DATE- 11th June 2023

SET-A

PRAYASH CLASSES
NEET- 2024
SCREENING TEST

F. M: 720

TIME: 3. 20 Hrs.

Topic Covered: **Complete Syllabus of XII**

Instruction:

- *Use **blue/black** ballpoint pen only to darken the appropriate **circle**.*
- *Mark should be dark and should completely **fill** the circle.*
- *Dark only one circle for each entry. Dark the circle in the space provided only.*
- *Rough work must not be done on the Answer sheet and do not use **white-fluid** or any other **rubbing material** on Answer sheet.*
- *Each question carries **4 marks**. For every **wrong** response **1 mark** shall be deducted from total score. **Unanswered / unattempted** questions will be given **no marks.***
- *There are two sections in each subject i.e., **Section-A & Section-B**. You have to attempt **all 35** questions from **Section-A** & only **10 questions** out of **15 from Section-B**.*

BOTANY
(Section- A)

1. Estuary is an example of
   (1) Man made ecosystem
   (2) Anthropogenic ecosystem
   (3) Treeless terrestrial ecosystem
   (4) Aquatic ecosystem

2. During the process of cleaning of sewage water what happens with Biological Oxygen Demand (BOD) and Dissolved Oxygen?
   (1) Both BOD and dissolved oxygen decrease
   (2) BOD decreases and dissolved oxygen decrease
   (3) BOD increases as the amount of organic matter increases
   (4) Dissolved oxygen increases as organic matter decreases

3. Select the **incorrect** statement w.r.t. Detritus Food Chain (DFC).
   (1) It involves decomposers
   (2) It is major conduit of energy flow in aquatic ecosystem
   (3) It involves mainly fungi and bacteria
   (4) It begins with detritus or dead organic matter

4. Which one among the following 'Evil Quartet' is the most important cause of extinction of animal and plants?
   (1) Habitat loss and fragmentation
   (2) Over exploitation
   (3) Alien species invasions
   (4) Co-extinctions

5. Select the **correct** one w.r.t. broadly utilitarian service provided by the biodiversity.
   (1) Fibre
   (2) Industrial product
   (3) Drugs
   (4) Flood and erosion control

6. Which of the given traits w.r.t. pea plant are expressed in both homozygous as well as heterozygous condition?
   (a) Inflated pod
   (b) Green pod
   (c) Axial flower
   (d) White flower
   (1) (a) and (b) only (2) All except (d)
   (3) All of these (4) Both (c) and (d)

7. In which of the given crosses, F_1 progenies will not be seen with tall stem?
   (1) Tt × Tt (2) Tt × tt

(3) tt × tt

(4) TT × tt

8. Chromosomal theory of inheritance was proposed by

(1) T.H. Morgan

(2) Charles Darwin and A.R. Wallace

(3) Gregor Johann Mendel

(4) Sutton and Boveri

9. A particular character in diploid species is controlled by a gene which has three alleles in the population. How many genotypes are possible in this population?

(1) Six
(2) Four
(3) Three
(4) Two

10. Cross between which pea plants is considered to be the test cross?

(1) Plant with green pod × Plant with yellow pod

(2) Terminal flowered plant × Terminal flowered plant

(3) Heterozygous round seeded plant × Homozygous round seeded plant

(4) Homozygous violet flowered plant × Heterozygous violet flowered plant

11. Match the column-I with column-II and select the **correct** option.

	Column-I		**Column-II**
(a)	44 + XXY	(i)	Turner's syndrome
(b)	XX-XY method of sex determination	(ii)	Klinefelter's syndrome
(c)	Trisomy 21	(iii)	Human
(d)	Monosomy	(iv)	Down's syndrome

(1) a-(ii), b-(iii), c(iv),d-(i)

(2) a-(iv), b-(iii), c(ii),d-(i)

(3) a-(ii), b-(iii), c(i),d-(iv)

(4) a-(iii), b-(ii), c(i),d-(iv)

12. The best example for incomplete dominance is

(1) Colourblindness

(2) Flower colour in pea plant

(3) ABO blood group

(4) Flower colour in snapdragon

13. In which genetic condition, each cell in the affected person, has only one sex chromosome?

(1) Thalassemia

(2) Phenylketonuria

(3) Turner's syndrome

(4) Klinefelter's syndrome

14. Select the **incorrect** statement.

(1) Female birds are heterogametic

(2) In male insects , 50% of sperms have no sex chromosome

(3) In honey bee, females have half the number of chromosomes than that of a male

(4) Henking coined the term X-body

15. In Mendelian dihybrid cross, out of 256 individual obtained in F_2 generation, how many are pure homozygous for both traits?

(1) 32
(2) 16
(3) 15
(4) 64

16. Select the **incorrect** match w.r.t. symbols used in human pedigree analysis.

(1) ● – Haemophilic female

(2) ◇ – Unaffected offspring

(3) □═● – Consanguineous mating

(4) ● – Carrier female for colourblindness

17. Which of the given disorder can be seen in an individual when the mutation includes substitution of a purine by pyrimidine?

(1) Chronic myelogenous leukemia

(2) Sickle cell anaemia

(3) α thalassemia

(4) β thalassemia

18. Select the **incorrect** statement w.r.t. double helical structure of DNA.

(1) The two chains of DNA run in anti-parallel fashion

(2) The backbone is constituted by sugar-phosphate

(3) The nitrogenous bases project outwards

(4) Guanine is bonded with cytosine with three H-bonds

19. In the process of transcription in eukaryotes, the RNA polymerase II transcribes

(1) Precursor of mRNA
(2) The adapter RNA
(3) 5S rRNA and SnRNA
(4) rRNAs – 28S, 18S

20. DNA was extracted from a bacterial species. The proportion of cytosine was found to be 30%, then calculate the proportion of purine?

(1) 70%
(2) 40%
(3) 50%
(4) 20%

21. What will be the sequence of mRNA produced by the following stretch of DNA?

3′ ATCGGTTAAC 5′ TEMPLATE STRAND

5′ TAGCCAATTG 3′ CODING STRAND

(1) 5′ AUCGGUUAAC 3′

(2) 3′ GUUAAGGCAU 5′

(3) 3′ GUUAACCGAU 5′

(4) 5′ UAGCCUUAAC 3′

22. In which of the given process, both of the given strands of nucleic acid act as template?

(1) DNA replication (2) Transcription

(3) Translation (4) Reverse transcription

23. After fertilization ovules develop into

(1) Seeds (2) Fruits

(3) Pericarp (4) Embryos

24. Read the given statements and select the **correct** answer.

I. A typical angiosperm anther is bilobed with each lobe having two theca.

II. The proximal end of the filament is attached to the thalamus or the petal of the flower.

III. Innermost layer of microsporangium is responsible for dehiscence.

	I	II	III
(1)	True	False	True
(2)	False	False	True
(3)	True	True	False
(4)	True	True	True

25. Pollen grains in angiosperms develop from the _______ of anther.

(1) Epidermis (2) Endodermis

(3) Tapetum (4) Sporogenous tissue

26. Cells of which anther layer possess dense cytoplasm and generally have more than one nucleus?

(1) Outermost layer (2) Tapetum

(3) Middle layers (4) Endodermis

27. Which of the following is **not true for the pollen** grains?

(1) The hard outer layer is made up of sporopollenin

(2) Pollen grains are well preserved as fossils because of the presence of sporopollenin

(3) The inner wall of the pollen grain is called the intine

(4) Inner wall of pollen grain is resistant to strong acid and can withstand high temperatures

28. In over _A_ percent of angiosperms, pollen grains are shed at _B_ stage.

(1) A – 90, B – Single celled

(2) A – 60, B – 2 celled

(3) A – 80, B – 3 celled

(4) A – 95, B – 4 celled

29. Pollen grains of rice and wheat

(1) Can survive for months

(2) Lose viability within 30 minutes of their release

(3) Lack exine and intine

(4) Can survive for several weeks after shedding from the anther

30. Multicarpellary, apocarpous pistil is present in

(1) *Papaver* (2) *Michelia*

(3) *Hibiscus* (4) Tomato

31. Cells of the which part of ovule have abundant reserve food materials and enclosed within the integuments?

(1) Micropyle (2) Chalaza

(3) Nucellus (4) Funicle

32. Match the column-I and column-II and select the **correct** option.

	Column-I		Column-II
A.	Chalaza	i.	Stalk of ovule
B.	Funicle	ii.	Represents the basal part of the ovule
C.	Hilum	iii.	Represents the junction between ovule and stalk

(1) A-i, B-ii, C-iii (2) A-ii, B-i, C-iii

(3) A-iii, B-ii, C-i (4) A-i, B-iii, C-ii

33. Read the following statements and select the **correct** option.

A. The synergids have special cellular thickenings called filiform apparatus, which play an important role in guiding the entry of pollen tube.

B. Three antipodal cells are found towards the micropylar end in most of angiosperms.

(1) Both A and B are correct

(2) Only A is correct

(3) Only B is correct

(4) Both A and B are incorrect

34. Plant which is pollinated by insects or wind is

(1) *Zostera* (2) Water lily

(3) *Vallisneria* (4) *Hydrilla*

35. Endosperm is completely consumed by the developing embryo in all, **except**

(1) Castor (2) Pea

(3) Beans (4) Groundnut

Section- B

36. The rate of formation of new organic matter by consumers is defined as
(1) Net primary productivity
(2) Secondary productivity
(3) Gross primary productivity
(4) Primary productivity

37. The relationship between species richness and area on logarithmic scale is Log S = Log C + Z Log A.
What does 'Z' represent?
(1) Species richness
(2) Regression coefficient
(3) Y-intercept
(4) Area

38. Which of the following sequence of bases on anticodon loop is **true** for tRNA that brings methionine to the mRNA?
(1) 5′ AUG 3′ (2) 5′ CAU 3′
(3) 5′ UAC 3′ (4) 5′ GUA 3′

39. Select the **correct** statements w.r.t. UTRs.
(A) These are additional sequences which are not translated.
(B) These are present at both 5′ end after start codon and 3′-end before stop codon.
(C) These are present on mRNA.
(D) Required for efficient translation process.
(1) (A) and (B) only (2) All of these
(3) (A), (C) and (D) only (4) (B) only

40. In *lac* operon, which of the given is site for binding of the product of regulator gene?
(1) Terminator (2) Operator
(3) Promoter (4) Structural gene

41. Select the **incorrect** statement w.r.t. salient features of human genome.
(1) Less than 2% of the genome codes for protein
(2) Repeated sequences make up very large portion of human genome
(3) Chromosome 1 has most genes
(4) The average gene consists of 300 bases

42. Select an **incorrect** interpretation w.r.t. a marriage between a colourblind female and a male with normal vision.
(1) 100% of their sons will be affected
(2) None of their daughter are affected
(3) The colourblind female has affected father and carrier mother
(4) Mother of normal male is homozygous recessive for the disorder

43. Select the **incorrect** statement w.r.t. phenylketonuria.
(1) It is an inborn error of metabolism
(2) The affected individual lacks an enzyme called phenylalanine hydroxylase that converts tyrosine into phenylalanine
(3) The affected individual will have accumulation of phenylpyruvic acid in brain
(4) The affected individual will be mentally retarded

44. After double fertilization in flowering plants, synergids
(1) Develop into seeds (2) Degenerate
(3) Form the fruit wall (4) Develop into PEN

45. Vegetative cell of male gametophyte in flowering plants
(1) Is smaller than the generative cell
(2) Has large irregularly shaped nucleus
(3) Floats in the cytoplasm of generative cell
(4) Has dense cytoplasm and is spindle shaped

46. Plant which causes the severe allergies and bronchial afflictions in some people and came into India as a contaminant with imported wheat, is
(1) Water hyacinth (2) *Parthenium*
(3) *Hibiscus* (4) *Zostera*

47. Cell of female gametophyte which forms the primary endosperm cell after fertilization is
(1) Antipodal cell (2) Egg cell
(3) Polar nuclei (4) Central cell

48. Single cotyledon present in the grass family is called
(1) Coleorrhiza (2) Scutellum
(3) Coleoptile (4) Hypocotyl

49. 2000 years old viable seed of which plant was found during the archeological excavation at King Herod's palace near the Dead Sea?
(1) *Crotalaria* (2) *Phoenix dactylifera*
(3) *Lupinus arcticus* (4) *Vinca*

50. Thalamus contributes in fruit formation in all the following, **except**
(1) Apple (2) Maize
(3) Strawberry (4) Cashew

ZOOLOGY
(Section- A)

51. Human insulin formed by recombinant DNA technology have advantage over the bovine insulin because

(1) It has slow rate of absorption as compared to bovine insulin

(2) It does not induce unwanted immunological responses

(3) It can be digested easily

(4) It causes toxicity in some humans only

52. **Assertion (A):** RNA interference involves silencing of a specific mRNA due to a complementary ds RNA molecule that binds to and prevents translation of the mRNA.

Reason (R): The source of this complementary RNA could be from an infection by viruses having RNA genomes or transposons that replicate via RNA intermediate.

In the light of the above statements, choose the correct answer from the options given below:

(1) (A) is false but (R) is true

(2) Both (A) and (R) are true and (R) is the correct explanation of (A)

(3) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(4) (A) is true but (R) is false

53. Recognition site for which of the following restriction enzyme is present in *amp*^{R} gene of cloning vector, pBR322?

(1) *Bam* HI (2) *Sal* I

(3) *Pst* I (4) *Pvu* II

54. Match the column-I with column-II and choose the **correct** answer.

Column-I		**Column-II**
a. *Bacillus thuringiensis*	(i)	Used to isolate genetic material from fungal cell
b. T-DNA	(ii)	Present in Ti plasmid of *Agrobacterium*
c. Gene gun	(iii)	Used for transformation of plant cell
d. Chitinase	(iv)	Produces insecticidal protein

55. Restriction endonuclease can be obtained

(1) From prokaryotes

(2) From all eukaryotes

(3) From all prokaryotes and eukaryotes

(4) Only from yeast

56. During agarose gel electrophoresis,

(1) Both large and small fragments move towards anode

(2) Small fragments move towards cathode due to less charge

(3) Large fragments move towards cathode due to more charge

(4) Both large and small fragments move towards cathode irrespective of charge

57. Read the following statements w.r.t. cloning vector, pBR322 and state them as true (T) or false (F).

(A) Gene encoding resistance to an antibiotic is considered as a selectable marker.

(B) Recognition site for *Eco*RI is present in *tet*^{R} gene.

(C) The recombinant plasmid will lose tetracycline resistance if a foreign DNA is inserted at recognition sequence of *Pvu* II.

Choose the **correct** option.

	A	**B**	**C**
(1)	T	T	T
(2)	F	T	T
(3)	T	F	F
(4)	F	T	F

58. Which of the following is not a desirable feature of cloning vectors?

(1) Small size

(2) More than one cloning site for a restriction endonuclease in a selectable marker

(3) Presence of sequence of nucleotides from where replication starts

(4) Presence of gene which helps in identifying the transformant from non-transformant

59. The method, microinjection is mostly used for

(1) Transformation of an animal cell

(2) Transformation of a plant cell

(3) Disarming the pathogen vector

(4) Annealing step of PCR

60. *In-vivo* type of assisted reproductive technology involving gamete transfer that is used to help those females who cannot conceive is

(1) ZIFT (2) ICSI

(3) GIFT (4) IUT

61. Term for natural type of contraceptive method involving the role of hormones is

(1) Lactational amenorrhea

(2) LNG-20

(3) Femidoms

(4) Coitus interruptus

62. How many of the following sexually transmitted infections are completely curable if detected early and treated properly?

Syphilis, Genital herpes, HIV infection, Trichomoniasis, Hepatitis-B, Chlamydiasis

(1) One (2) Three

(3) Two (4) Four

63. Choose the option that completes the analogy **correctly**.

Hormone releasing IUD: _________ :: Copper releasing IUD : Multiload 375

(1) Cu7 (2) Lippes' loop

(3) Progestasert (4) Saheli

64. "Surgical intervention blocks gamete transport and thereby prevents conception." This technique in females is / involves

(1) Known as tubectomy

(2) Known as vasectomy

(3) Removal of fallopian tubes

(4) Removal of ovaries

65. The scientist whose efforts helped to dismiss the theory of spontaneous generation of life but could not explain / prove origin of first life forms was

(1) S.L. Miller (2) Louis Pasteur

(3) J.B.S. Haldane (4) A.I. Oparin

66. Fossils are remains of hard parts of life forms found in rocks. They are likely to be found in relative abundance in which type of rocks?

(1) Igneous (2) Granite

(3) Sedimentary (4) Metamorphic

67. Spermatogenesis is 'switched on' at puberty due to significant increase in the secretion of hypothalamic hormone called

(1) GnRH (2) FSH

(3) LH (4) Androgens

68. In most of the mammals, the testes are located in scrotal sac for

(1) Sex determination at genetic level

(2) Proper spermatogenesis

(3) Providing more space to intestine

(4) Independent functioning of kidneys

69. Which of the following unpaired accessory sex gland is chestnut shaped in structure and provides Ca^{+2} ions to semen?

