to only axial loads.
:

- (a) 2
(b) 4
(c) 6
(d) 9

Key: **A**

Itemcode : **CE1025**

Q25 As per IS 800 for compressive flange, the outstand of flange plates should not exceed
:

- (a) 12t
(b) 16t
(c) 20t
(d) 25t

Key: **B**

Itemcode : **CE1026**

Q26 The piezometer is not used for pressure measurement in pipe when
:

- (a) The pressure is very low
(b) Velocity of fluid is high
(c) Velocity of fluid is low
(d) Fluid in pipe is gas

Key: **D**

Itemcode : **CE1027**

Q27 When the pipes are connected in parallel, the total head loss
:

- (a) Is equal to the sum of the loss of head in each pipe
(b) Is same as in each pipe
(c) Is equal to the reciprocal of the sum of loss of head in each pipe
(d) None of the above

Key: **B**

Itemcode : **CE1028**

Q28 A triangular lined canal section with corners rounded off by a radius equal to the full supply depth of 4m is likely to
: have its hydraulic radius as

- (a) 4m
(b) 3m
(c) 2m
(d) Cannot be ascertained as side slopes are not given

Key: **C**

Itemcode : **CE1029**

Q29 A high efficiency pump is required for low discharge high head and low maintenance cost. Delivery of water need not be
: continuous. The pump need not run at high speed. Which one of the following is the correct choice?

- (a) Centrifugal Pump
(b) Reciprocating Pump
(c) Airlift Pump
(d) Hydraulic Ram

Key: **B**

Itemcode : **CE1030**

Q30 In all reaction turbines, maximum efficiency is obtained when the
:

- (a) Guide vane angle is 90 degrees
(b) Blade angle is 90 degrees at inlet
(c) Blade angle is 90 degrees at the outlet
(d) Angle of the absolute velocity vector at the outlet is 90 degrees

Key: **D**

Itemcode : **CE1031**

Q31 The increase in meta centric height
:
1. Increase stability
2. Decrease stability
3. Increases comfort for passengers
4. Decreases comfort for passengers
The correct answer is

- (a) 1 & 3
(b) 1 & 4

- (c) 2 & 3
(d) 2 & 4
Key: **B**

Itemcode : **CE1032**

Q32 The maximum limit for fluoride in drinking water is :

- (a) 0.1mg/lit
(b) 1.5mg/lit
(c) 1.8mg/lit
(d) 10mg/lit
Key: **B**

Itemcode : **CE1033**

Q33 Which of the following units work in anaerobic condition :

- (a) Sedimentation Tank
(b) Sludge Digestion Tank
(c) Trickling Filter
(d) None
Key: **B**

Itemcode : **CE1034**

Q34 The ultimate Biochemical Oxygen Demand (BOD) value of a waste :

- (a) Increases with temperature
(b) Decreases with temperature
(c) Remains same at all temperatures
(d) Doubles with every 10 degree celcius rise in temperature
Key: **C**

Itemcode : **CE1035**

Q35 Ozone gas is chiefly present in layers between :

- (a) 20 & 35 Kms above ground level
(b) 25 & 40 Kms above ground level
(c) 30 & 50 Kms above ground level
(d) 35 & 55 Kms above ground level
Key: **B**

Itemcode : **CE1036**

Q36 The minimum dissolved oxygen which should always be present in water for a life is :

- (a) 200 PPM
(b) 50 PPM
(c) 4 PPM
(d) 1 PPM
Key: **C**

Itemcode : **CE1037**

Q37 Super elevation is provided on a curve at :

- (a) Inner edge
(b) Center
(c) Outer Edge
(d) Quarter Point
Key: **C**

Itemcode : **CE1038**

Q38 The design of horizontal & vertical alignments, super elevation, gradient is worst affected by :

- (a) Length of the vehicle
(b) Width of the vehicle
(c) Speed of the vehicle
(d) Height of the vehicle
Key: **C**

Itemcode : **CE1039**

Q39 Select the correct statement :

- (a) More the value of group index, less thickness of the pavement will be required
(b) More the value of CBR, greater thickness of pavement will be required
(c) Minimum and maximum values of group index can be 0 and 20 respectively
(d) All of the above
Key: **C**

Itemcode : **CE1040**

Q40 The stopping sight distance depends upon
:

- (a) Total reaction time of the driver
- (b) Speed of the vehicle
- (c) Efficiency of brakes
- (d) All of the above

Key: **D**

Itemcode : **CE1041**

Q41 During leveling if back sight is more than foresight then
:

- (a) The forward staff is at lower point
- (b) The back staff is at lower point
- (c) The difference in level cannot be ascertained
- (d) None of these

Key: **B**

Itemcode : **CE1042**

Q42 The imaginary line lying on the ground and maintaining a constant slope is known as
:

- (a) Contour line
- (b) Horizontal Equivalent
- (c) Contour Interval
- (d) Grade Contour

Key: **D**

Itemcode : **CE1043**

Q43 Which of the following sights will be applicable for a change point?
:

