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28026

AYUSH(Main) – 2017 – Set – 2
Composite Paper

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13. There is negative marking of 0.25 mark for each wrong answer.

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AYUSH(Main) – 2017 – Set – 2
Composite Paper

Time : 1 hour

Full Marks : 100

Each question carries 1 mark.

There is negative marking of 0.25 mark for each wrong answer.

Answer **all** questions, choosing the correct **one** from the alternatives suggested and darken the appropriate circle using BLUE **or** BLACK BALL POINT PEN.

1. A capacitor and an inductor are connected in separate AC circuits with a bulb glowing in both circuits. The bulb glows more brightly when :

    (1) A dielectric is introduced into gap between plates of capacitor

    (2) Separation between the plates of capacitor increases

    (3) The iron rod is introduced into the induction coil

    (4) Number of turns in the induction coil is increased

2. A current of 5 amp is flowing at 220V in the primary coil of a transformer. If the voltage produced in the secondary coil is 2200V and 50% of power is lost, then the current in the secondary coil is :

    (1) 2.5 amp (2) 0.25 amp

    (3) 5 amp (4) 0.5 amp

3. Temperature of the metal wire subjected to a constant potential difference increases, then drift velocity of the electron in it :

    (1) Increases, the thermal velocity increases

    (2) Decreases, the thermal velocity decreases

    (3) Decreases, the thermal velocity increases

    (4) Increases, the thermal velocity decreases

4. A charge Q is enclosed by a Gaussian sphere of radius R. If the radius is doubled, the outward electric flux will be :

    (1) Doubled

    (2) Increased four times

    (3) Reduced to half

    (4) Same

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5. How many 6mF, 200V condensors are needed to make a condensor of 18pF, 600V ?

(1) 9

(2) 18

(3) 3

(4) 27

6. If μ_o is permeability and ϵ_o is permittivity of free space, then the speed of light in vacuum is :

(1) $\sqrt{\mu_0 \epsilon_0}$

(2) $\dfrac{1}{\sqrt{\mu_0 \epsilon_0}}$

(3) $\sqrt{\dfrac{\mu_0}{\epsilon_0}}$

(4) $\sqrt{\dfrac{\epsilon_0}{\mu_0}}$

7. Two identical conducting ball have different +ve charges q_1 and q_2 respectively. The balls are brought together so that they touch each other and then kept in their original position. The force between them is :

(1) Greater than before the balls touched

(2) Same as that of before the balls touched

(3) Zero

(4) Less than that of before the balls touched

8. A beam of parallel rays is brought to a focus by a plano convex lens. A thin concave lens of same focal length is joined to the first lens. The effect is :

(1) The focal point shifts towards the lens

(2) The focus remains undisturbed

(3) The focus shifts to infinity

(4) The focus shifts away from the lens

9. A fish in water of refractive index n looks at a bird vertically above in the air. If Y is the height of the bird and X is the depth of the fish from the surface, the distance of the bird estimated by the fish is :

(1) $X + nY$

(2) $X + Y\left(1 - \dfrac{1}{n}\right)$

(3) $X + Y\left(1 + \dfrac{1}{n}\right)$

(4) $Y + X\left(1 - \dfrac{1}{n}\right)$

10. A ray of light enters from rarer to denser medium. The angle of incidence is i. The reflected and refracted rays are mutually perpendicular. The critical angle is :

(1) $\sin^{-1}(\tan i)$

(2) $\sin^{-1}(\cot i)$

(3) $\tan^{-1}(\sin i)$

(4) $\cos^{-1}(\tan i)$

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(4)

Contd.

11. The spectrum of an oil flame is an example of :

    (1) Line absorption spectrum

    (2) Band emission spectrum

    (3) Line emission spectrum

    (4) Continuous emission spectrum

12. Magnetic field at the centre of a circular current carrying coil of radius r is Bc. The magnetic field on its axis at a distance r from the centre is Ba.

    The ratio $\dfrac{Bc}{Ba}$ is :

    (1) $1 : \sqrt{2}$

    (2) $1 : 2\sqrt{2}$

    (3) $2\sqrt{2} : 1$

    (4) $\sqrt{2} : 1$

13. There is a uniform magnetic field directed perpendicular and into the plane of the paper. An irregular shaped conducting loop is slowly changing into circular loop in the plane of the paper. Then :

    (1) AC is induced in the loop

    (2) Current is induced in the loop in anti-clockwise direction

    (3) No current is induced in the loop

    (4) Current is induced in the loop in clockwise direction

14. An electron is moving in an orbit of a hydrogen atom for which there can be maximum of six transitions. An electron moving in an orbit of another hydrogen atom for which there can be maximum of three transitions. The ratio of velocities of the electron in these two orbits is :