(1) Prostate gland (2) Bartholin's gland

(3) Seminal vesicle (4) Cowper's gland

70. Select the **correct** sequence of cell stages formed during spermatogenesis within seminiferous tubules.

(1) Spermatogonia, spermatids, spermatocytes, sperms

(2) Spermatozoa, spermatids, spermatogonia, spermatocytes

(3) Spermatogonia, spermatocytes, spermatids, spermatozoa

(4) Spermatids, spermatocytes, spermatogonia, sperms

71. Attachment of embryo with uterine wall is called

(1) Gestation (2) Parturition

(3) Implantation (4) Fertilization

72. Secretion of which of the following structures prepares endometrium of uterus for implantation?

(1) Morula (2) Placenta

(3) Pars intermedia (4) Corpus luteum

73. Which of the following set of hormones are synthesized only during pregnancy?

(1) hCG, progesterone, relaxin

(2) Relaxin, progesterone, prolactin

(3) hCG, hPL, relaxin

(4) Oestrogen, progesterone, oxytocin

74. Select the **incorrect** match.

(1)	Insemination	Transfer of sperms into female genital tract
(2)	Parturition	Delivery of foetus
(3)	Spermiation	Sperm heads become embedded in the Sertoli cells
(4)	Spermiogenesis	Spermatids are transformed into spermatozoa

75. How many egg(s) was/were released by a human ovary in a month if a mother gave birth to identical twins?

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

76. How many sex chromosome(s) does a normal human inherit from his father?

(1) 23 (2) 46 (3) 2 (4) 1

77. All of the following structures are included in male sex accessory ducts **except**

(1) Seminiferous tubules

(2) Vasa efferentia

(3) Rete testis

(4) Epididymis

78. Inner cell mass gets differentiated into

(1) Trophoblast (2) Embryo

(3) Placenta (4) Chorion

79. Each seminiferous tubule is internally lined by __A__ and __B__. B synthesize certain factors which help in __C__.

	A	B	C
(1)	Spermatogonia	Leydig cells	Spermatogenesis
(2)	Spermatogonia	Sertoli cells	Spermiogenesis
(3)	Primary spermatocytes	Leydig cells	Spermatogenesis
(4)	Primary spermatocytes	Leydig cells	Spermiogenesis

80. At least what percent of sperms must have normal shape and size per ejaculate?

(1) 60% (2) 40%

(3) 72% (4) 24%

81. Signals for parturition originate from fully developed foetus and placenta which induce mild uterine contractions called

(1) Foetal ejection reflex

(2) Hypothalamo - ovarian reflex

(3) Negative hypothalamo - hypophyseal reflex

(4) Suckling reflex

82. Structural and functional unit between developing embryo and maternal body is called

(1) Umbilical cord (2) Placenta

(3) Amnion (4) Yolk sac

83. Statutory ban on amniocentesis in India is applicable for detection of

(a) Cleft palate

(b) Down's syndrome

(c) Haemophilia

(d) Sex of the foetus

(e) Sickle – cell anemia

(f) Cleft lip

Select the **correct** option.

(1) (a), (b) and (f) (2) (b), (c) and (d)

(3) Only (d) (4) (a) and (f)

84. Choose the **mismatch** w.r.t. contraceptive methods.

(1)	Diaphragm, cervical caps and vaults	-	Barrier methods
(2)	Vasectomy and tubectomy	-	Chemical method of contraception
(3)	Progestogen only pills	-	Alter the quality of cervical mucus
(4)	IUDs such as CuT	-	Promote phagocytosis of sperms within the uterus

85. Choose the **correct** match.

(1) β-galactosidase – Selectable marker

(2) DNA ligase – Breaks dsDNA into ssDNA

(3) Restriction endonuclease – Present only in yeast

(4) Exonuclease – Removes nucleotides from ends of DNA

Section- B

86. The gene(s) which encode(s) the protein to control corn borer is/are

(1) *cryIIAb* (2) *cryIAc*

(3) *cryIAb* (4) *cryIAc* and *cryIIAb*

87. Tumor-inducing plasmid can cause transformation in all of the following **except**

(1) Virus (2) Tobacco plants

(3) Beans (4) Dicot plants

88. Isolation of genetic material from bacterial cells involves the use of

(1) Cellulase (2) Lysozyme

(3) Lipase (4) DNase

89. Select the **mismatch** w.r.t. proponent mentioned regarding the prevalent thought.

(1)	Inheritance of acquired characters	-	Lamarck

(2)	Idea of saltation	-	Hugo de Vries
(3)	Reproductive fitness and natural selection	-	Alfred Wallace & Darwin
(4)	Inheritable 'factors' influencing phenotypes	-	Charles Darwin

90. Specialised procedure to form an embryo in the laboratory in which a sperm is directly injected into the ovum is

(1) ET (2) ICSI

(3) AI (4) IUI

91. Which type of evolution is being referred to in the following line?

"When more than one adaptive radiation appeared to have occurred in an isolated geographical area representing different habitats".

(1) Coevolution

(2) Divergent evolution

(3) Microevolution

(4) Convergent evolution

92. In human females, meiosis-I starts

(1) Before birth during foetal stage of life

(2) After birth at puberty

(3) After puberty before menopause

(4) During fertile age before menopause

93. Which of the following is concerned with asexual reproduction only?

(1) Buds (2) Gonads

(3) Zygote (4) Fusion of sperms and ova

94. Read the given statements.

(a) Adoption is considered as a legal and one of the best methods for infertile couples looking for parenthood.

(b) Intrauterine insemination involves transfer of embryo into fallopian tubes.

(c) In ICSI, sperms are directly injected into the male reproductive tract.

Select the option that **correctly** mentions the above statements as true (T) or false (F).

(1) a-T, b-F, c-F (2) a-F, b-T, c-T

(3) a-T, b-F, c-T (4) a-F, b-F, c-T

95. Read the given statements

I. Restrictions imposed around MTP promote indiscriminate and legalised female foeticide in India.

II. Induced abortion leading to MTP is most widely accepted method of conception in our country.

Select the **correct** option.

(1) Statement I is true

(2) Statement II is true

(3) Both statements I and II are true

(4) Both statements I and II are false

96. Natural methods of contraception working on the principle of avoiding chances of ovum and sperms meeting exclude

(1) Coitus interruptus (2) Spermicidal jellies

(3) Withdrawal method (4) Periodic abstinence

97. Select the option with all statements that are **true** for Australopithecines.

(a) Walked bipedally

(b) Earliest fossils obtained from Australia

(c) Man-like primates walked in East-African grasslands.

(d) Existed probably 3-4 mya.

(e) Fossils of man-like bones have been discovered in Ethiopia and Tanzania.

(1) (a), (c), (d) and (e)

(2) (a), (b), (c) and (d)

(3) Only (b), (d) and (e)

(4) Only (a), (c) and (d)

98. Which of the following is a **correct** statement?

(1) Cu7 is generally inserted by user herself in her reproductive tract

(2) Multiload 375 once inserted need not be replaced ever

(3) CuT can be considered as a medicated IUD

(4) LNG-20 makes the uterus suitable for implantation and the cervix non-hostile to the sperms

99. Read the given statements and choose the **incorrect** option.

(1) Fimbriae help in collection of ovum after ovulation

(2) Stroma of ovary is divided into peripheral cortex and inner medulla

(3) Ovaries and uterus are primary sex organs in females

(4) Ovaries are connected to pelvic wall and uterus by ligaments

100. In external genitalia of human females, a cushion of adipose connective tissue which is covered by skin and pubic hairs is called

(1) Mons pubis (2) Labia majora

(3) Labia minora (4) Clitoris

CHEMISTRY

(Section- A)

101. **Given below are two statements :**

Statement I :

The molality of the solution does not change with change in temperature.

Statement II :

The molality is expressed in units of moles per 1000 g of solvent.

In the light of the above statements, choose the most appropriate answer from the options given below :

(1) Both Statement I and Statement II are incorrect

(2) Statement I is correct but Statement II is incorrect

(3) Statement I is incorrect but Statement II is correct

(4) Both Statement I and Statement II are correct.

102. **The standard electrode potential for daniel cell is 1.1 V. the standard gibbs energy approximate for reaction $Zn_{(s)} + Cu^{2+}_{(aq.)} \rightarrow Zn^{2+}_{(aq.)} + Cu_{(s)}$ is :**

(1) $-412.27\ kJ\ mol^{-1}$

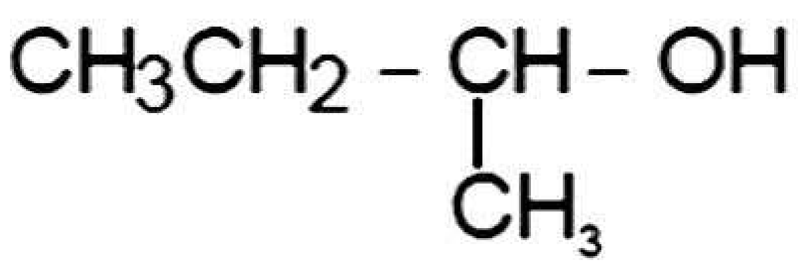
(2) $-22.27\ kJ\ mol^{-1}$

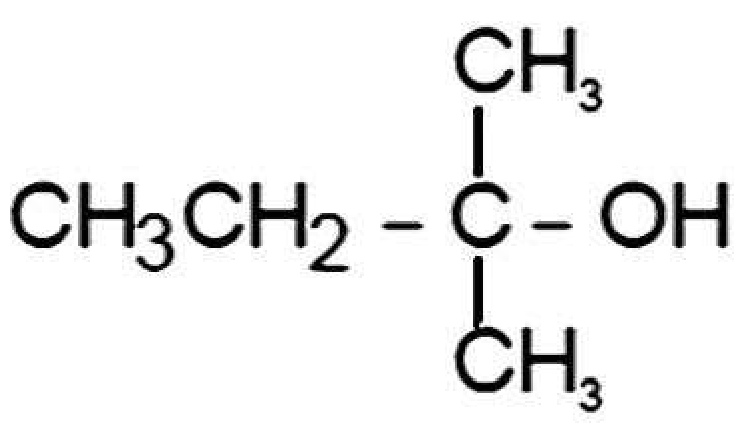
(3) $-212.27\ kJ\ mol^{-1}$

(4) $-312.27\ kJ\ mol^{-1}$

103. **The order of reactivity of following alcohols with halogen acid is :**

A. $CH_3CH_2-CH_2-OH$

B. 
$CH_3CH_2-\underset{CH_3}{\underset{|}{CH}}-OH$

C. 
$CH_3CH_2-\overset{CH_3}{\overset{|}{\underset{CH_3}{\underset{|}{C}}}}-OH$

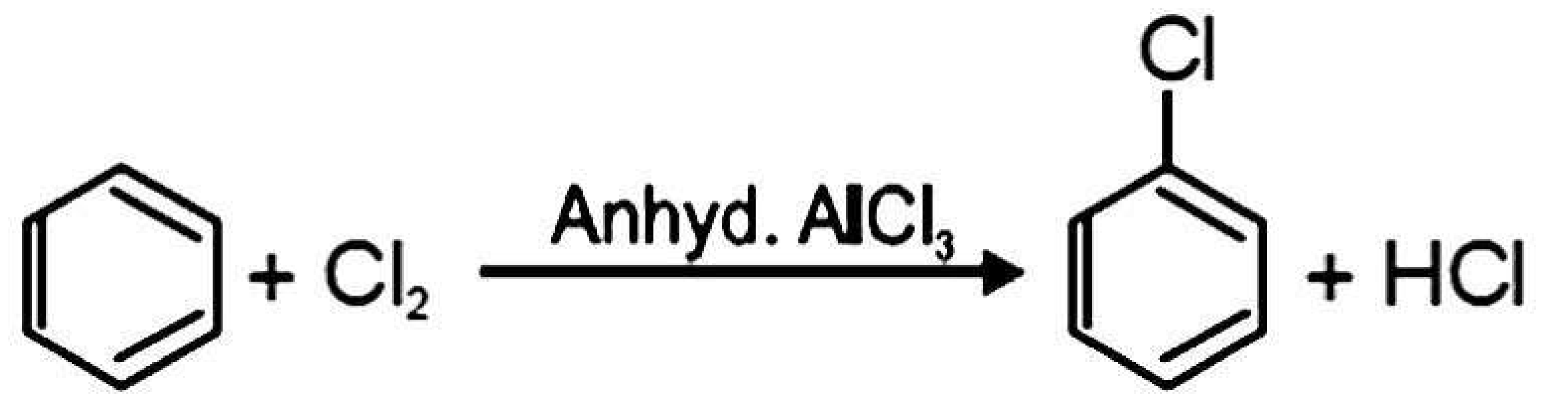
(1) A > B > C

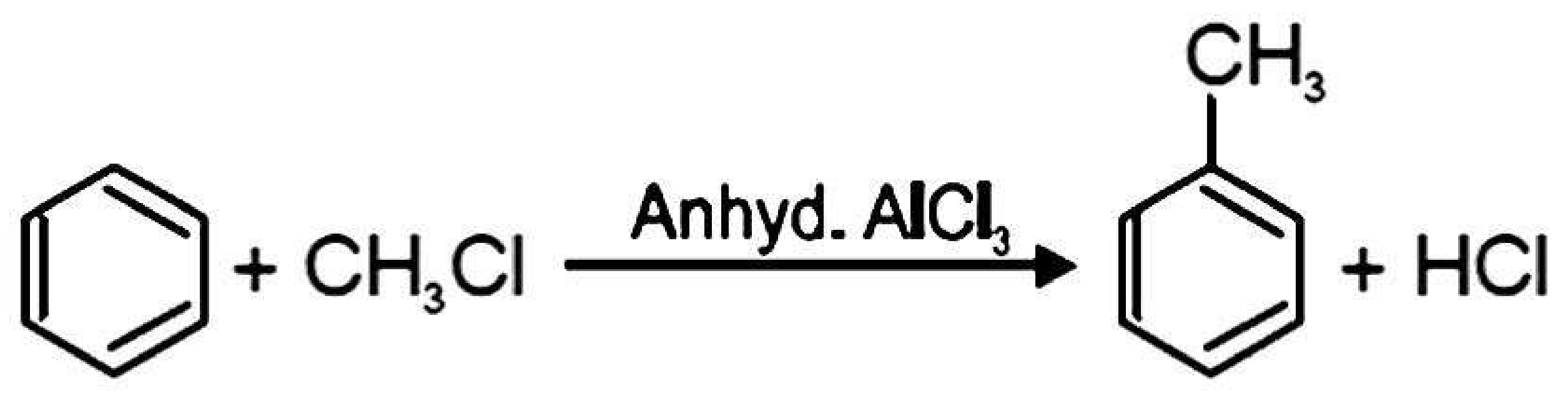
(2) C > B > A

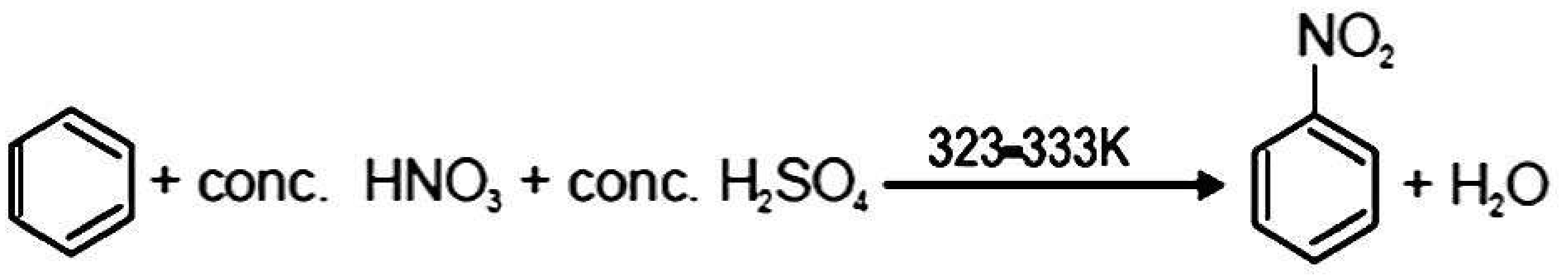
(3) B > A > C

(4) A > C > B

104. **Which of the following reaction is friedel craft alkylation :**

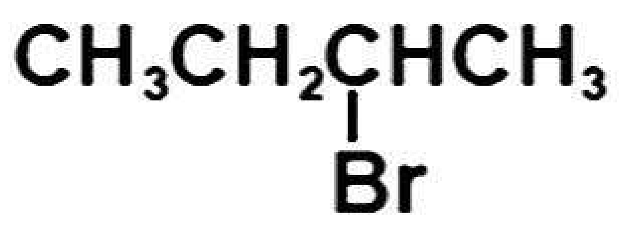
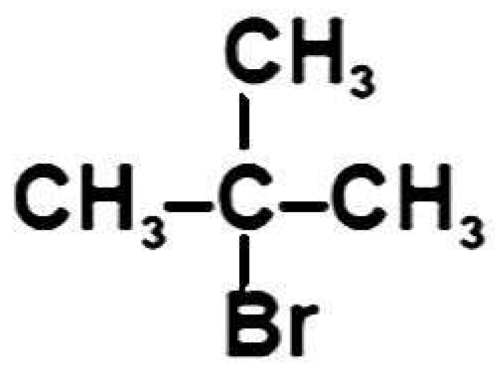
(1) 