- (a) Back sight
- (b) Intermediate sight and Fore sight
- (c) Fore Sight
- (d) Back Sight and Fore Sight

Key: **D**

Itemcode : **CE1044**

Q44 Curvature correction to the staff reading in a differential leveling survey is
:

- (a) Always subtractive
- (b) Always zero
- (c) Always positive
- (d) Depends upon latitude

Key: **A**

Itemcode : **CE1045**

Q45 Change points in leveling are
:

- (a) The instrument station that are changed from one position to another
- (b) The staff station that are changed from point to point to obtain reduced levels of the points
- (c) The staff stations of known elevations
- (d) The staff stations where back sight and fore sight readings are taken

Key: **D**

Itemcode : **CE1046**

Q46 Basic value of span to effective depth ratio for span upto 10m in case of continuous beam for deflection control is
:

- (a) 7
- (b) 20
- (c) 26
- (d) 24

Key: **C**

Itemcode : **CE1047**

Q47 The distance between expansion joints shall not exceed
:

- (a) 45M
- (b) 60M
- (c) 35M
- (d) 15M

Key: **A**

Itemcode : **CE1048**

Q48 The maximum permissible shear stress given in IS 456-2000 is based on
:

- (a) Diagonal tension failure
- (b) Diagonal compression failure
- (c) Flexural tension failure
- (d) Flexural compression failure

Key: **B**

Itemcode : **CE1049**

Q49 The ratio of permissible shear stress in limit state method of design and working stress method of design is :

- (a) 25:16
- (b) 3:5
- (c) 16:25
- (d) 4:5

Key: **A**

Itemcode : **CE1050**

Q50 In Pre-stressed concrete members the final deflection due to all loads including the effects of temperature, creep and shrinkage shall not exceed

- (a) Span / 350
- (b) Span / 250
- (c) Span / 300
- (d) Span / 180

Key: **B**

Itemcode : **CE1056**

Q51 Who is the author of 'Dreams of a Billion: India and the Olympic Games'?

:

- (a) Ram Singh
- (b) Nalin Mehta
- (c) Chetan Bhagat
- (d) Baggi Anveil

Key: **B**

Itemcode : **CE1057**

Q52 How many commercial satellites have been launched by ISRO along with RISAT-2BR1?

:

- (a) 7
- (b) 9
- (c) 10
- (d) 12

Key: **B**

Itemcode : **CE1058**

Q53 The National Unity Day is celebrated every year on which of the following date?

:

- (a) October 31
- (b) October 30
- (c) October 29
- (d) October 20

Key: **A**

Itemcode : **CE1059**

Q54 The famous "Chatham Saw Mill" is located in which among the following states / union territories of India?

:

- (a) Daman & Diu
- (b) Goa
- (c) Andaman & Nicobar
- (d) Laskhadweep

Key: **C**

Itemcode : **CE1060**

Q55 One kilobyte (KB) is equal to

:

- (a) 1,000 bits
- (b) 1,024 byte
- (c) 1,024 megabytes
- (d) 1,024 gigabytes

Key: **B**

Itemcode : **CE1061**

Q56 The concentration of which gas is highest in our environment?

:

- (a) Oxygen
- (b) Hydrogen
- (c) Nitrogen

(d) Carbon dioxide
Key: **C**

Itemcode : **CE1062**

Q57 In which field of Art Jamini Roy make his name?

:

- (a) Music
- (b) Drama
- (c) Sculpture
- (d) Painting

Key: **D**

Itemcode : **CE1063**

Q58 Goa Shipyard Limited (GSL) was established in

:

- (a) 1972
- (b) 1957
- (c) 1962
- (d) 1965

Key: **B**

Itemcode : **CE1064**

Q59 Which country produces the most rubber in the world?

:

- (a) Vietnam
- (b) Malaysia
- (c) Thailand
- (d) India

Key: **C**

Itemcode : **CE1065**

Q60 The venue for Summer Olympics in year 2020 is _____

:

- (a) Paris
- (b) Tokyo
- (c) Qatar
- (d) Sydney

Key: **B**

Itemcode : **CE1066**

Q61 In each of the following questions a statement is given, followed by two conclusions. Give answer :

:

Statement : Today out of the world population of several thousand million, the majority of men have to live under governments which refuse them personal liberty and the right to dissent.

Conclusion :

- I. People are indifferent to personal liberty and the right to dissent.
- II. People desire personal liberty and the right to dissent.

- (a) Only conclusion I follows
- (b) Only conclusion II follows
- (c) Either I or II follows
- (d) Neither I or II follows.

Key: **B**

Itemcode : **CE1067**

Q62 Among Praveen, Pravat, Pankaj, Pratap, and Prakash, each having different weight, D is heavier than only A and C is lighter than B and E. Who among them is the heaviest?

- (a) Pravat
- (b) Pankaj
- (c) Prakash
- (d) Data inadequate

Key: **C**

Itemcode : **CE1068**

Q63 From the following numbers given, find the one that does not belong to the group.