    (1) $\dfrac{5}{4}$

    (2) $\dfrac{3}{4}$

    (3) $\dfrac{1}{2}$

    (4) $\dfrac{2}{3}$

15. The dimensions of resistance are same as those of _____, where h is Planck's constant and e is the charge.

    (1) $\dfrac{h}{e^2}$

    (2) $\dfrac{h}{e}$

    (3) $\dfrac{h^2}{e^2}$

    (4) $\dfrac{h^2}{e}$

16. A and B are two metals with threshold frequency 1.8×10^{14} Hz and 2.2×10^{14} Hz. Two identical photons of energy 0.825 eV each are incident on them. Then photo electrons are emitted from :

    (1) A alone

    (2) B alone

    (3) Both (1) and (2)

    (4) Neither (1) nor (2)

17. A radioactive sample S_1 having activity A_1 has twice number of nuclei as another sample S_2 of activity A_2. If $A_2 = 2A_1$, then the ratio of half life of S_1 to that of S_2 is :

(1) 2

(2) 0.75

(3) 3

(4) 4

18. A radioactive element forms its own isotopes after 3 consecutive disintegration. The particles emitted are :

(1) 2 α-particles and 1 β-particle

(2) 2 β-particles and 1 α-particle

(3) 1 α-particle and 2 β-particles

(4) 3 β-particles

19. The ratio of velocity of sound in hydrogen and oxygen at STP is :

(1) 16 : 1

(2) 8 : 1

(3) 4 : 1

(4) 2 : 1

20. If the Sun were to increase in temperature from T to 2T and its radius from R to 2R, then the ratio of radiant energy received on earth to what it was previously will be :

(1) 4

(2) 16

(3) 32

(4) 64

21. Which of the following types of light are strongly absorbed by the plants ?

(1) Blue and red

(2) Indigo and yellow

(3) Orange and violet

(4) Yellow and violet

22. Who wrote Akbarnama ?

(1) Abdul Qadir Badauni

(2) Abdul Rahim Khan-e-Khana

(3) Abu'l Fazl ibn Mubarak

(4) Faizi

23. What was the form of government suggested by the Cabinet Mission Plan 1946 for India ?

(1) A federation

(2) A confederation

(3) A unitary form of states

(4) A union of states

24. On which of the following hills is the hill station 'Yercaud' located ?

(1) The Javadi Hills

(2) The Nilgiri Hills

(3) The Palani Hills

(4) The Shevaroy Hills

25. Which among the following rivers is not a tributary of the river Mahanadi ?

   (1) The Ib

   (2) The Indravati

   (3) The Ong

   (4) The Tel

26. Which type of farming is generally practised in the densely populated areas of the world ?

   (1) Commercial farming

   (2) Extensive farming

   (3) Intensive farming

   (4) Plantation farming

27. Which of the following Union Territories has been provided with Legislative Assembly ?

   (1) Chandigarh

   (2) Dadra and Nagar Haveli

   (3) Delhi

   (4) Lakshadweep

28. Which district in Odisha has the highest literacy rate as per the Census 2011 ?

   (1) Cuttack

   (2) Jagatsinghpur

   (3) Kendrapara

   (4) Khordha

29. Which of the following trophies is meant for a game different from the other three ?

   (1) Durand Cup

   (2) Rangaswamy Cup

   (3) Santosh Trophy

   (4) Rovers Cup

30. Which of the following ethnic people of the Andaman and Nicobar Islands is different from the other three on the basis of racial heritage ?

   (1) Jarwa

   (2) Onge

   (3) Sentinelese

   (4) Shompen

31. The balloon like outgrowth of parenchyma into the lumen of the vessel is known as :

   (1) Histogen

   (2) Tyloses

   (3) Phellogen

   (4) Tunica

32. Vascular bundles are bicolateral in the stem of :

   (1) Canna

   (2) Tridax

   (3) Cucurbita

   (4) Pisum

33. Which of the following was used by Harshey and Chase to prove that DNA is the chemical basis of heredity ?
   (1) TMV
   (2) CMV
   (3) T_2 phase
   (4) SPV

34. Which of the following is a bacterial disease ?
   (1) Influenza and Mumps
   (2) Small pox and Chicken pox
   (3) Polio and hydrophobia
   (4) None of these

35. What is the first intermediate stable product of photosynthesis ?
   (1) PEP
   (2) PGA
   (3) PGAL
   (4) Pyruvic acid