(2) 

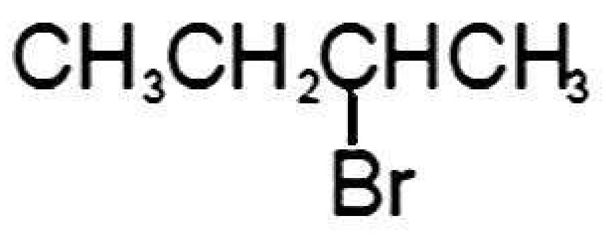
(3) 

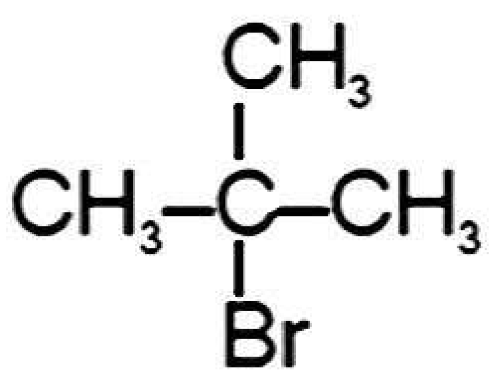
(4) None of these

105. **Among $CH_3CH_2CH_2CH_2Br$, $CH_3CH_2\underset{Br}{\underset{|}{C}}HCH_3$ and $CH_3-\overset{CH_3}{\overset{|}{\underset{Br}{\underset{|}{C}}}}-CH_3$ whch has lowest boiling point :**

(1) $CH_3CH_2CH_2Br$

(2) 
$CH_3CH_2\underset{Br}{\underset{|}{C}}HCH_3$

(3) 
$CH_3-\overset{CH_3}{\overset{|}{\underset{Br}{\underset{|}{C}}}}-CH_3$

(4) None of these

106. $CH_3-CH_2-Cl \xrightarrow{\text{Ethanolic NaCN}} A \xrightarrow{\text{Reduction}} B$

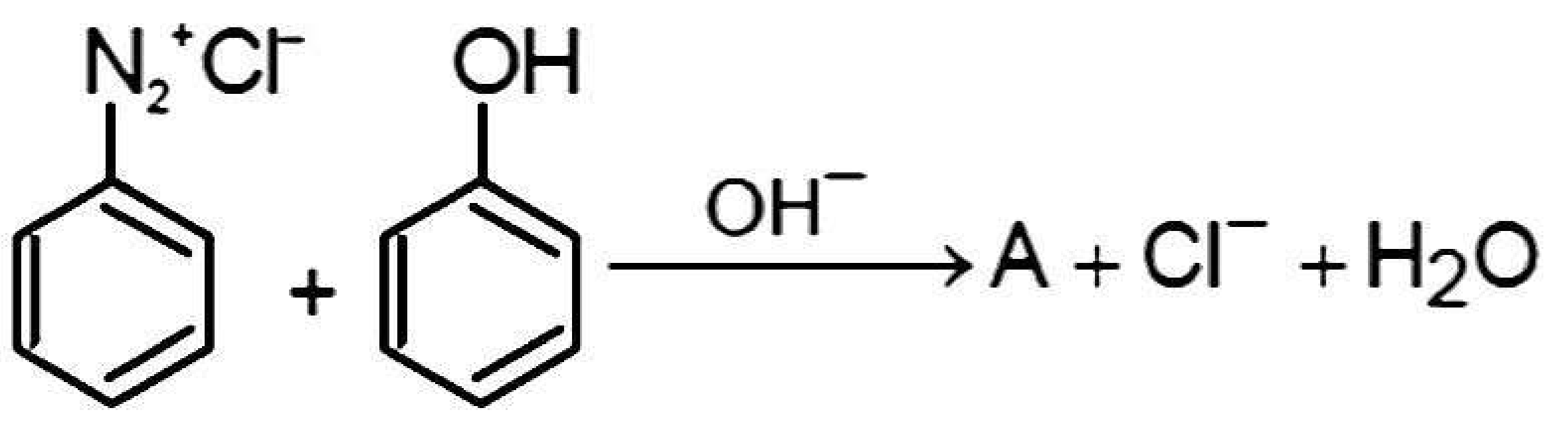
B is :

(1) CH_3-CH_2-CN

(2) $CH_3-CH_2-CH_3$

(3) $CH_3-CH_2-CH_2-NH_2$

(4) None of these

107. 

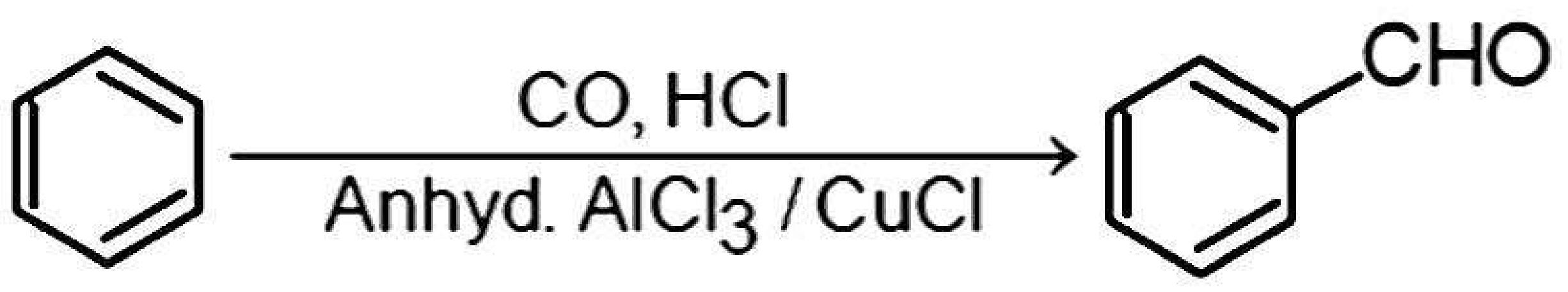
A is :

(1) p-Hydroxybenzene

(2) p-Hydroxyazobenzene

(3) p-Aminoazobenzene

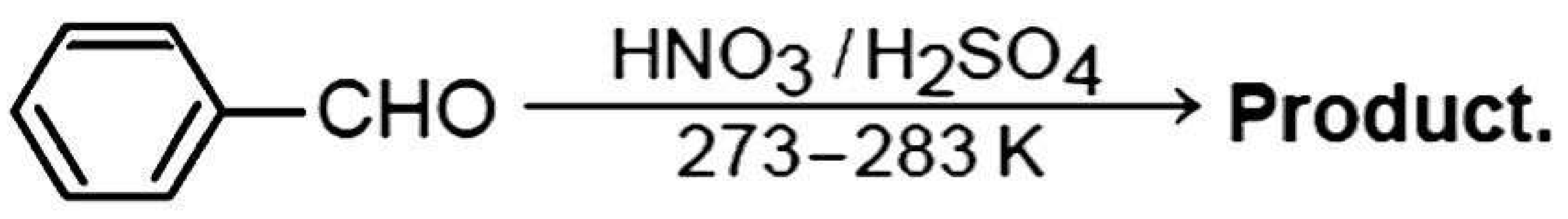
(4) None of these

108. 

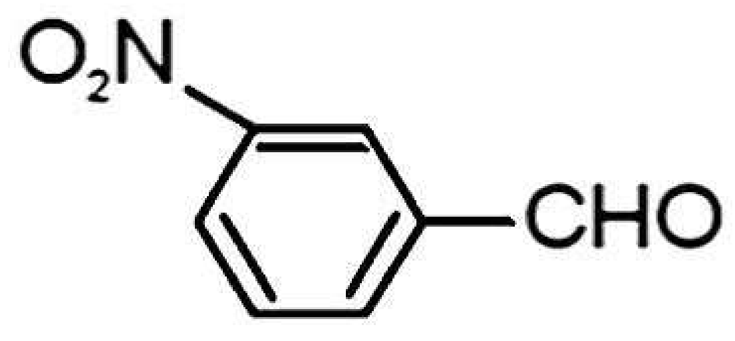
Reaction is :

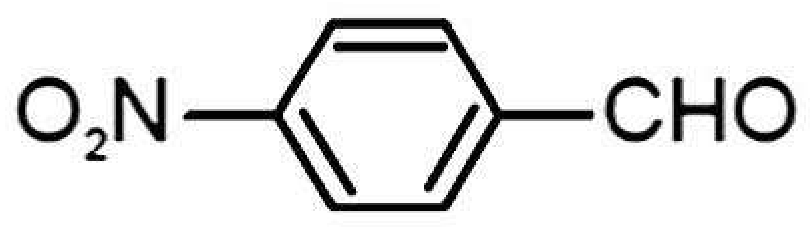
(1) Etard reaction (2) Gatterman Koch Reaction

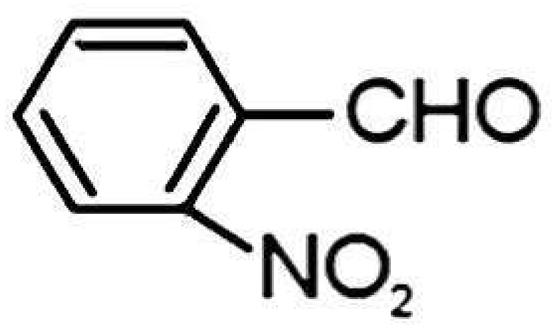
(3) Stephen Reduction (4) Rosenmund Reduction

109. 
CHO
HNO_3/H_2SO_4
273–283 K
Product.

Product is :

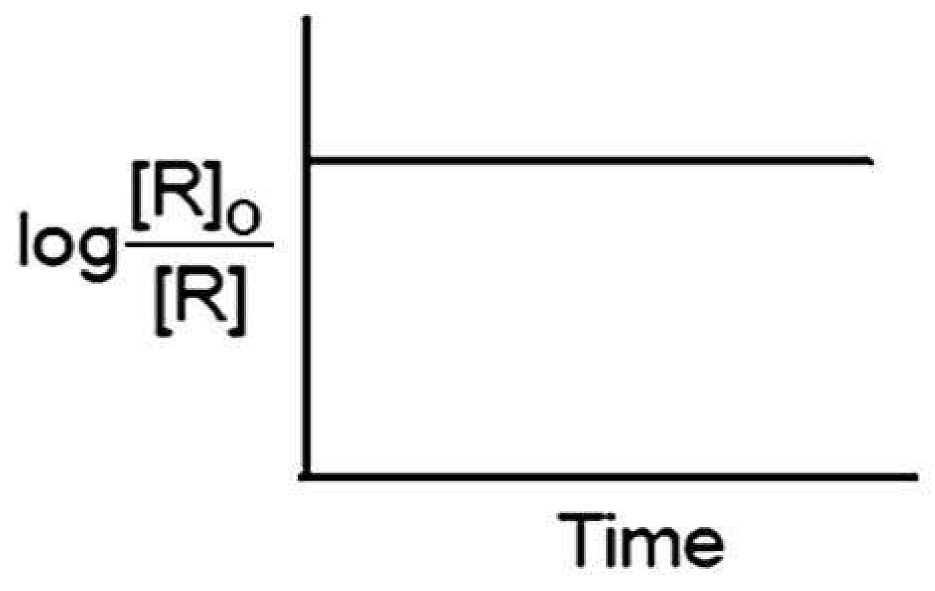
(1) 

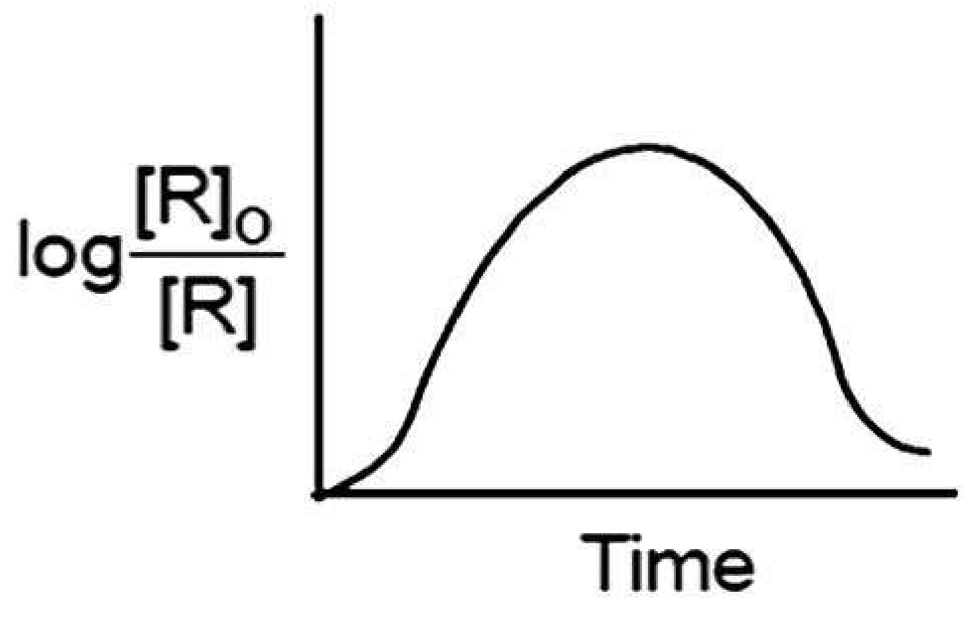
(2) 

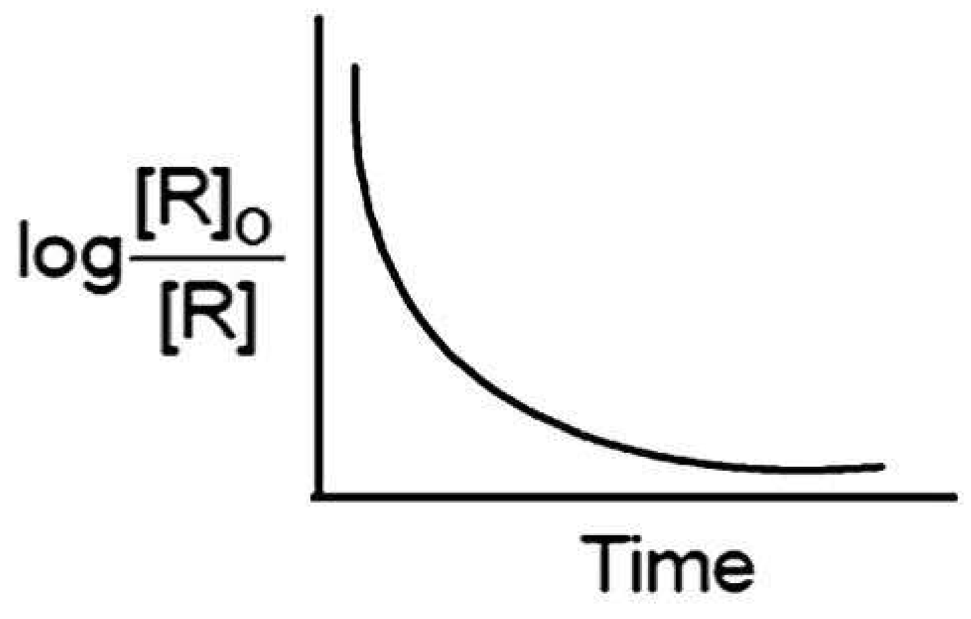
(3) 

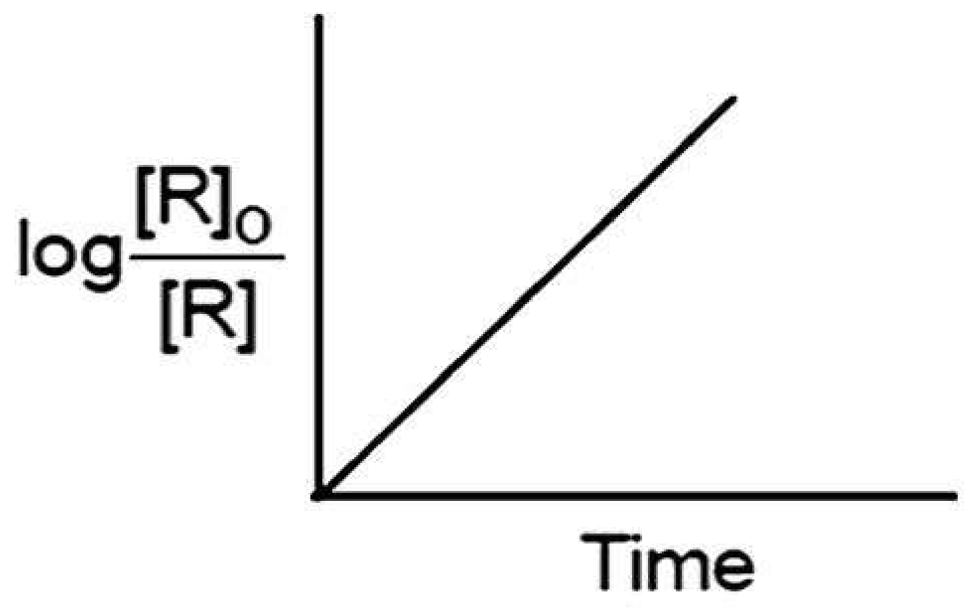
(4) None of these

110. **For first order reaction, the correct graph for $\log\frac{[R]_0}{[R]}$ Vs Time is :**

