

ASSISTANT ENGINEER(CIVIL)ARCHAEOLOGY,KLDC-AGRICULTURE

EXAM DATE:30-07-2015

1.The line joining the optical centre of object glass to the centre of eye-piece of a telescope is:

- A.Line of collimation
- B.Line of sight
- C.Axis of bubble tube
- D.Axis of telescope*

Ans:D

2.The line normal to the plumb line at all points:

- A.Vertical line
- B.Horizontal line
- C.Datum line
- D.Level line*

Ans:D

3.The staff readings taken at stations A,B,C,D from a single setup of the level are 0.535,1.1.5,2.155,1.785.The station B is:

- A.Below A and D
- B.Above C and D*
- C.Between C and D
- D.None of the above

Ans:B

4.The BS is 6.655 taken on BM of RL 400.000.If FS is 1.45,RL of the last station is:

A.394.795

B.401.450

C.405.205*

D.406,655

Ans:C

5.The horizontal angle between the true meridian and magnetic meridian is known as:

A.Declination*

B.Dip

C.Bearing

D.Local attraction

Ans:A

6.The fore and back bearing of a line differ exactly by:

A. 360°

B. 180° *

C. 90°

D. 45°

Ans:B

7.The angles of elevation from A to the top and bottom of a rod of length 2 m held vertically at B are 45° and 30° respectively.The horizontal distance AB is:

A.4.732 m*

B.1.268 m

C.3.464 m

D.0.789 m

Ans:A

8.The sun is at the Autumnal Equinox on:

A.March 21

B.June 21

C.September 21*

D.December 21

Ans:C

9.Subsidiary station established as near the true triangulation station as possible is known as:

A.Satellite station*

B.Principal station

C.Central station

D.Pivot station

Ans:A

10.A ladder of weight W is resting against a smooth vertical wall and a smooth floor.The minimum force to be applied at the floor end to keep it in equilibrium at angle (θ) with floor is:

A. $W \tan(\theta)$

B. $0.5 W \tan(\theta)$

C. $W \cot(\theta)$

D. $0.5 W \cot(\theta)$ *

Ans:D

11.The centre of gravity of a right circular hollow cone of diameter d and height h lies at a vertical distance of-----from the base.

A.h/2

B.h/3*

C.h/4

D.h/6

Ans:B

12.A block of weight 20kN just begins to move along a horizontal surface on application of 5kN horizontal force.The coefficient of friction between block and surface is:

A.0.10

B.0.20

C.0.25*

D.0.50

Ans:C

13.Which of the following is an incorrect assumption in the analysis of truss?

A.All joints are pinned

B.Loads applied at joints only

C.All members are straight

D.Weights of members are acting at their centres*

Ans:D

14.During strain hardening:

A.Material undergoes changes in atomic and crystalline structures

B.Increased resistance to further deformation

C.Stress strain diagram has positive slope

D.All the above*

Ans:D

15.Ability of a material to absorb energy within the elastic range:

A.Toughness

B.Elasticity

C.Stiffness

D.Resilience*

Ans:D

16.A cantilever beam fixed at left end carries a udl w /unit length over the left half portion and a point load W at the free end.If L is the length of the beam,the bending moment at fixed end is:

A. $WL/2 + wL^2/4$

B. $wL/2 + WL^2/4$

C. $wL + WL^2/8$

D. $WL + wL^2/8$ *

Ans:D

17.A beam ABC,is simply supported at A and B and BC is overhanging. $AB=L$ and $BC=L/2$ and it carries a point load P at C.The deflection at C is:

A. $PL^2/24EI$

B. $PL^3/8EI$ *

C. $PL^3/48EI$

D. $PL^2/16EI$

Ans:B

18.The poisson's ratio of a material is 0.3 and Young's modulus is 200 GPa.Its Rigidity Modulus is:

A.77 GPa*

B.51 GPa

C.125 GPa

D.333 GPa

Ans:A

19.Bending moment M and torque T are applied on a solid circular shaft.If the maximum bending stress is equal to the maximum shear stress developed, M is equal to:

A. T

B. $2T$

C. $T/2$ *

D. $T/4$

Ans:C

20.Surface tension is caused by a force of at the free surface

A.Adhesion

B.Cohesion*

C.Both(a)and (b)

D.Either(a)or(b)

Ans:B

21.Find the height of a mountain if pressure measured at its base and top are 74 cm and 60 cm of mercury respectively.Specific weight of air is 11.97 N/m^3 :

A.1000 m

B.1750 m

C.2600 m

D.1560 m*

Ans:D

22.A stable submerged body has:

A.Centre of gravity below centre of buoyancy*

B.Centre of gravity below metacentre

C.Centre of gravity above centre of buoyancy

D.Centre of gravity above metacentre

Ans:A

23.Poise is the unit of:

A.Density

B.Velocity gradient

C.Kinematic viscosity

D.Dynamic viscosity*

Ans:D

24.The velocity distribution at any section of a pipe for steady laminar flow is:

A.Linear

B.Exponential

C.Parabolic*

D.Constant

Ans:C

25.In flow through pipe,the efficiency of transmission under conditions of maximum power transmission is:

A.50%

B.66.67%*

C.70%

D.95.9%

Ans:B

26.A rectangular channel will be most economical when the flow depth and bottom width are in the ratio

A.2:1

B.1:1

C.1:2*

D.1:4

Ans:C

27.Water flow in large sized pipes for large flow rates can be measured using:

A.Orifices

B.Notches

C.Venturi meter*

D.Elbow meter

Ans:C

28.An inward flow reaction turbine:

A.Impulse turbine

B.Francis turbine*

C.Pelton turbine

D.All the above

Ans:B

29.The amount of moisture present in the air expressed as mass per unit volume is:

- A.Absolute humidity*
- B.Saturation rate
- C.Vapour pressure
- D.All the above

Ans:A

30.The salt concentration in irrigation water is generally measured by:

- A.SAR value
- B.Electrical conductivity value*
- C.pH value
- D.BOD value

Ans:B

31.Optimum depth of kor watering for rice is:

- A.13.5 cm
- B.16.5 cm
- C.19 cm*
- D.20 cm

Ans:C

32.The crop period of a crop is 120 days.It requires 10 cm depth of water at every 10 days.Its delta is:

- A.120 cm*
- B.60 cm
- C.12 cm

D.6 cm

Ans:A

33.The water which cannot be extracted by the plants from the soil is called:

A.Capillary water

B.Hygroscopic water*

C.Available moisture

D.Field capacity

Ans:B

34.The canal which is not supposed to do any irrigation is called:

A.Major distributor

B.Minor distributor

C.Branch canal

D.Main canal*

Ans:D

35.The geological formation which contains and readily yields water to tube wells:

A.Water table

B.Aquifer*

C.Aquiclude

D.Aquifuge

Ans:B

36.Type of cross-----drainage work where canal is passed below the drainage is:

A.Super passage*

B.Aqueduct

C.Inlet

D.Level crossing

Ans:A

37.A reservoir which retains excess supplies during periods of peak flows and release them gradually during low flows:

A.Retarding reservoir

B.Flood-Control reservoir

C.Distribution reservoir

D.Conservation reservoir*

Ans:D

38.A plot of cumulative rain versus time is called:

A.Mass curve*

B.Hydrograph

C.Hyetograph

D.DAD curve

Ans:A

39.Example of subsurface source of water:

A.River

B.Ponds

C.Spring*

D.Streams

Ans:C

40.The standard unit of turbidity of water is that which is produced by 1 mg of-----dissolved in one litre of distilled water.

- A.Finely divided silica*
- B.Platinum cobalt
- C.Potassium permanganate
- D.Formazin

Ans:A

41.A compound that imparts temporary hardness to water:

- A.Calcium sulphate
- B.Magnesium chloride
- C.Calcium nitrate
- D.Magnesium carbonate*

Ans:D

42.Which of the following is incorrect regarding a slow sand filter:

- A.Incoming water should not be treated by coagulants
- B.Depth of water should be double double the depth of filter sand*
- C.Loss of head is limited to a maximum of 1.2m
- D.Cleaning should not be done by back washing

Ans:B

43.A method of disinfection of drinking water:

- A.Treatment with excess lime
- B.Treatment with ozone
- C.Electra-Katadyn process
- D.All the above*

Ans:D

44.BOD of effluent from secondary biological treatment of sewage is:

- A.0 to 5% of the original
- B.5 to 10% of the original*
- C.25 to 40% of the original
- D.50 to 60% of the original

Ans:B

45.During sludge digestion:

- A.Acidity condition should prevail
- B.Alkaline condition should prevail*
- C.Acidity or alkaline condition
- D.Neutral condition should prevail

Ans:B

46.The disposal method in which solid waste is heated in an oxygen free atmosphere and reduced to gaseous, liquid and solid fractions:

- A.Pyrolysis*
- B.Pulverisation
- C.Incineration
- D.Composting

Ans:A

47.The best system of plumbing of drainage work in building is:

- A.One pipe system
- B.Two pipe system*
- C.Single stack system

D.Partially ventilated single stack system

Ans:B

48.Water content of soil is 0.15,Degree of saturation 70%,void ratio is 0.61,then specific gravity is:

A.2.85*

B.2.13

C.2.50

D.2.17

Ans:A

49.The numerical difference between liquid limit and plastic limit is :

A.Liquidity index

B.Plasticity index*

C.Consistency index

D.Flow index

Ans:B

50.The intensity of vertical stress at depth z below a concentrated load Q,by Boussinesq equation is:

Ans:-----

51.The volumetric strain per unit increase in effective stress of soil is defined as:

A.Compression index

B.Volume compressibility*

C.Coefficient of compressibility

D.Consolidation

Ans:B

52.Failure of a finite slope along a surface that intersects the slope above the toe:

A.Compound failure

B.Base failure

C.Slope failure*

D.Toe failure

Ans:C

53.The height to diameter ratio of cylindrical specimen for uniaxial compression test of concrete is:

A.0.50

B.0.30

C.0.25

D.2.00*

Ans:D

54.Which of the following is a measure of dynamic modulus of elasticity of concrete?

A.Tangent modulus

B.Secant modulus

C.Initial tangent modulus*

D.All the above

Ans:C

55.The partial safety factor for strength of concrete for service ability limit state is:

A.1.00*

B.1.10

C.1.15

D.1.25

Ans:A

56.When reinforcement bars placed short of their required length need to be extended,we use:

A.Anchorages

B.Standard bends and hooks

C.Development length

D.Splices*

Ans:D

57.The ultimate moment of resistance by LSM for a beam with $b=300$ mm, $d=550$ mm,M20 concrete,reinforced with 4-25 mm dia Fe250 bars:

A.146 kNm

B.194 kNm

C.200 kNm*

D.210kNm

Ans:C

58.-----

59.The minimum area of tension reinforcement required in a rectangular beam section 200 mm*400 mm if Fe415 steel is used at 25 mm effective cover:

A.154 mm²*

B.180 mm²

C.164 mm²

D.193 mm²

Ans:A

60.Effective span of a simply supported beam is:

A.Face to face distance of supports

B.Clear span+effective depth*

C.Clear span-effective depth

D.Clear span+effective depth/2

Ans:B

61.Minimum grade of concrete for pre tensioned prestressed concrete:

A.M20

B.M30

C.M40*

D.M45

Ans:C

62.Minimum reinforcement required in either direction in slabs reinforced with high strength deformed bars is:

A.0.11

B.0.12*

C.0.15

D.0.17

Ans:B

63.Structural steel of grade Fe410 A has ultimate tensile strength of:

A.410 MPa*

B.328 MPa

C.300 MPa

D.520 MPa

Ans:A

64.The diameter of bolt hole for a bolt of nominal size 12 mm is:

A.12.0 mm

B.12.5 mm

C.13.0 mm*

D.14.0 mm

Ans:C

65.Common hot rolled steel axial compression members fail by:

A.Gross section yielding

B.Critical section rupture

C.Block shear

D.Flexural buckling*

Ans:D

66.As per Indian Standards,the maximum bearing pressure at the column base should not exceed the bearing strength equal to:

A.0.40 fck

B.0.45 fck

C.0.50 fck

D.0.60 fck*

Ans:D

67.A flat compression element of a cold formed steel section,stiffened at both edges parallel to the direction of stress is called:

- A.Stiffened compression element*
- B.Unstiffened element
- C.Multiple stiffened element
- D.Flat element

Ans:A

68.Failure by block shear at an end connection of a plate involves:

- A.Shear along two planes,tension along two planes
- B.Shear along one planes,tension along two planes
- C.Shear along two planes,tension along one plane*
- D.Shear along one plane,tension along one plane

Ans:C

69.Which of the following decides the width of taxi way?

- A.Tail width
- B.Fuselage length
- C.Wheel base
- D.Wing span of aircraft*

Ans:D

70.Elevator:

- A.Controls pitching of aircraft *
- B.Controls yawing of aircraft
- C.Is fixed on the wing
- D.Controls rolling of aircraft

Ans:A

71.What is the super elevation required on a horizontal circular curve of radius 100 m for a design speed of 50 km/h and coefficient of lateral friction 0.15?