36. Camellia Sinensis belongs to which family ?
   (1) Theaceae
   (2) Musaceae
   (3) Loganiaceae
   (4) Gamineae

37. Fungi differs from algae in :
   (1) Lacking chlorophyll
   (2) Having cell wall of chitin and cellulose
   (3) Having glycogen as reserve food material
   (4) All of these

38. Which plant hormone solely responsible for fruit ripening ?
   (1) Auxin
   (2) Abscisic acid
   (3) Ethylene
   (4) Cytokinins

39. The point where the funicle is attached to the body of ovule is called :
   (1) Chalaza
   (2) Hilum
   (3) Endosperm
   (4) Micropyle

40. Which of the following is not a free living nitrogen fixer ?
   (1) Rhizobium
   (2) Azotobacter
   (3) Nostoc
   (4) Anabaena

41. In which form the synthesised food in plants is transported through phloem ?
   (1) Maltose
   (2) Fructose
   (3) Glucose
   (4) Sucrose

42. The biological interpreter of genetic code is :

    (1) t-RNA

    (2) m-RNA

    (3) Ribosome

    (4) All of these

43. The bacterial and blue-green algae cells contain :

    (1) Many linkage groups of each

    (2) One linkage group of each

    (3) No linkage group

    (4) Only two linkage groups of each

44. Non-green large sized parenchyma with waste products is called :

    (1) Mesophylls

    (2) Prosenchyma

    (3) Idioblast

    (4) Spongy parenchyma

45. Which type of lichens are phycsia and parmelia ?

    (1) Crustose

    (2) Foliose

    (3) Fruticose

    (4) None of these

46. Antihaemorrhagic vitamin is :

    (1) Vit – A

    (2) Vit – B

    (3) Vit – E

    (4) Vit – K

47. A haemophilic man marries a normal woman whose father was known to be a bleeder. Then it is expected that :

    (1) All their children will be bleeder

    (2) Half of their children will be bleeder

    (3) 1/4th of their children will be bleeder

    (4) 1/3rd of their children will be bleeder

48. Self fertilization in hydra never occurs, because they are :

    (1) Asexual

    (2) Unisexual

    (3) Protandrous

    (4) Protogynous

49. Lamina propria or stroma is related to :

    (1) Mammalian Liver

    (2) Human Intestine

    (3) Pancreatic Acini

    (4) Ovary of Mammal

50. Mammary glands are modifications of :

    (1) Sweat Gland

    (2) Sebaceous Gland

    (3) Ceruminous Gland

    (4) Milk Glands

51. Which of the following organ is called as 'jack of all trades' ?

    (1) Kidney

    (2) Pancreas

    (3) Pituitary

    (4) Skin

52. Ramsar Convention was held in :
    (1) India
    (2) Indonesia
    (3) Iran
    (4) German

53. Anagenesis is also known as :
    (1) Phyletic Speciation
    (2) Multiplicative Speciation
    (3) Gradual Speciation
    (4) Allopatric Speciation

54. What belongs to a class but not to a family ?
    (1) Species
    (2) Genus
    (3) Order
    (4) Phylum

55. Alimentary canal is not found in :
    (1) Arachnida
    (2) Apoda
    (3) Decapoda
    (4) Cestoda

56. Which of the following is not a component of innate immunity ?
    (1) Antibodies
    (2) Interferon
    (3) Complement protein
    (4) Phagocytes

57. Which date is observed as World Animal Day ?
    (1) 5th June

    (2) 25th July
    (3) 3rd October
    (4) 19th December

58. How many meiotic divisions are needed to form 100 spermatozoa ?
    (1) 25
    (2) 50
    (3) 100
    (4) None of these

59. A cross between two red tomatoes produced 92 red and 31 yellow offsprings. What are the genotypes of the parents ?
    (1) RR × rr
    (2) Rr × rr
    (3) Rr × Rr
    (4) Rr × RR

60. Papillary muscles are found in :
    (1) Haemocoel of cockroach
    (2) Auricles of heart
    (3) Ventricles of heart
    (4) Arm

61. Which of the following alloys generally does not contain zinc ?
    (1) Brass
    (2) Bronze
    (3) German Silver
    (4) Gun metal

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62. Which of the following substances contains maximum number of water molecules per mole in its crystal ?