(1) 

(2) 

(3) 

(4) 

111. **A solution is prepared by adding 2 gm of a substance A to 18 gm of water. The mass percent of the solute is :**

(1) 5% (2) 25%

(3) 10% (4) 20%

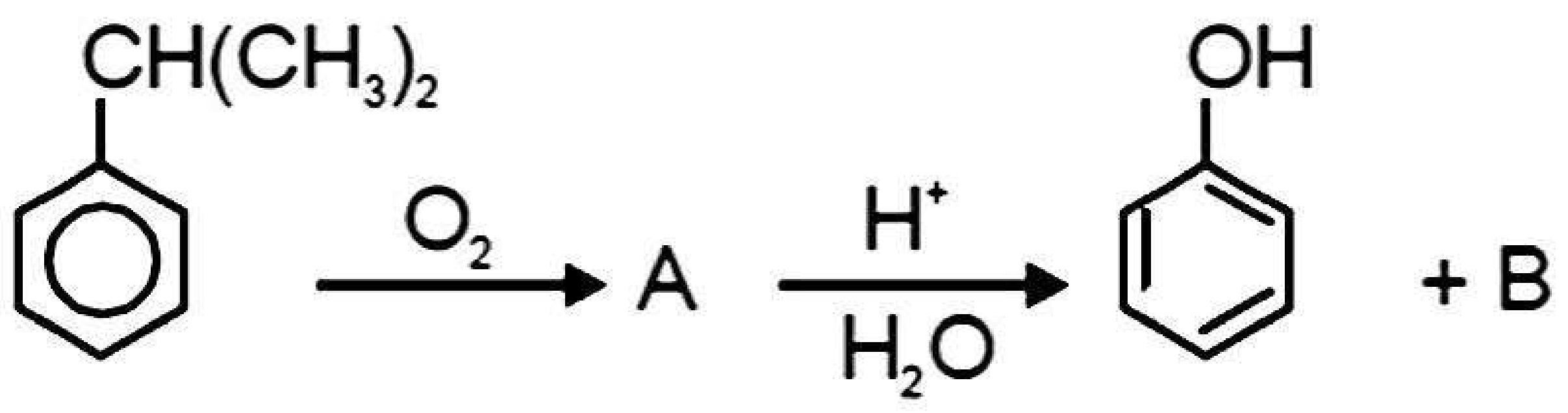
112. **In many copper compounds the stability of Cu^{+2} (aq) is more than Cu^{+}(aq) because :**

(1) Sum of ΔH_{sub}, IE of Cu, $\Delta H_{(Hyd)}$ of Cu^{2+} is more for Cu^{+2} than Cu^{+}

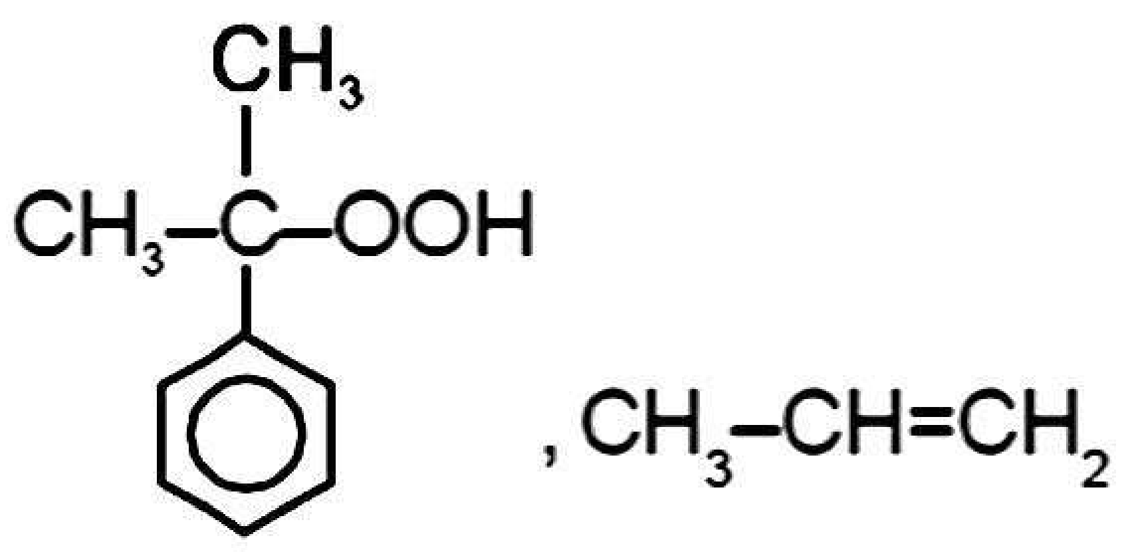
(2) $\Delta H_{hyd.}$ is more negative for Cu^{+2} (aq) than Cu^{+} (aq)

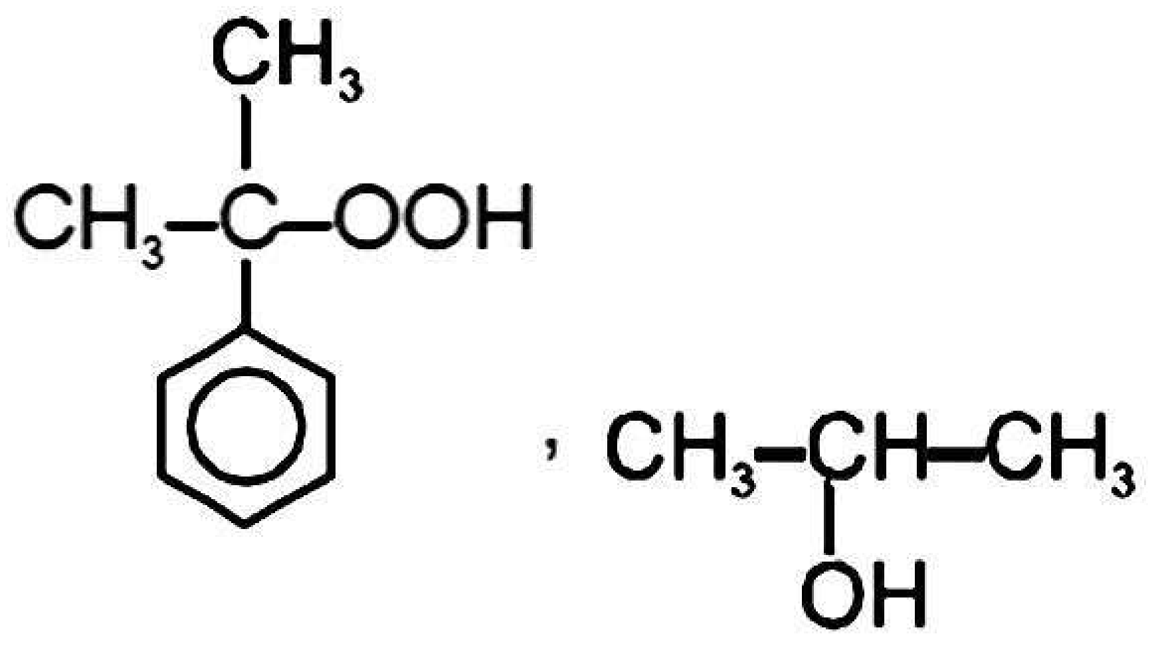
(3) Cu^{+2} has stable electronic configuration

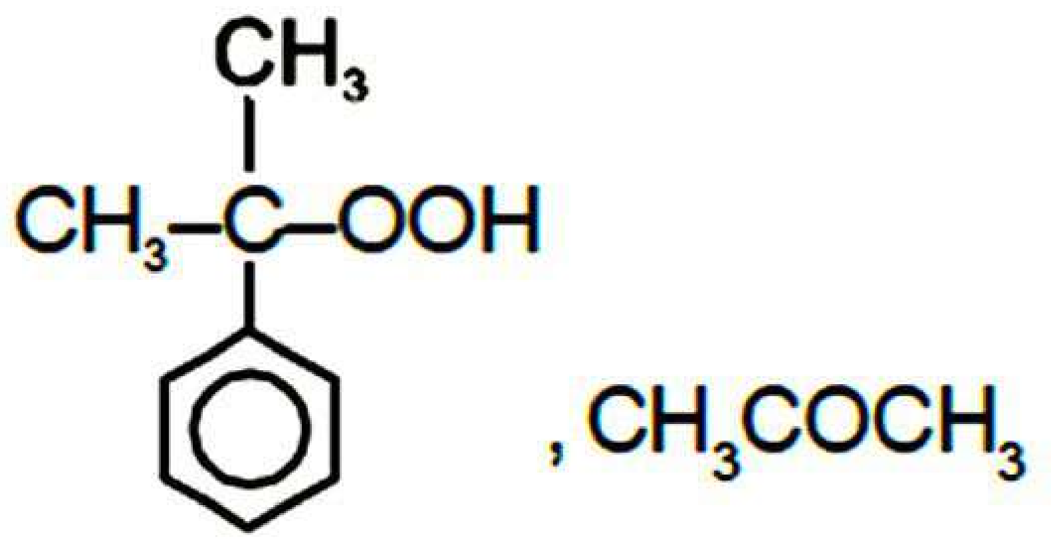
(4) IE_2 of Cu is very high.

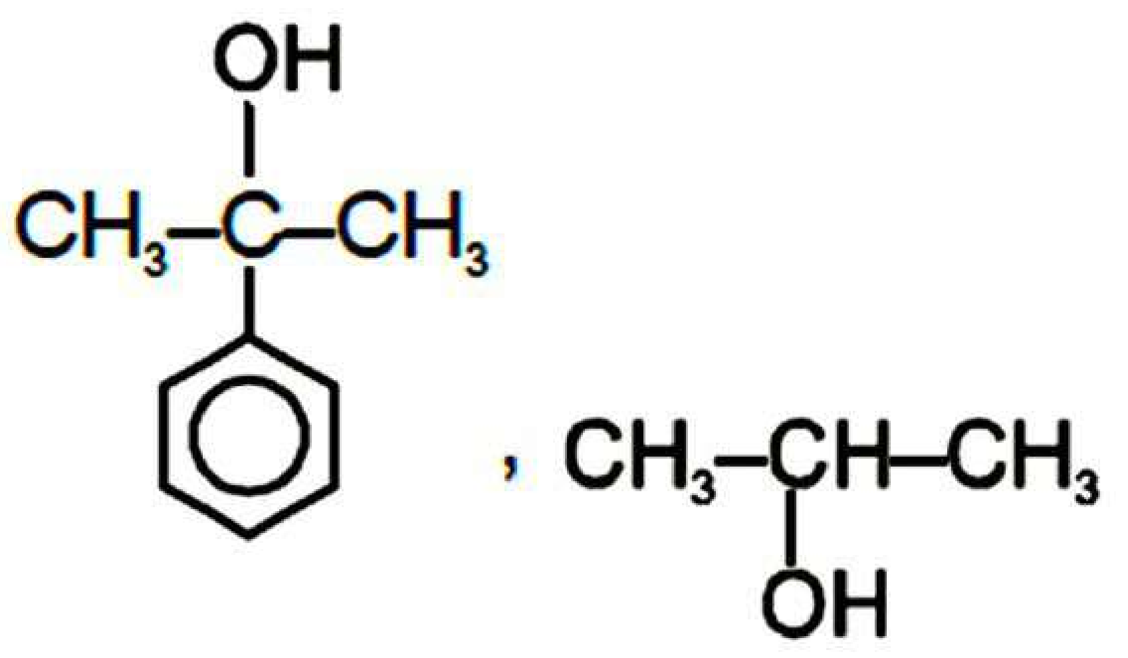
113. 
$CH(CH_3)_2$
O_2
A
H^+
H_2O
OH
+ B

Identify A and B respectively :

(1) 
CH_3
CH_3–C–OOH
, CH_3–CH=CH_2

(2) 
CH_3
CH_3–C–OOH
, CH_3–CH–CH_3
OH

(3) 
CH_3
CH_3–C–OOH
, CH_3COCH_3

(4) 
OH
CH_3–C–CH_3
, CH_3–CH–CH_3
OH

114. **Reaction of phenol with zinc dust gives mainly**

(1) Salicylaldehyde (2) Benzoquinone

(3) Benzene (4) Butane

115. **How will you convert butan-2-one to propanoic acid:**

(1) NaOH/NaI/H^+ (2) Fehling solution

(3) NaOH/I_2/H^+ (4) Tollen's Reagent

116. **The emf of the cell involving following changes,**

$$Zn(s) + Ni^{2+}\,(2\ M) \rightarrow Zn^{2+}\,(2M) + Ni(s)$$

is 0.5105 V the standard emf of the cell is :

(1) 0.540 V (2) 0.4810 V

(3) 0.5696 V (4) 0.5105 V

117. **1.00 g of a non-electrolyte solute dissolved in 50 g of benzene lowered the freezing point of benzene by 0.40 K. The freezing point depression constant of benzene is 5.12 K kg mol^{-1}. Find the molar mass of the solute.**

(1) 156 g mol^{-1} (2) 256 g mol^{-1}

(3) 356 g mol^{-1} (4) 456 g mol^{-1}

118. **Bond length of C–C in Benzene structure is :**

(1) C–C > C=C

(2) All C–C bonds are equals

(3) C–C $\neq$ C=C

(4) All C–C bonds are different

119. **For a reaction $A \rightarrow 2B$, rate of disappearance of 'A' is related to the rate of appearance of 'B' by the expression:**

(1) $-\frac{d[A]}{dt} = 4\frac{d[B]}{dt}$.(2) $-\frac{d[A]}{dt} = \frac{1}{2}\frac{d[B]}{dt}$

(3) $-\frac{d[A]}{dt} = \frac{1}{4}\frac{d[B]}{dt}$ (4) $-\frac{d[A]}{dt} = \frac{d[B]}{dt}$

120. **In the hydrocarbon**

CH_3–CH=CH–CH_2–C$\equiv$CH

6 5 4 3 2 1

The state of hybridization of carbons 1, 3 and 5 are in the following sequence:

(1) sp, sp^3, sp^2 (2) sp, sp^2, sp^3

(3) sp^3, sp^2, sp (4) sp^2, sp, sp^3

121. **Which of the following gives iodoform test :**

(1) CH_3CHO (2) HCHO

(3) Both (4) None

122. **The $t_{1/2}$ of first order reaction is :**

(1) dependent upon initial concentration

(2) directly proportional to initial concentration

(3) indirectly proportional to initial concentration

(4) independent of initial concentration

123. **The correct order of acidic strength is :**

(1) $CH_3CF_2COOH > CH_3CCl_2COOH > CH_3CBr_2COOH$

(2) $CH_3CF_2COOH > CH_3CBr_2COOH > CH_3CCl_2COOH$

(3) $CH_3CBr_2COOH > CH_3CCl_2COOH > CH_3CF_2COOH$

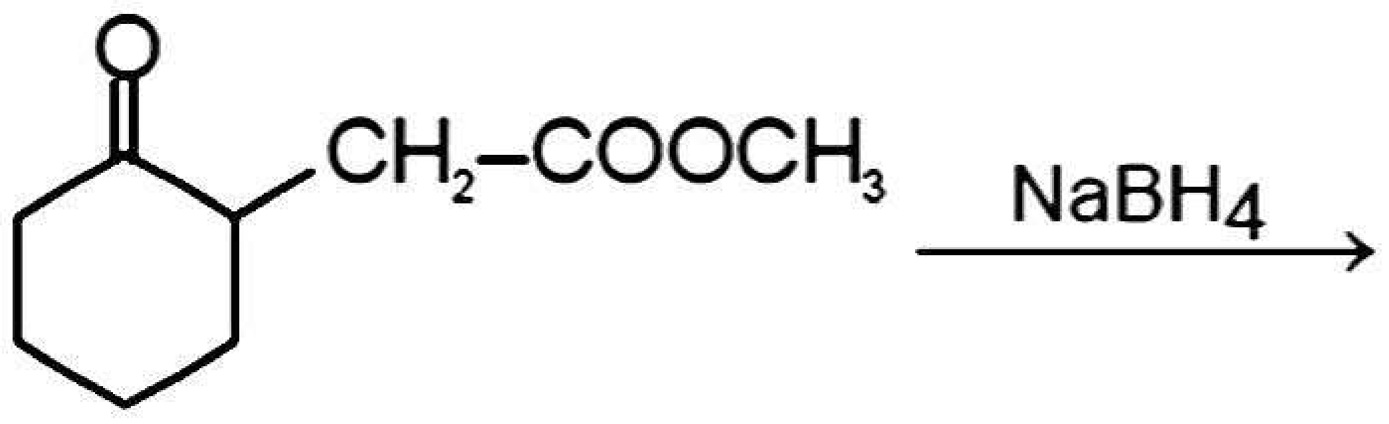
(4) $CH_3CCl_2COOH > CH_3CBr_2COOH > CH_3CF_2COOH$