:

- (a) 215
- (b) 143
- (c) 247
- (d) 91

Key: **A**

Itemcode : **CE1069**

Q64 QLR, JPD, RNU, GNC, SPX, DLB, ___

:

- (a) ARE

- (b) AJA
(c) BTU
(d) TRA
Key: **D**

Itemcode : **CE1070**

Q65 PKC, SPF, XSK, AXN, __, IFV
:

- (a) CAQ
(b) FCS
(c) FAS
(d) CFS
Key: **C**

Itemcode : **CE1071**

Q66 GTB, CYV, YDP, __, QND
:

- (a) DIV
(b) UIJ
(c) DDV
(d) UVV
Key: **B**

Itemcode : **CE1072**

Q67 Here are some words translated from an artificial language.
:

godabim means kidney stones

romzbim means kidney beans

romzbako means wax beans

Which word could mean "wax statue"?

- (a) godaromz
(b) lazvim
(c) wasibako
(d) romzpeo
Key: **C**

Itemcode : **CE1073**

Q68 Here are some words translated from an artificial language.
:

granamelke means big tree

pinimelke means little tree

melkehoon means tree house

Which word could mean "big house"?

- (a) granahoon
(b) pinishur
(c) pinihoon
(d) melkegrana
Key: **A**

Itemcode : **CE1074**

Q69 Here are some words translated from an artificial language.
:

lelibroon means yellow hat

plekafroti means flower garden

frotimix means garden salad

Which word could mean "yellow flower"?

- (a) lelifroti
(b) lelipleka
(c) plekabroon
(d) frotibroon
Key: **B**

Itemcode : **CE1075**

Q70 Here are some words translated from an artificial language.
:

myncabel means saddle horse

conowir means trail ride

cabelalma means horse blanket

Which word could mean "horse ride"?

- (a) cabelwir
- (b) conocabel
- (c) almamyn
- (d) conoalma

Key: **A**

Passage:

Read the following passage and answer the questions below

In the Roman times, defected enemies were generally put to death as criminals for having offended the emperor of Rome. In the middle ages, however, the practice of ransoming or returning prisoners in exchange for money became common. Though some saw this custom as a step towards a most humane society, the primary reasons behind it were economic rather than humanitarian.

In those times, rulers had only a limited ability to raise taxes. They could neither force their subject to fight nor pay them to do so. The promise of material compensation in the form of goods and ransom was therefore the only way of inducing combatants to participate in a war. In the middle ages, the predominant incentive for the individual soldiers was the expectation of spoils. Although collecting ransom clearly brought financial gain, keeping a prisoner and arrange for his exchange had its cost. Consequently, procedures were devised to reduce transaction costs.

One such device was a rule asserting that the prisoner had to assess his own value. This compelled the prisoner to establish a value without too much distortion; indicating too low a value would increase, the captive's chances of being killed, while indicating too high a value would either ruin him financially or create a prohibitively expensive ransom that would also result in death

Itemcode : **CE1051**

Q71 It can be inferred from the passage that a medieval soldier

:

- (a) was less likely to kill captured members of opposing armies than was a soldier of the Roman Empire
- (b) was similar to a 20th century terrorist in that he operated on a basically independent level and was motivated solely by economic incentives
- (c) had few economic options and chose to fight because it was the only way to earn an adequate living
- (d) was motivated to spare prisoners' lives by humanitarian rather than economic ideals

Key: **A**

Itemcode : **CE1052**

Q72 Which of the following best describes the change in policy from executing prisoners in Roman times to ransoming prisoners in the middle ages?

- (a) The emperors of Rome demanded more respect than did medieval rulers and thus Roman subjects went to greater lengths to defend their nation
- (b) it was a reflection of the lesser degree of direct control medieval ruler had over subjects
- (c) It became a show of strength and honour warrior of middle ages to be able to capture and return their enemies
- (d) Medieval soldiers were not as humanitarian as their ransoming practices might have indicated

Key: **B**

Itemcode : **CE1053**

Q73 The primary purpose of the passage is to

:

- (a) discuss the economic basis of the medieval practice of exchanging prisoners for ransom
- (b) examine the history of the treatment of prisoner of war
- (c) emphasize the importance of a warrior's code of honour during the middle ages
- (d) explore a way of reducing the cost of ransom

Key: **A**

Itemcode : **CE1054**

Q74 The author uses the phrase "without too much distortion" in order to

:

- (a) Indicate that prisoners would fairly assess their worth
- (b) emphasize the important role medieval prisoners played in determining whether they should be ransomed
- (c) explain how prisoners often paid more than an appropriate ransom in order to increase their chances of survival
- (d) suggest that captors and captives often had understanding relationships

Key: **A**

Itemcode : **CE1055**

Q75 Bring out the meaning of the word 'spoils' in the context of the passage.

:

- (a) Destroys
- (b) Ruins
- (c) Rewards
- (d) wastes

Key: **C**