(1) Potash alum

(2) Mohr salt

(3) Washing soda

(4) Blue vitriol

63. The pure form of iron is :

(1) Pig Iron

(2) Cast Iron

(3) Wrought Iron

(4) Invar

64. Which of the following pair of electrodes has positive values of standard electrode potential ?

(1) K^+/K, Fe^{2+}/Fe

(2) Cu^{2+}/Cu, Ag^+/Ag

(3) Co^{2+}/Co, Ba/Ba^{2+}

(4) $\frac{1}{2}F_2/F^-$, Li^+/Li

65. Which of the following salts provides coloured gas on thermal decomposition ?

(1) Potassium chlorate

(2) Ammonium nitrite

(3) Sodium nitrate

(4) Lead nitrate

66. The reagent used to distinguish formaldehyde and acetaldehyde is :

(1) Alkaline iodine

(2) Alkaline phenol

(3) Tollen's reagent

(4) Baeyer's reagent

67. Nylon 6 is a polymer, its monomer is :

(1) Hexamethylenediamine co-polymer of

(2) Adipoly chloride

(3) Both (1) and (2)

(4) Caprolactam

68. The percentage of empty space in a body centred cubic arrangement is :

(1) 74

(2) 68

(3) 32

(4) 26

69. 1 mole of liquid A and 2 moles of liquid B make a solution having a total vapour pressure of 38 torr. The vapour pressure of pure A and pure B are 45 torr and 36 torr respectively. The given solution :

(1) Is an ideal solution

(2) Shows negative deviation

(3) Is a minimum boiling azeo-trope

(4) Shows positive deviation

70. When a catalyst increases the rate of a chemical reaction, the rate constant:

(1) Remains constant

(2) Increases

(3) Decreases

(4) May increase or decrease depending on order of reaction

71. The term 'sorption' stands for :

(1) Absorption

(2) Adsorption

(3) Both absorption and adsorption

(4) Desorption

72. Among the following electrolytes, the most effective coagulating agent for Sb_2S_3 solution is :

(1) K_2SO_4

(2) $CaCl_2$

(3) $Al_2(SO_4)_3$

(4) Na_3PO_4

73. Which of the following compounds has higher magnetic moment ?

(1) $[Fe(CN)_6]^{3-}$

(2) $[Fe(CN)_6]^{4-}$

(3) $[Ni(CO)_4]$

(4) $[Fe(H_2O)_6]^{3+}$

74. Among the trihalides of phosphorus _____ has higher bond angle.

(1) PF_3

(2) PBr_3

(3) PI_3

(4) PCl_3

75. Which of the following are peroxoacids of sulfur ?

(1) H_2SO_5 and $H_2S_2O_8$

(2) H_2SO_5 and $H_2S_2O_7$

(3) $H_2S_2O_7$ and $H_2S_2O_8$

(4) $H_2S_2O_6$ and $H_2S_2O_7$

76. In which of the following pair, the nature of hybridisation is not same ?

(1) PCl_3, $CHCl_3$

(2) SO_2, $SnCl_2$

(3) NH_3, NH_4^+

(4) XeF_2, BeF_2

77. In the preparation of xenon compounds, Bartlett had taken O_2PtF_6 as a base compound. This is because :

(1) Both O_2 and Xe have same size

(2) Xenon and Oxygen are gases

(3) Oxygen molecule is paramagnetic

(4) Both dioxygen and Xenon have almost same Δ_iH values

78. In which of the following compounds, nitrogen exhibits highest oxidation state ?

    (1) Hydrazine

    (2) Ammonia

    (3) Hydrazoic acid

    (4) Hydroxylamine

79. HI cann't be prepared by action of conc. H_2SO_4 on KI because :

    (1) HI is a weaker acid than H_2SO_4

    (2) KI is an insoluble salt

    (3) Both HI and H_2SO_4 are oxidants

    (4) HI is a strong reducing agent

80. Explosive reaction takes place when conc. H_2SO_4 is added to potassium permanganate. This is due to the formation of :

    (1) MnO

    (2) Mn_2O_3

    (3) Mn_2O_5

    (4) Mn_2O_7

81. Which of the following is wrongly matched ?

    (1) $[Cu(NH_3)_4]^{2+}$ — Square planar

    (2) $[NiCO)_4]$ — Neutral ligand

    (3) $[Co(en)_3]^{3+}$ — follows EAN rule

    (4) $[Cr(NH_3)_6]^{3+}$ — sp^3d^2

82. Flerovium is a superheavy artificial element with symbol Fl. Its atomic number is :

    (1) 114

    (2) 115

    (3) 113

    (4) 116

83. Acetic acid exists as a dimer in benzene due to :

    (1) Solvation

    (2) Intermolecular H-bonding

    (3) Presence of $-COOH$

    (4) Presence of α-H atom

84. Equanil is a drug to control :

    (1) Pneumonia

    (2) Malaria

    (3) Cold fever

    (4) Mental disease

85. Which hormone contains iodine ?

    (1) Thyroxine

    (2) Insulin

    (3) Adrenaline

    (4) Testosterone

86. Which of the following solution has lower pH value ?

    (1) 2M NaCl(aq.)