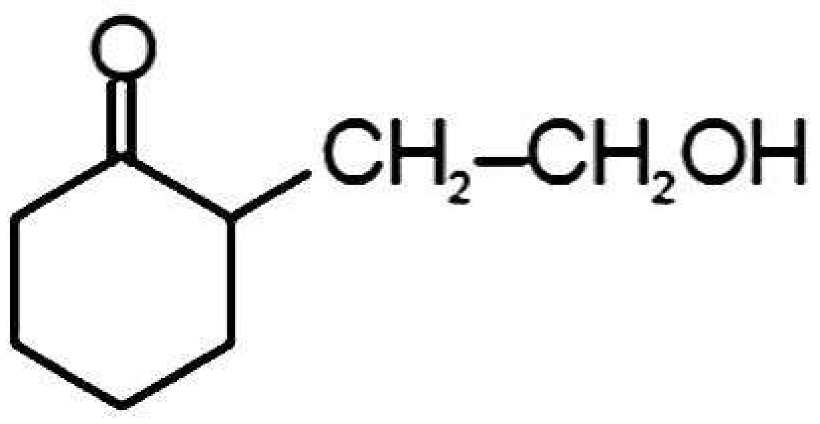
124. **In test for primary amines, the amine is treated with $CHCl_3$ and KOH and a bad smelling compound is formed. If the primary amine used is ethylamine, identify the bad smelling compound formed :**

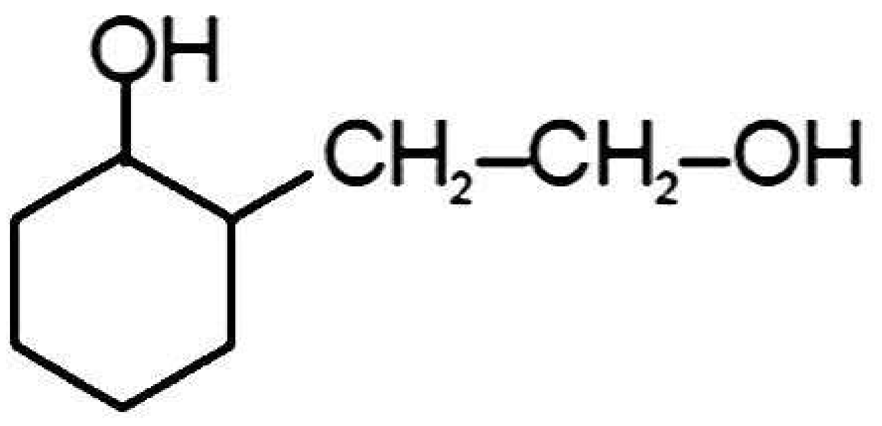
(1) CH_3CN (2) CH_3CNO

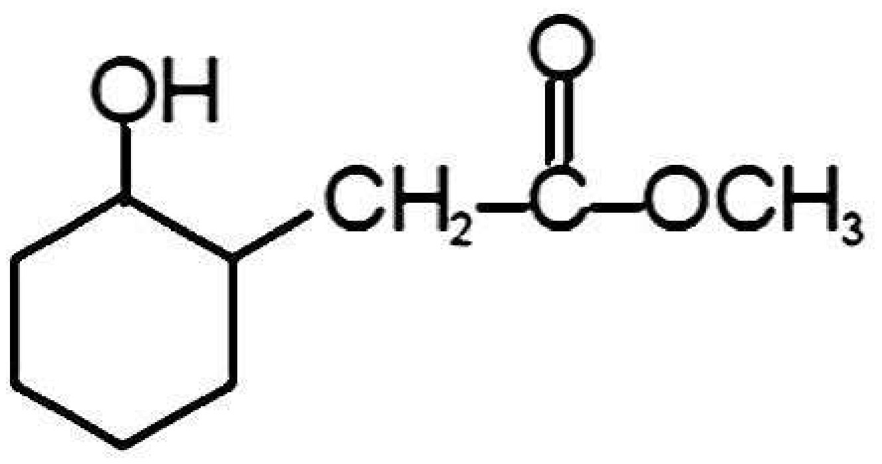
(3) CH_3CH_2NC (4) CH_3NCO

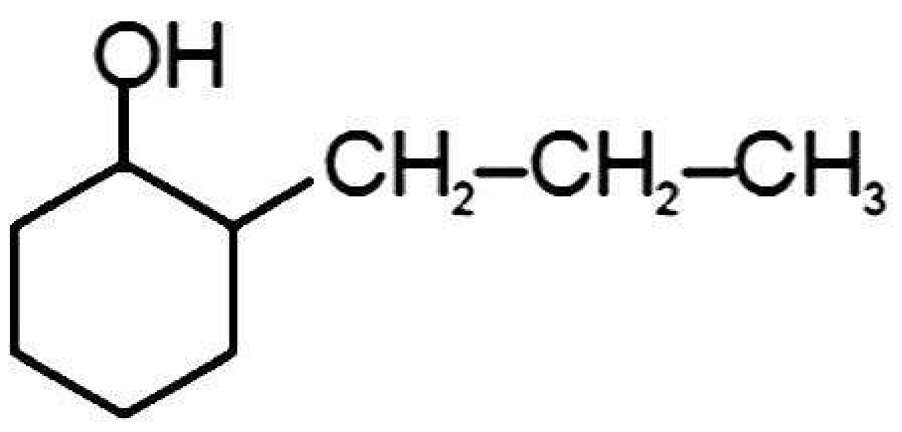
125. **Identify the product**

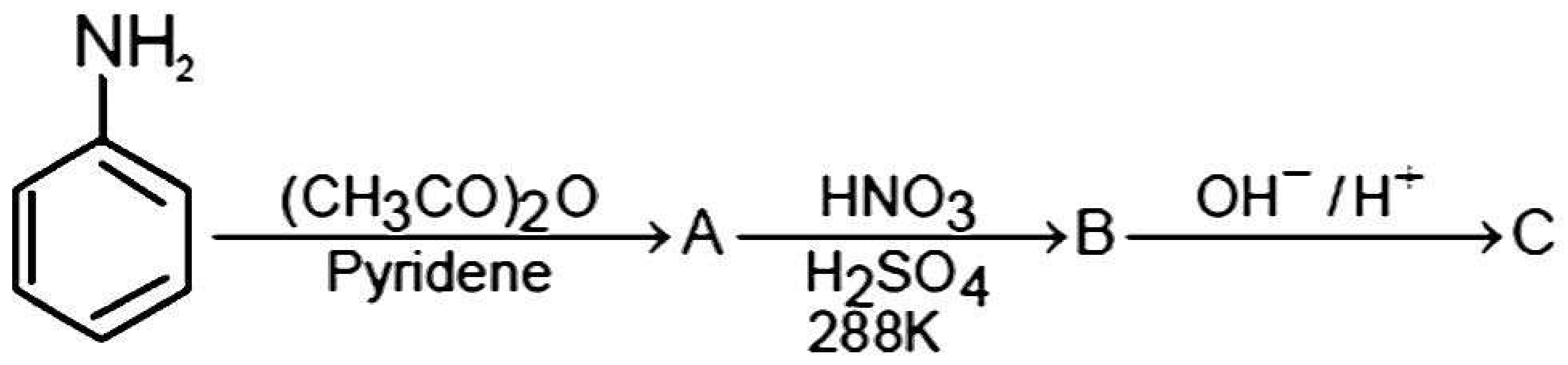


(1) 

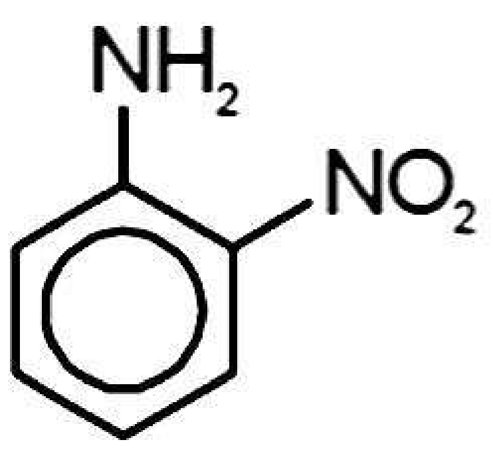
(2) 

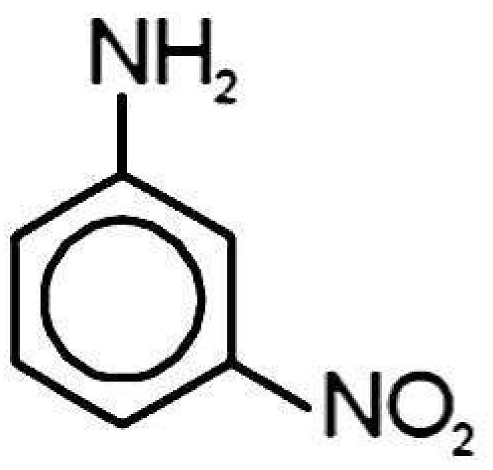
(3) 

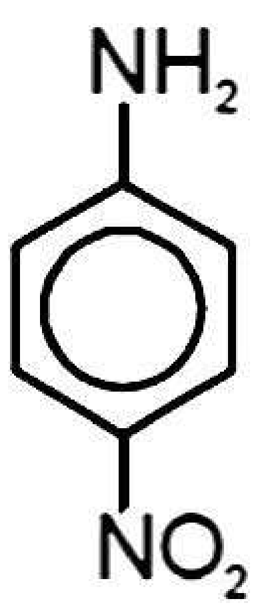
(4) 

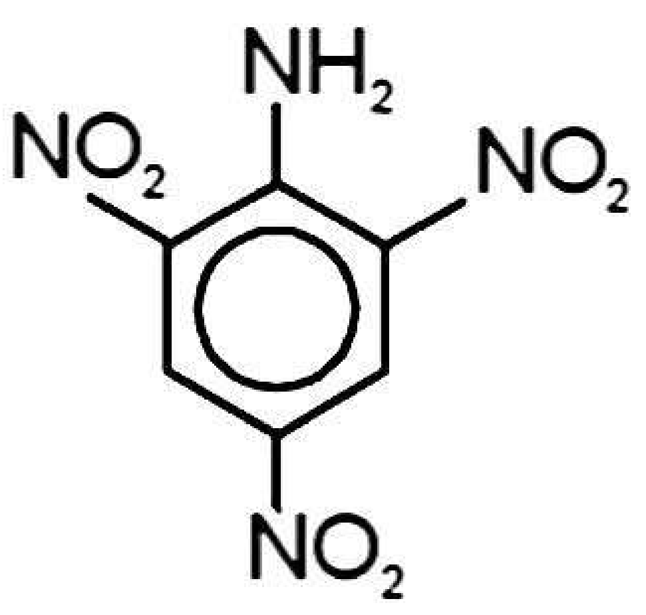
126. 

Compound C is :

(1) 

(2) 

(3) 

(4) 

127. **Choose the correct relation that can be possible for an elementary reaction :**

(1) Rate = $K[P]^1[Q]^3$

(2) Rate = $K[P]^{-1}[Q]$

(3) Rate = $K[P][Q]^{1/2}$

(4) Rate = $K[P][Q]$

128. **Which of the following can act as an oxidising agent :**

(1) $KMnO_4$ (2) H_2SO_4

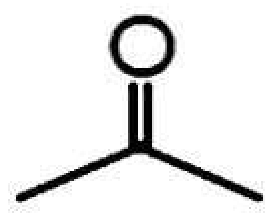
(3) HNO_3 (4) All of these

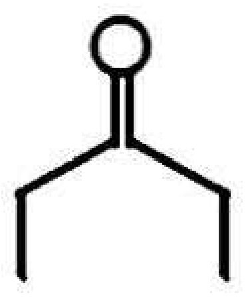
129. **Ambidentate ligand among the following is/are :**

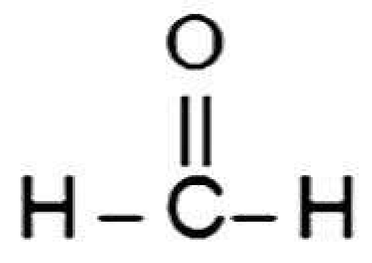
(1) CN^- (2) NO_2^-

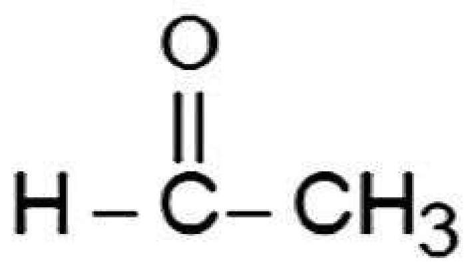
(3) en (4) Both (1) and (2)

130. **Arrange in increasing order of reactivity for nucleophilic addition reaction :**

(a) 

(b) 

(c) 
$H-\overset{\overset{O}{\|}}{C}-H$

(d) 
$H-\overset{\overset{O}{\|}}{C}-CH_3$

(1) c < d < a < b

(2) b < d < c < a

(3) b < a < d < c

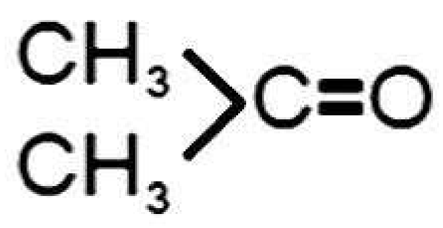
(4) None of these

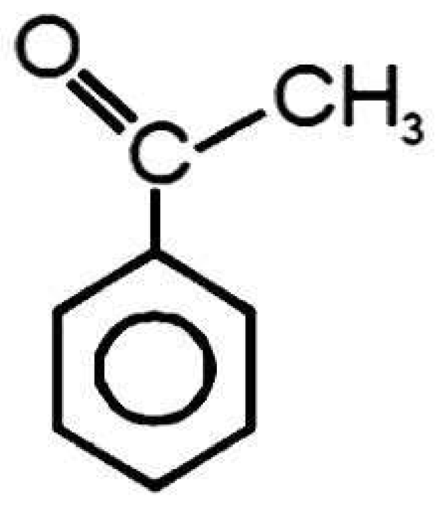
131. **In the formation of $K_4[Fe(CN)_6]$, the hybridisation of Fe is :**

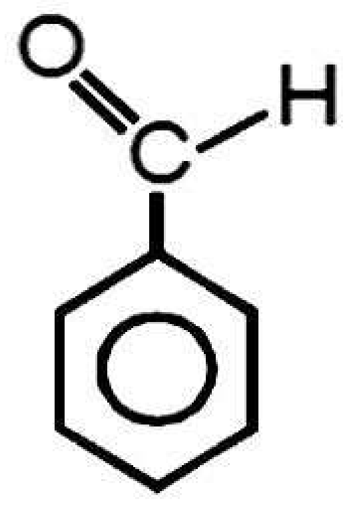
(1) sp^2d^3 (2) d^2sp^3

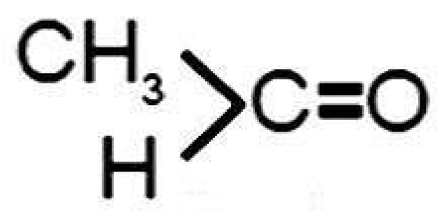
(3) d^3sp^2 (4) dsp^2

132. **Which will give Fehling solution test :**

(1) 
$\begin{matrix}CH_3\\CH_3\end{matrix}\!>\!C=O$

(2) 

(3) 