A.0.017

B.0.027

C.0.047*

D.0.157

Ans:C

72.Ruling gradient for mountainous terrain is:

A.4%

B.5%*

C.6%

D.7%

Ans:B

73.The psychological widening required on a horizontal curve of radius 235 m for a design speed of 65 km/h is:

A.0.446 m*

B.0.456 m

C.0.646 m

D.0.656 m

Ans:A

74.If the cross slope of a terrain is 20%,according to IRC classification,it is a:

- A.Plain terrain
- B.Rolling terrain*
- C.Mountainous terrain
- D.Steep terrain

Ans:B

75.The number of vehicles occupying a unit length of a lane of roadway at a given instant is:

- A.Traffic volume
- B.Traffic capacity
- C.Traffic density*
- D.Basic capacity

Ans:C

76.Which of the following is a warning sign?

- A.One-way
- B.Speed limit
- C.Cycle crossing*
- D.Parking

Ans:C

77.The gauge of a railway track is defined as:

- A.The clear distance between inner faces of two rails*
- B.The clear distance between outer faces of two rails
- C.The centre to centre distance between two rails
- D.The distance between inner faces of a pair of wheels

Ans:A

78.Equilibrium cant for a 3 degree curve on a broad Gauge track,if the permitted speed is 70 kmph,is:

- A.18.85 cm
- B.16.20 cm
- C.15.85 cm
- D.11.25 cm*

Ans:D

79.The gradient which determines the maximum load that the engine can haul on a section:

- A.Ruling gradient*
- B.Momentum gradient
- C.Pusher gradient
- D.Super elevation

Ans:A

80.The difference between the latest allowable time and the earliest expected time is:

- A.Maximum float
- B.Total float
- C.Slack time*
- D.Free float

Ans:C

81.Military organization is:

- A.Line organization*
- B.Line and staff organization

C.Functional organization

D.None of these

Ans:A

82.'The Garden City' principle for town planning was introduced by:

A.Sir Ebenezer Howard*

B.Sir Patrick Geddes

C.Clarence Stein

D.Henry Wright

Ans:A

83.Which of the following is a natural growth of a town?

A.Ribbon development

B.Satellite growth

C.Scattered growth

D.All the above*

Ans:D

84.Honey comb brick wall is measured in:

A.Metres

B.Square metres*

C.Cubic metres

D.Number

Ans:B

85.The value of dismantled materials:

A.Scrap value*

B.Rateable value

C.Salvage value

D.Market value

Ans:A

86.Most chemically active concrete aggregate are from:

A.Igneous rock*

B.Sedimentary rock

C.Metamorphic rock

D.Sand stones

Ans:A

87.Common sugar added to concrete

A.Increases the strength of concrete

B.Retards the setting of concrete*

C.Accelerates the setting of concrete

D.Gives colour to concrete

Ans:B

88.Air permeability test is done to measure:

A.Setting time of cement

B.Soundness of cement

C.Chemical composition of cement

D.Fineness of cement*

Ans:D

89.ASCU is

A.A damp proofing material for concrete

B.A preservative for timber*

C.A type of brick bond

D.A type of building finish

Ans:B

90.For concrete exposed to dry conditions,the minimum curing period is:

A.5 days

B.7 days

C.10 days*

D.14 days

Ans:C

91.A window that projects out side the external walls of a room is:

A.Gable window

B.Sash window

C.Dormer window

D.Bay window*

Ans:D

92.A floor slab supported directly on column is called:

A.Ribbed slab

B.Flat slab

C.Flat plate*

D.Grid floor

Ans:C

93.Service plan:

A.Is drawn to a scale not less than that of site plan

B.Include layout of existing water supply system

C.Shows predominant wind direction

D.All the above*

Ans:D

94.The notational colour for existing hazardous building in a site plan is:

A.Black*

B.Red

C.Purple

D.Dark blue

Ans:A

95.For a rectangular foundation of width b,eccentricity of load should not exceed

A.b/2

B.b/3

C.b/5

D.b/6*

Ans:D

96.The projecting ornamental course at the junction of a wall and ceiling:

A.Coping

B.Corbel

C.Cornice*

D.Parapet

Ans:C

97.Group B building are:

- A.Residential
- B.Institutional
- C.Assembly
- D.Educational*

Ans:D

98.Roof trusses are generally used when the span exceeds:

- A.3m
- B.5m*
- C.10m
- D.15m

Ans:B

99.In struck pointing,the face of the pointing is:

- A.Flat
- B.Sloping outwards*
- C.Vertical but pressed inside
- D.Grooved

Ans:B

100.Minimum period before striking soffit formwork to slabs:

- A.21 days
- B.7 days
- C.3 days*
- D.1 day

Ans:C

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