    (2) 0.2M caustic soda solution

    (3) 1M NH_4Cl(aq.)

    (4) 1M sodium acetate solution

87. The compound which reacts faster with Lucas reagent at room temperature is :
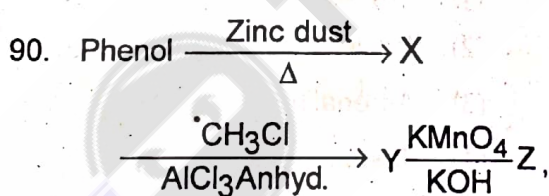
   (1) Benzyl alcohol

   (2) Butan-2-ol

   (3) 2-methylpropan-1-ol

   (4) 2-methylpropan-2-ol

88. Which of the following process is not exothermic ?

   (1) Adsorption

   (2) Combustion

   (3) Neutralisation

   (4) Evaporation

89. Which of the following is a stronger conjugate base ?

   (1) ClO_4^-

   (2) ClO_3^-

   (3) ClO_2^-

   (4) ClO^-

90. Phenol $\xrightarrow[\Delta]{\text{Zinc dust}}$ X $\xrightarrow[\text{AlCl}_3\text{Anhyd.}]{\text{CH}_3\text{Cl}}$ Y $\xrightarrow[\text{KOH}]{\text{KMnO}_4}$ Z, the product 'Z' is :

   (1) Benzaldehyde

   (2) Benzoic acid

   (3) Benzene

   (4) Toluene

91. A body is projected vertically upward. The times corresponding to height h while ascending and descending are t_1 and t_2 respectively. Then velocity of projection is :

   (1) $g\sqrt{t_1 t_2}$

   (2) $\dfrac{g(t_1 + t_2)}{2}$

   (3) $\dfrac{g\sqrt{t_1 t_2}}{2}$

   (4) $g\dfrac{t_1 t_2}{t_1 + t_2}$

92. A body of mass 5 kg is thrown vertically up with K. E. = 490J. The height at which the K. E. of the body becomes half of the original is :

   (1) 12.5 m

   (2) 10 m

   (3) 5 cm

   (4) 500 cm

93. A child is sitting on a swing. Its minimum and maximum heights from the ground are 0.75 m and 2 m respectively. Its maximum speed will be :

   (1) 10 m/s

   (2) 5 m/s

   (3) 8 m/s

   (4) 15 m/s

94. A string vibrates with frequency of 200 Hz. When its length is doubled and tension is altered, it begins to vibrate with a frequency of 300 Hz. Ratio of new tension to original tension is :

    (1) 9 : 1
    (2) 1 : 9
    (3) 1 : 3
    (4) 3 : 1

95. A simple pendulum is suspended from the ceiling of a lift. When the lift is at rest, its time period is T. With what acceleration should the lift be accelerated upwards to reduces its period to $\frac{T}{2}$?

    (1) 2g   (2) 4g
    (3) 3g   (4) g

96. Two simple harmonic motions are represented by $y_1 = 5[\sin 2pt + \sqrt{3}\cos 2pt]$ and $y_2 = 5\sin(2\Pi t + \Pi/4)$. The ratio of their amplitudes is :

    (1) 1 : 3   (2) $\sqrt{3}$: 1
    (3) 1 : 1   (4) 2 : 1

97. A planet moving along an elliptical orbit is closest to the sun at a distance r_1 and farthest away at a distance r_2. If v_1 and v_2 are linear velocities at r_1 and r_2, then $\frac{v_1}{v_2}$ is :

    (1) $\dfrac{r_1}{r_2}$ (2) $\left(\dfrac{r_1}{r_2}\right)^2$

    (3) $\left(\dfrac{r_2}{r_1}\right)$ (4) $\left(\dfrac{r_2}{r_1}\right)^2$

98. A body floats in water with 40% of its volume outside water. When the same body floats in an oil, 60% of its volume remains outside oil. The relative density of oil is :

    (1) 0.9   (2) 1.0
    (3) 1.2   (4) 1.5

99. Hot water cools from 60°C to 50°C in first 10 minutes and to 42°C in next 10 minutes. Temperature of surrounding is :

    (1) 10°C   (2) 15°C
    (3) 20°C   (4) 30°C

100. If a black body emits 0.5 Joules of energy per second when it is at 27°C, then the amount of enregy emitted by it when it is at 627°C will be :

    (1) 162J   (2) 40.5 J
    (3) 135 J   (4) 13.5 J

———— �֎ ————