(4) 
$\begin{matrix}CH_3\\H\end{matrix}\!>\!C=O$

133. **Which acid is an optically active :**

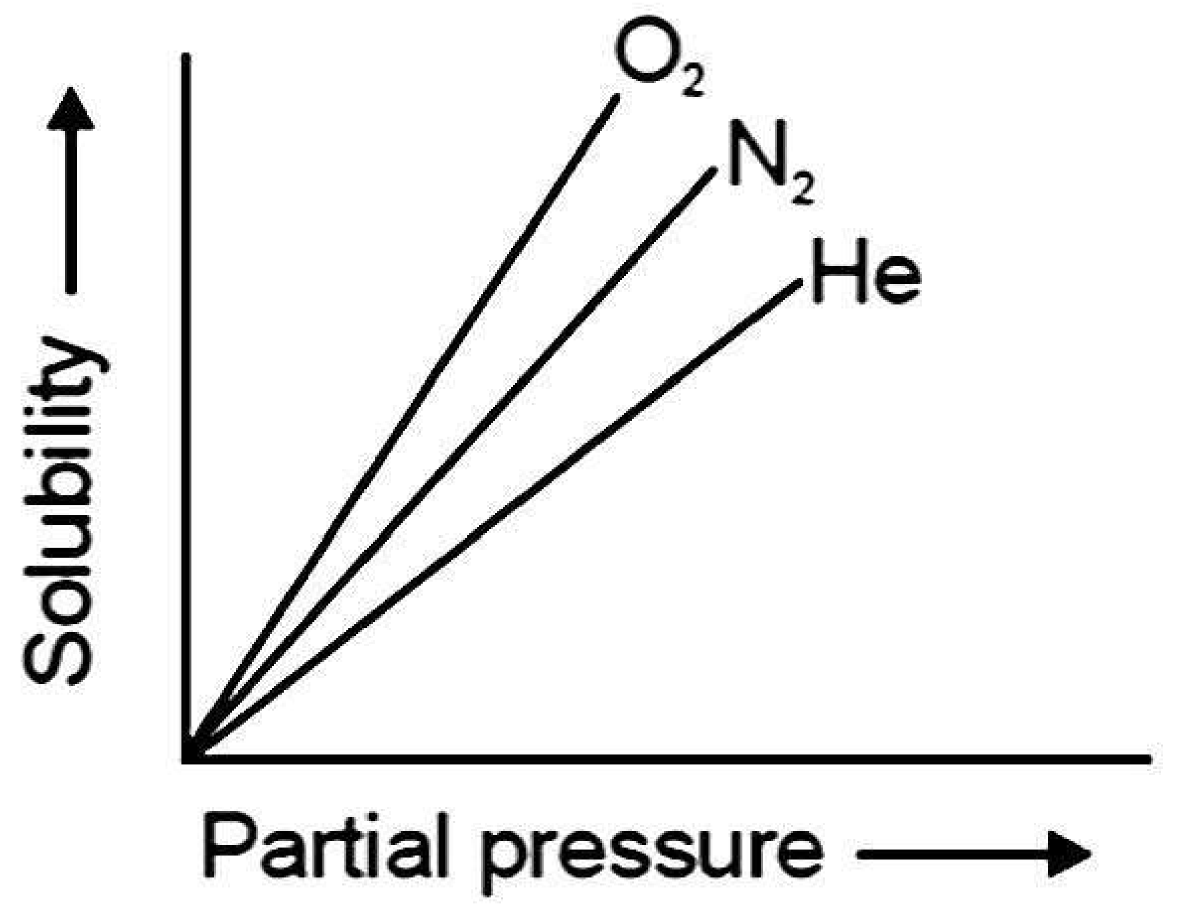
(1) Propanoic acid

(2) 2-chloropropanoic acid

(3) 3-chloropropanoic acid

(4) acetic acid

134. **Molar solubility of Helium, nitrogen and oxygen are plotted against partial pressure of the gas at constant temperature :**



Henry's law constant for these gases will lie in following sequence :

(1) $O_2 > N_2 > He$ (2) $O_2 < N_2 < He$

(3) $O_2 = N_2 = He$ (4) $O_2 > N_2 < He$

135. **The example of positive deviation of :**

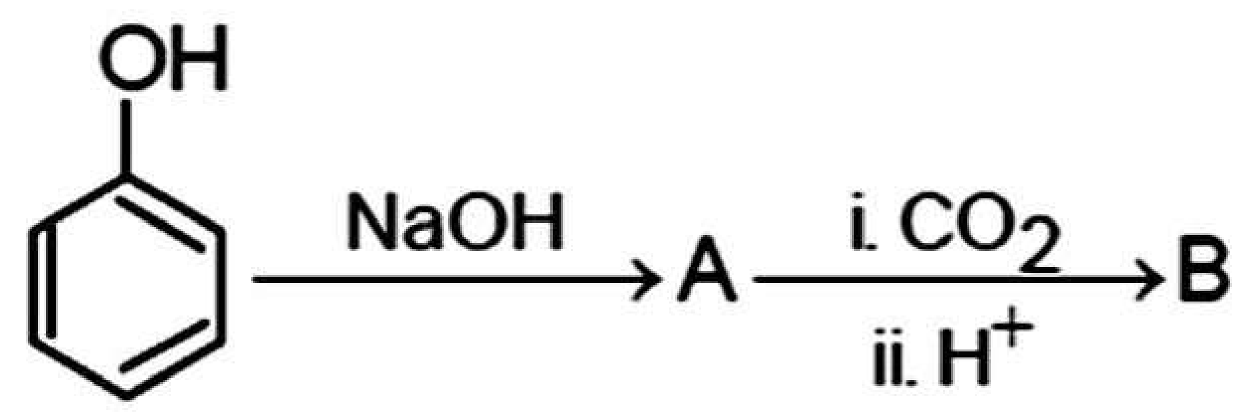
(1) Benzene-toluene

(2) Chloroform and acetone

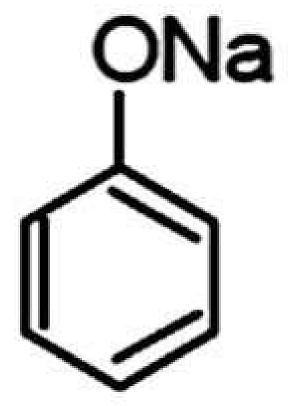
(3) Ethyl alcohol & water

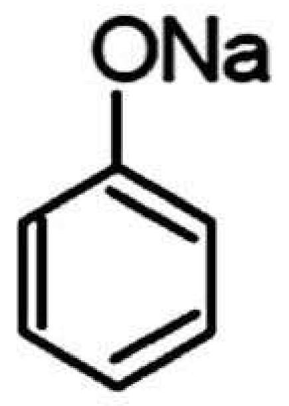
(4) Nitric acid and water

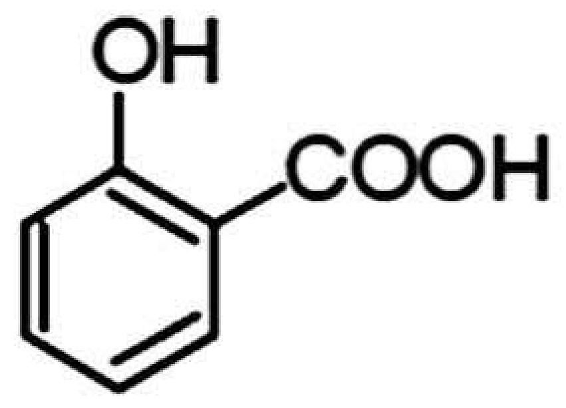
Section- B

136. 

B is :

(1) 

(2) 

(3) 

(4) None of these

137. **Hydrocarbon (A) react with bromine by substitution to form an alkyl bromide which by wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atom (A)**

(1) CH_3-CH_3 (2) $CH_2=CH_2$

(3) $CH\equiv CH$ (4) CH_4

138. **Select the correct statement :**

i. **Molecularity has no meaning for complex reactions.**

ii. **Order with respect to any particular reactant may be negative.**

iii. **Moleculatiry of reaction may or may not be same as order of reaction.**

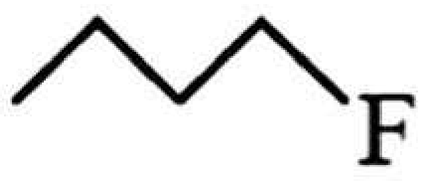
iv. **The general expression for unit of rate constant for nth order reaction is**

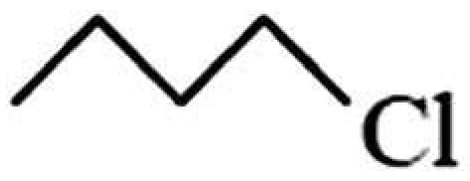
$$\left(\frac{\text{Mole}}{\text{litre}}\right)^{1-n}\text{Time}^{-1}$$

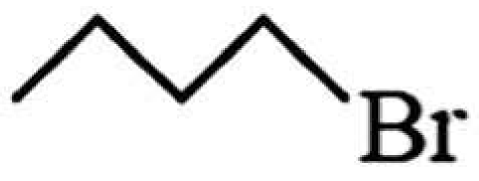
(1) i, ii (2) i, iii, iv

(3) i, ii, iii (4) i, ii, iii, iv.

139. **In the following halogen compound, which would under go S_N2 reaction faster?**

(1)


(2)


(3)


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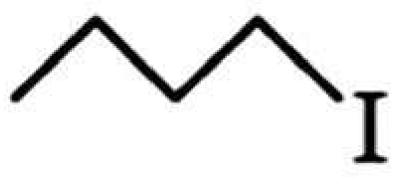
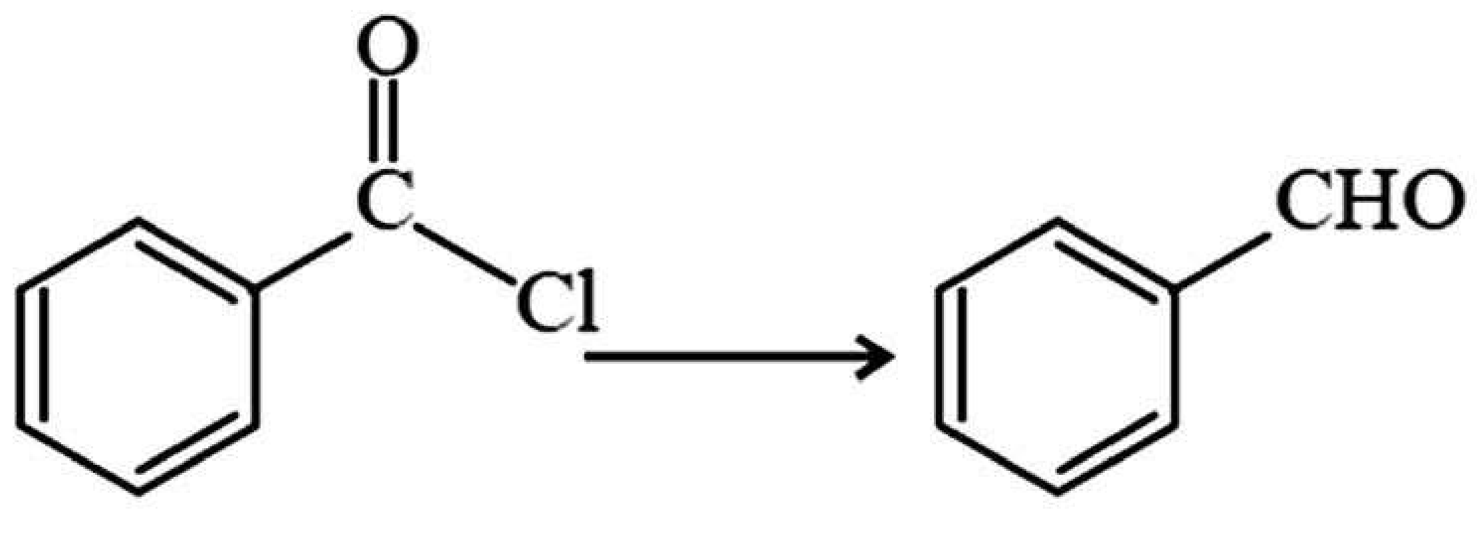


140. **Name and Catalyst of the following reaction is**



(1) Stephen reaction – H_2 + Pd/$BaSO_4$

(2) Rosenmund reduction – $SnCl_2$/HCl+H_3O^+

(3) Rosenmund reduction – H_2+Pd – $BaSO_4$

(4) Etard reaction – CrO_2Cl_2/CS_2

141. **The complex, $[Co(en)_3][Cr(CN)_6]$ and $[Cr(en)_3][Co(CN)_6]$ are the examples of :**

(1) Linkage isomerism

(2) Co-ordination isomerism

(3) Hydrated isomerism

(4) None

142. **The IUPAC name of the compound is :**

$$(CH_3)_2CH–CH=CH–CHOH–CH_3$$

(1) 5-Methylhex-3-en-2-ol

(2) 2-Methylhex-3-en-5-ol

(3) 2-Hydroxy-5-methyl-3-hexene

(4) 5-Hydroxy-2-methyl-3-hexene

143. **Standard electrode potentials of two half cells are given as**

$$Zn^{2+}/Zn = –0.76\ V$$

$$Ag^{+}/Ag = 0.80\ V$$

The EMF of the cell

Zn | Zn^{2+} (1M) || Ag^+ (1M) | Ag will be :

(1) 1.56 V (2) 1.20 V

(3) 0.04 V (4) – 1.56 V

144. **Conductivity of a solution :**

(1) increases with dilution

(2) decreases with dilution

(3) First decreases then increases

(4) First increases then decreases

145. **For the reaction**

$$2A + B \rightarrow A_2B$$

The rate = K[A]$[B]^2$ with K=2.0×10^{-6} mol^{-2} lit^2 sec^{-1} initial concentration of A and B are respectively 0.1 and 0.2 mole / litre. What will be the rate of reaction after [A] is reduced to 0.06 mole / litre :

(1) 2.08×10^{-6} mol/litre/sec

(2) 2×10^{-6} mol/litre/sec

(3) 3.9×10^{-9} mol/litre/sec

(4) 1.26×10^{-9} mol/litre/sec

146. **Which of the following acids is a vitamin :**

(1) saccharic acid (2) adipic acid

(3) aspartic acid (4) ascorbic acid

147. **A + 2B → C, the rate equation for this reaction is given as Rate = K[A][B]. If the concentration of A is kept the same but that of B is doubled what will happen to the rate itself?**

(1) halved (2) the same

(3) doubled (4) quadrupled

148. $CH_3 – CH_2 – Cl \xrightarrow{KCN} A \xrightarrow[(ii)\,H_2O]{(i)\,SnCl_2/HCl} B$

Compound B is :

(1) $CH_3–CH_2–CHO$ (2) $CH_3–CH_2–COOH$

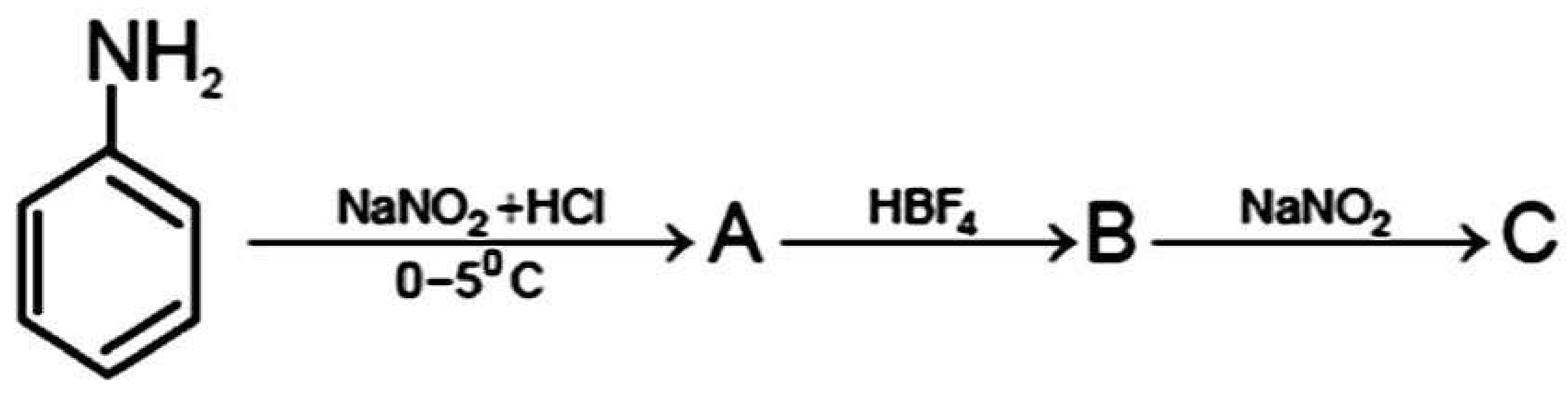
(3) $CH_3–CH_2–CH_2–OH$ (4) $CH_3–CH_2–CH_2–NH_2$

149. $CH_3MgBr \xrightarrow[(ii)\,H_2O/H^+]{(i)\,CO_2} A \xrightarrow{NH_3/\Delta} B \xrightarrow[\Delta]{P_2O_5} C$

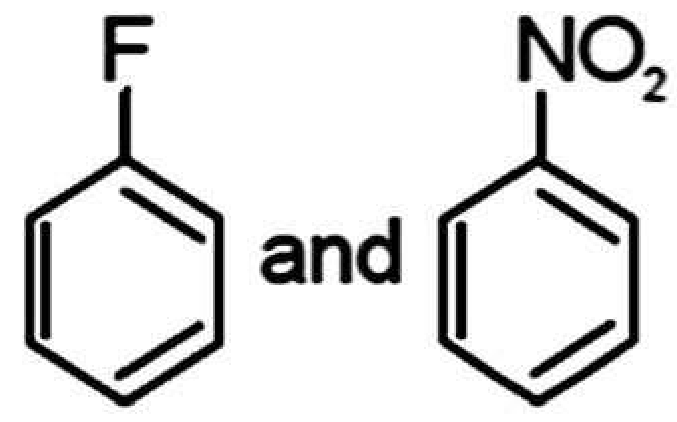
Compound C is :

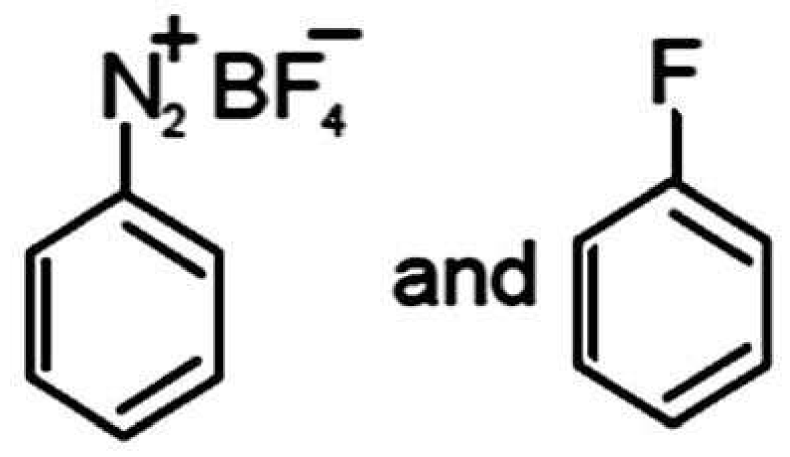
(1) $CH_3–NC$ (2) $CH_3–NH_2$

(3) $CH_3–CN$ (4) $CH_3–CH_2–CN$

150.


Compound B and C are respectively :

(1)


(2)


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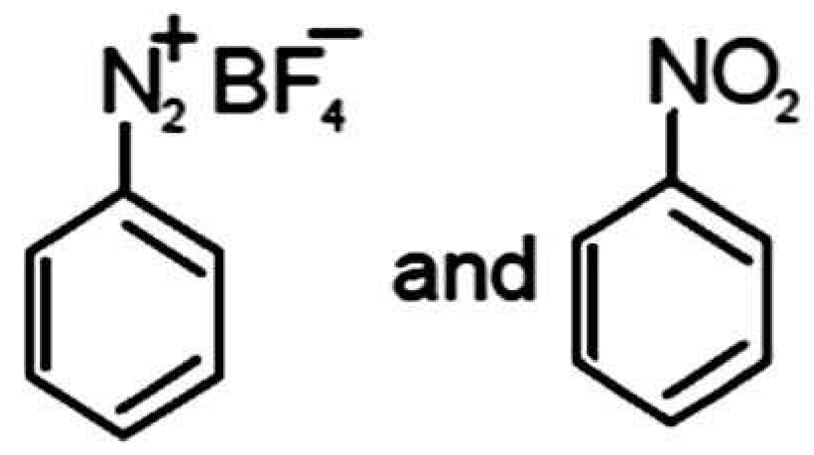

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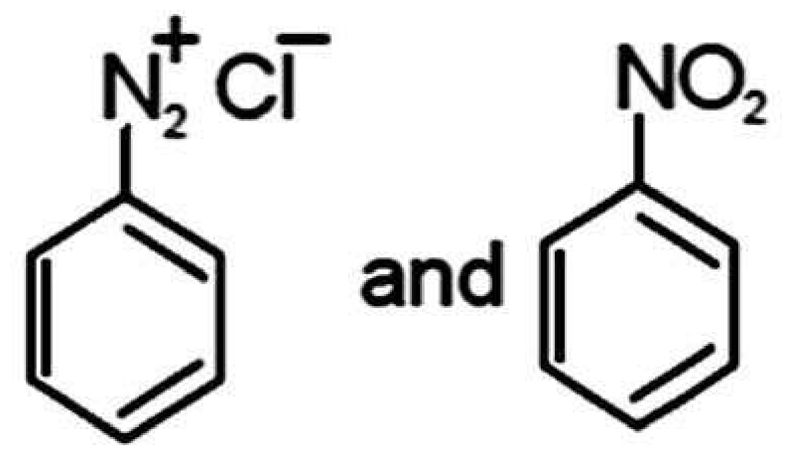


PHYSICS
(Section- A)

151. **Charge of (2C) revolving in circular orbit with 180 cycle per minute. Find value of electric current :**

(1) 360 amp (2) 2 amp

(3) 6 amp (4) Can not determine.

152. **A concave lens with unequal radii of curvature made of glass (μ_g= 1.5) has a focal length of 40 cm. In air if it is immersed in a liquid of refractive index μ_l= 2, then :**

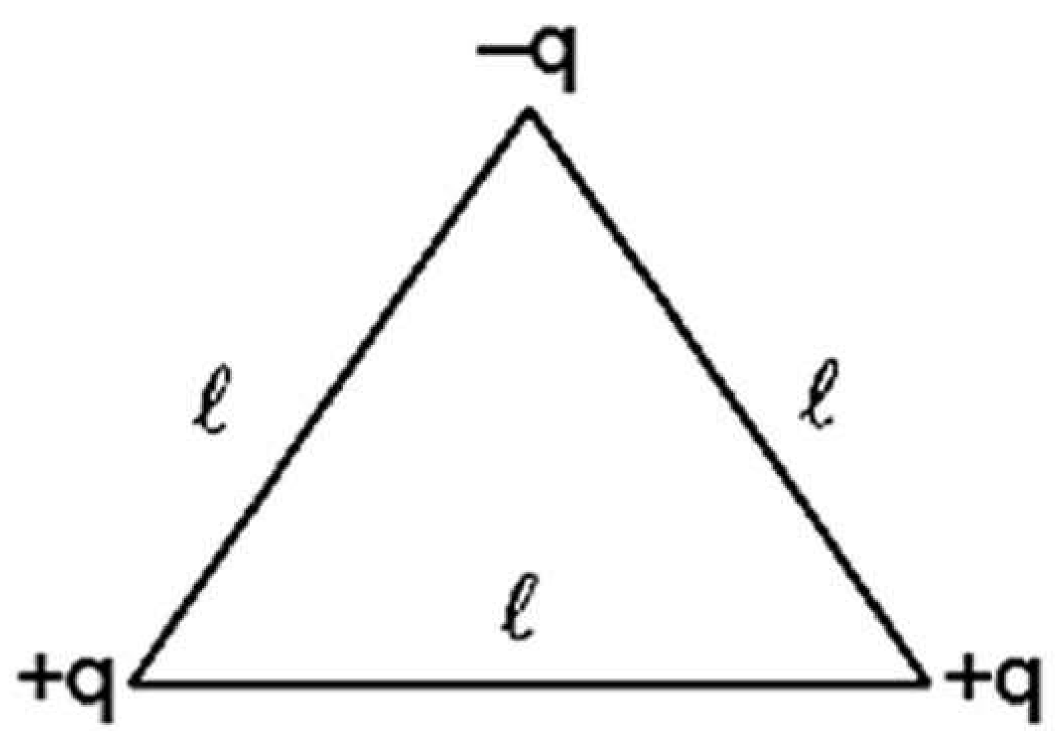
(1) It behaves like convex lens of 80 cm focal length

(2) It behaves like convex lens of 20 cm focal length

(3) Its focal length becomes 60 cm

(4) Nothing can be said

153. **Three charge q, q & –q are placed at vertices of an equilateral triangle as shown in figure. Find force on charge –q. $\left[\frac{1}{4\pi\varepsilon_0}=k\right]$:**



(1) $\frac{kq^2}{\sqrt{3}\ell^2+q^2}$ (2) $\frac{kq^2}{\ell^2}$

(3) $\sqrt{2}\frac{kq^2}{\ell^2}$ (4) $\sqrt{3}\frac{kq^2}{\ell^2}$

154. **Assertion: In Young's experiment, the fringe width for dark fringes is different from that for white fringes.**

Reason: In Young's double slit experiment the fringes are performed with a source of white light, then only black and bright fringes are observed.

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion

(3) If assertion is true but reason is false

(4) It the assertion and reason both are false

155. **A step down transformer drops the main supply voltage of 220V to 10V. The primary coils draws of 6A and the current induced in secondary coil is 90A. The efficiency of the transformer is**

(1) 68.2% (2) 48%

(3) 70% (4) 63.5%

156. **If the potential function is define as $V=(-3x+4y+12z)Volt$, then magnitude of electric field $E(x,y,z)$ is**

(1) 16 *Volt/m* (2) 12 *Volt/m*

(3) $\sqrt{14}$ *Volt/m* (4) 13 *Volt/m*

157. **The capacitance of a capacitor does not depend on:**

(1) The shape of the plates

(2) The size of the plates

(3) The charges on the plates

(4) The separation between the plates

158. **When three identical bulbs of 90W, 200 volt rating are connected in series to a 200 V supply the power drawn by them will be :**

(1) 30 W (2) 60 W

(3) 270 W (4) None of these

159. **A symmetrical double convex lens is cut in two equal parts by a plane containing the principal axis. If the power of the original lens was 4D, the power of a divided lens will be :**

(1) 2 D (2) 3 D

(3) 4 D (4) 5 D.

160. **The magnetic flux through a coil perpendicular to its plane and directed into the paper varies with time *t* (in second) according to the relation :**

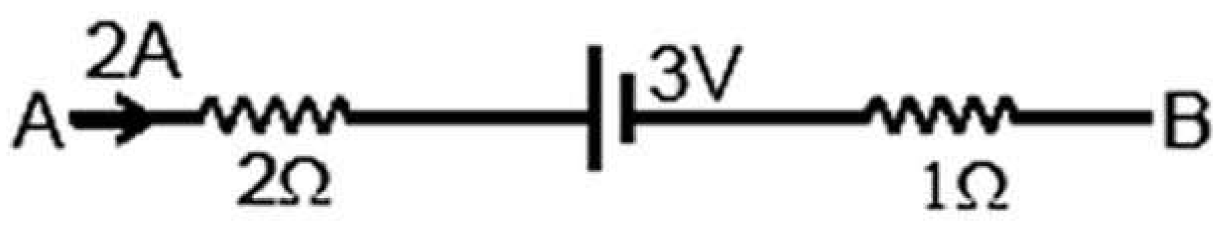
$\phi = (5t^2 + 10t + 1)$ **weber**

The magnitude of emf induced in coil at *t* = 2 *sec* is :

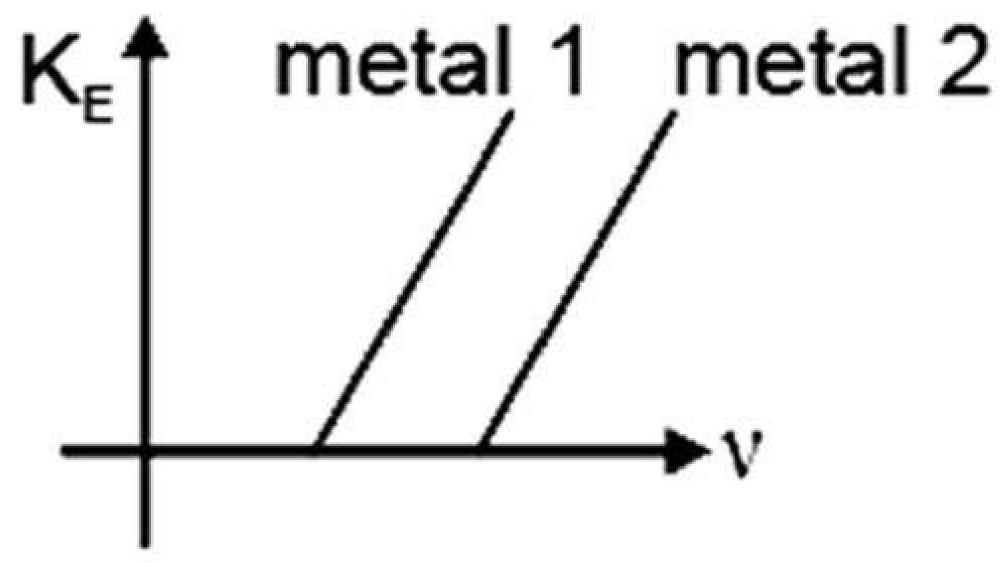
(1) 15 volt (2) 30 volt

(3) 45 volt (4) 10 volt

161. **Figure represents a part of a closed circuit. The potential different between A and B ($V_A - V_B$) is :**



(1) + 9V (2) – 9V (3) + 3V (4) + 6V

162.


From above graph between kinetic energy vs frequency we can conclude that :

(1) work function of metal-1 is higher than metal-2

(2) work function of metal-1 is lower than metal-2

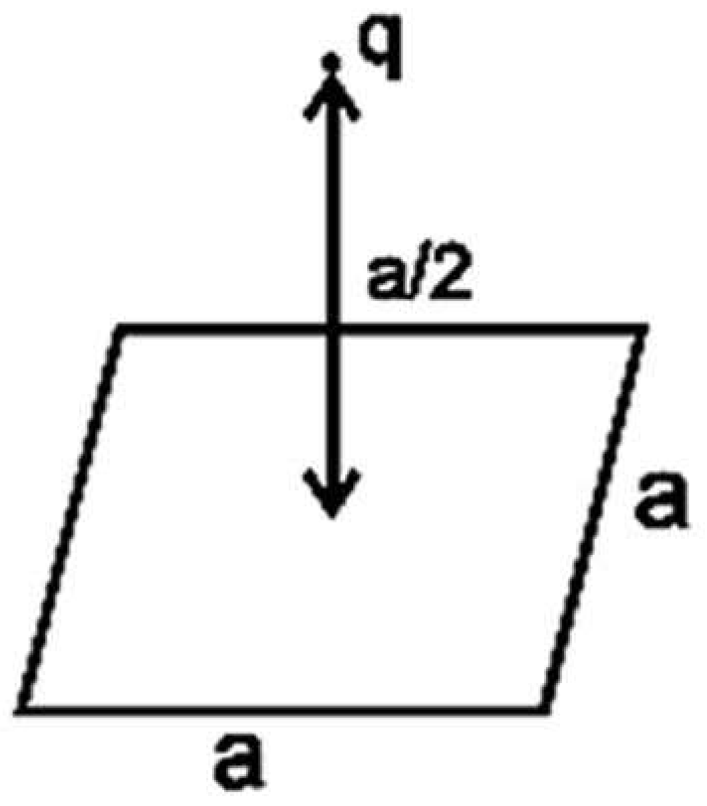
(3) both metal-1 and metal-2 have same work function

(4) none of these.

163. **A ray of light is incident at 60° on one face of a prism of angle 30° and the emergent ray makes 30° with the incident ray. The refractive index of the prism is :**

(1) 1.732 (2) 1.414 (3) 1.5 (4) 1.33

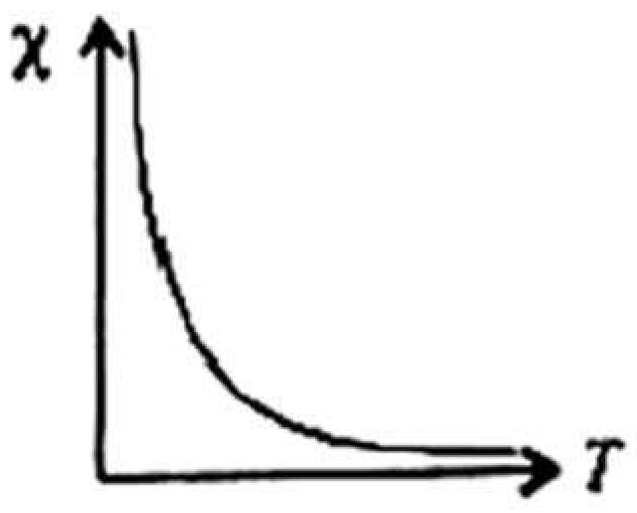
164. **In the following figure, electric flux passing through the surface is :**

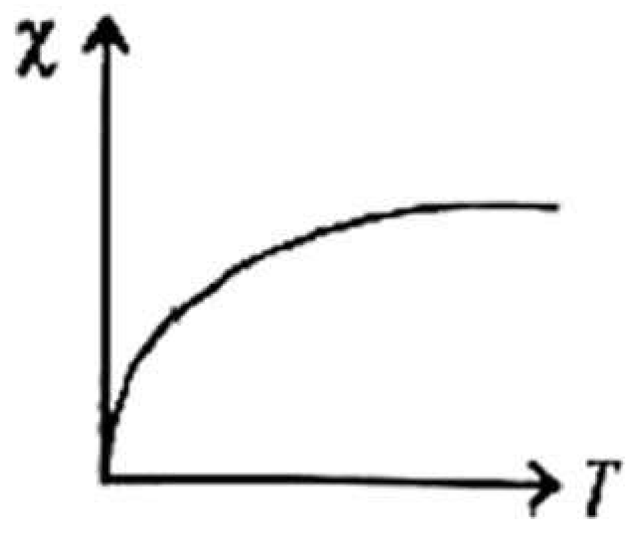


(1) $\frac{q}{\varepsilon_o}$ (2) $\frac{q}{2\varepsilon_o}$

(3) $\frac{q}{4\varepsilon_o}$ (4) $\frac{q}{6\varepsilon_o}$

165. **Point out the best representation of relation between magnetic susceptibility (χ) and temperature (T) for a paramagnetic material :**

(1)


(2)


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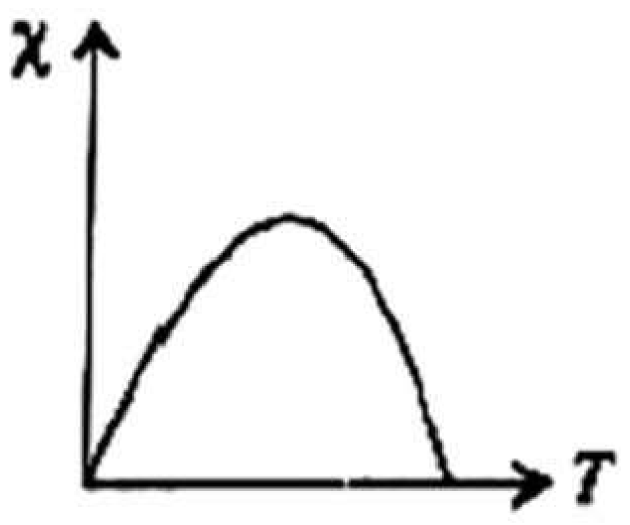

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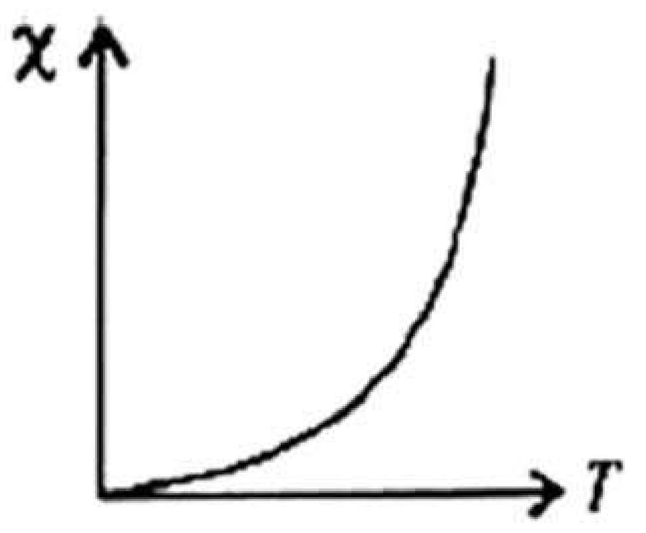
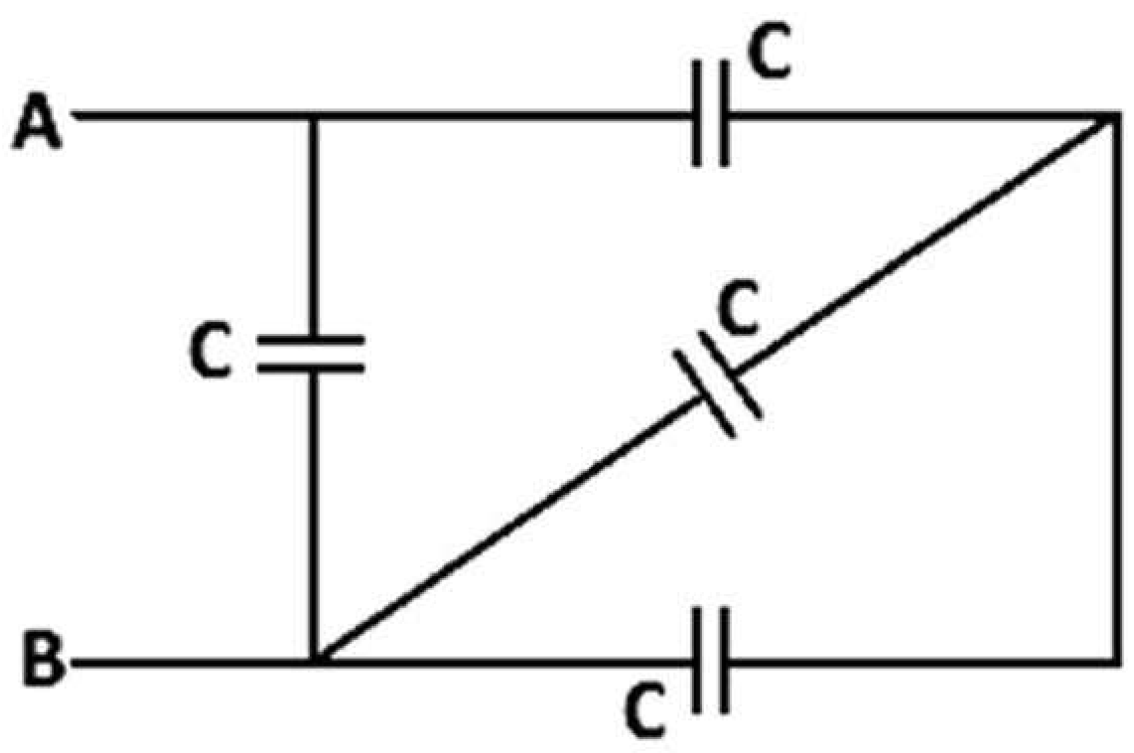


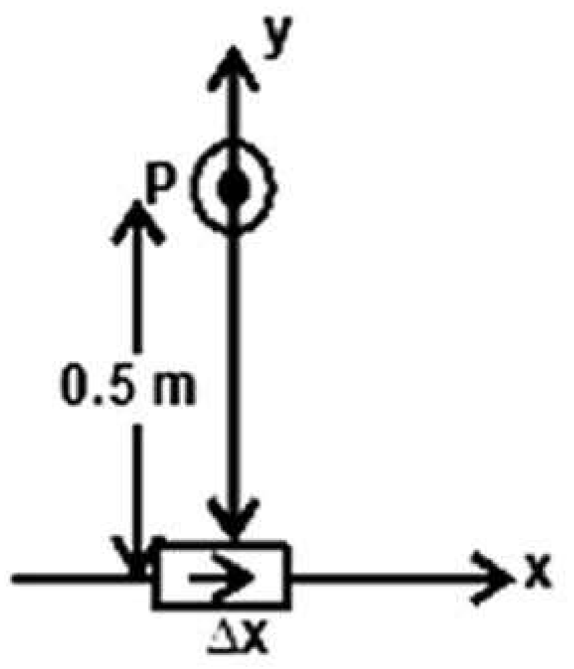
166. **Find the equivalent capacitance between point A and B:**



(1) $\frac{5C}{3}$ (2) $\frac{7C}{3}$

(3) $\frac{3C}{7}$ (4) $\frac{2C}{5}$

167. **An element $\Delta\ell = \Delta x\hat{i}$ is place at the origin and carries a large current I = 10A . What is the magnitude of magnetic field on the y axis at a distance of 0.5 m. Δx = 1 cm :**



(1) 2×10^{-8} T (2) 4×10^{-8} T

(3) 6×10^{-8} T (4) 8×10^{-8} T

168. **Equipotential surface associated with an electric field which is increasing in magnitude along the X-direction are :**

(1) Planes parallel to YZ-plane at equidistance

(2) Planes parallel to YZ-plane not at equidistance

(3) Planes parallel to XZ-plane

(4) Coaxial cylinders of increasing radii around the x-axis

169. **The dielectric constant and relative permeability of a transparent medium is 4 and 9 respectively. The speed of light in this medium is:**

(1) 0.5×10^8 m/s (2) 3×10^8 m/s

(3) 1.5×10^8 m/s (4) 0.5×10^7 m/s

170. **An electron is travelling with velocity $\vec{v} = 3\hat{i} + 5\hat{j}$ m/s in a magnetic field $\vec{B} = 6\hat{i} + 4\hat{j}$ tesla. Then is the magnitude and direction of the force $\vec{F}$ acting on the electron:**

(1) 18e N along +ve z-axis

(2) 18e N along –ve z-axis

(3) 36e N along –ve z-axis

(4) 54e N along +ve z-axis

171. **The electric field associated with an e.m. wave in vacuum is given by $\vec{E} = 40\cos(kz - 6\times10^8 t)\hat{i}$, where E, z and t are in volt/m, meter and seconds respectively. The value of wave vector k is :**

(1) 6 m^{-1} (2) 3 m^{-1}

(3) 2 m^{-1} (4) 0.5 m^{-1}

172. **The focal length of the objective and eye-piece of a telescope are respectively 200 cm and 5 cm. The maximum magnifying power of the telescope will be:**

(1) –100　　(2) –60

(3) –48　　(4) –40

173. **The energy of an electron in an excited hydrogen atom is –3.4 eV. Its angular momentum is :**

(1) 3.72×10^{-34} J-s

(2) 2.11×10^{-34} J-s

(3) 1.57×10^{-34} J–s

(4) 1.11×10^{-34} J-s

174. **Quality factor of L.C.R circuit having resistance 5 Ω, inductance 1 H and resonance frequency 100 rad/s is:**

(1) 0.05　　(2) 500

(3) 100　　(4) 20

175. **Match the following:**

Column–I	**Column–II**
A. Capacitance	**P. Volt $(\text{ampere})^{-1}$**
B. Magnetic induction	**Q. Volt-sec $(\text{ampere})^{-1}$**
C. Inductance	**R. Newton $(\text{ampere})^{-1}$ $(\text{metre})^{-1}$**
D. Resistance	**S. coulomb^2 $(\text{joule})^{-1}$**

(1) A–S; B–R; C–Q; D–P

(2) A–S; B–Q; C–R; D–P

(3) A–R; B–S; C–Q; D–P

(4) A–R; B–S; C–P; D–Q

176. **The depletion layer in the p-n junction is caused by:**

(1) drift of holes

(2) diffusion of charge carriers

(3) migration of impurity ions

(4) drift of electrons

177. **What is the value of the magnetic susceptibility of aluminium if its relative permeability is 1.000022 :**

(1) 0.00022　　(2) 0.000022

(3) 0.0022　　(4) 0.0000022

178. **When forward bias is applied to a P-N junction then what happens to the potential barrier V_B and the width of charge depleted region x:**

(1) V_B increases x decreases

(2) V_B decreases x increases

(3) V_B increases x increases

(4) V_B decreases, x decreases

179. **In semi-conductors at a room temperature:**

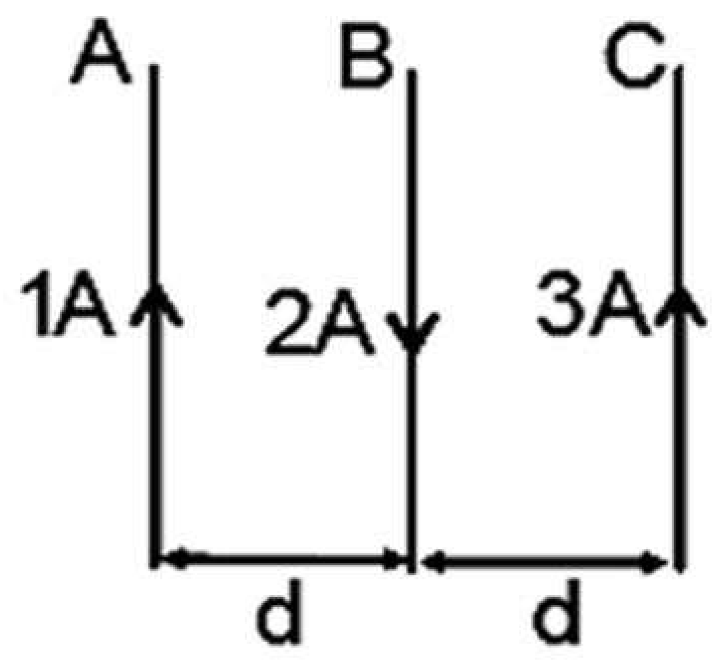
(1) The valence band is partially empty and the conduction band is partially filled

(2) The valence band is completely filled and the conduction band is partially filled

(3) The valence band is completely filled

(4) The conduction band is completely empty

180. **Three long straight wires A, B and C are carrying current as shown in figure. The resultant force on B is directed:**



(1) Towards A　　(2) Towards C

(3) Remains stationary　　(4) None of these

181. **Light of wavelength 2λ falls on a metal having work function hc/λ_o. Photoelectric effect can take place only if**

(1) $\lambda > \lambda_o$　　(2) $\lambda > 2\lambda_0$

(3) $\lambda \leq \lambda_o$　　(4) Both (1) and (2).

182. **For electron revolving in a orbit of an atom is :**

(1) K = E　　(2) K = –U

(3) U = 2E　　(4) None of these

183. **What is the shortest wavelength present in the Paschen series of spectral lines :**

(1) 1216 Å　　(2) 911 Å

(3) 8200 Å　　(4) 3646 Å

184. **Two coils of self inductance L_1 and L_2 are placed so close together that effective flux in one coil is completely linked with other. If M is mutual inductance between them, M = :**

(1) L_1L_2　　(2) L_1/L_2

(3) $(L_1L_2)^2$　　(4) $\sqrt{L_1L_2}$

185. **When the current change from +2A to 0 in 0.05 second, an e.m.f. of 8V is induced in the coil. The coefficient of self induction of the coil is :**

(1) 0.1 H　　(2) 0.2 H

(3) 0.4 H　　(4) 0.8 H

Section- B

186. **Assertion: For steady state during heat conduction across a uniform rod temperature gradient is same for all points.**

Reason: Thermal current decreases as we move across rod from higher temperature to lower temperature.

(1) If both assertion and reason are true and the reason is the correct explanation of the assertion

(2) If both assertion and reason are true but reason is not the correct explanation of the assertion

(3) If assertion is true but reason is false

(4) It the assertion and reason both are false

187. **In an AC circuit, the instantaneous value of e.m.f and current are $e = 200 \sin 314\,t$ volt and $i = \sin\left(314t + \frac{\pi}{3}\right)$ ampere. The average power consumed in watt is:**

(1) 200 (2) 100

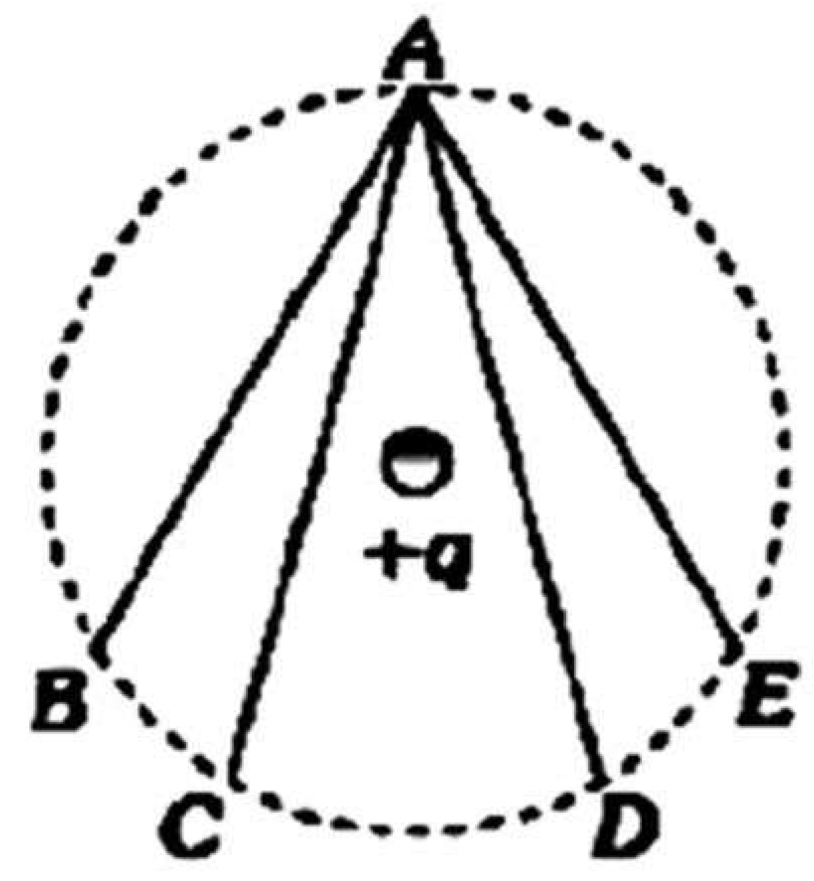
(3) 50 (4) 25

188. **A parallel plate capacitor with plate area A and separation between the plates d, is charged by a constant current 'I'. Consider a plane surface of area A/2 parallel to the plates and drawn between the plates. The displacement current through the area is :**

(1) I (2) I/2

(3) I/4 (4) I/8

189. **In the electric field of a point charge q, a certain charge is carried from A to C, A to D and A to E. A,B,C,D,E are on the circle with center at point +q. Then the work done :**



(1) Is least along the path AB

(2) Is least along the path AD

(3) Is zero along all the paths AB, AC, AD and AE

(4) Is least along AE

190. **Which of the following will experience a force due to uniform magnetic field :**

(1) an iron rod

(2) current carrying coil

(3) static charge

(4) a conductor carrying current.

191. **The ratio of the radii of the nuclei ${}_{13}Al^{27}$ and ${}_{52}Te^{125}$ is approximately:**

(1) 3 : 5 (2) 13 : 52

(3) 40 : 177 (4) 14 : 73

192. **64 charged drops coalesce to form a bigger charged drop. The potential of bigger drop will be n times that of smaller drops then n is :**

(1) 4 (2) 16 (3) 64 (4) 8

193. **Two positive ions, each carrying a charge q, are separated by a distance d. If F is the force of repulsion between the ions, the number of electrons missing from each ion will be : (e being the charge on an electron)**

(1) $\frac{4\pi\varepsilon_0 Fd^2}{e^2}$ (2) $\sqrt{\frac{4\pi\varepsilon_0 Fe^2}{d^2}}$

(3) $\sqrt{\frac{4\pi\varepsilon_0 Fd^2}{e^2}}$ (4) $\frac{4\pi\varepsilon_0 Fd^2}{q^2}$

194. **The time of revolution of an electron around a nucleus of charge Ze in nth Bohr's orbit is directly proportional to:**

(1) n (2) n^3/Z^2 (3) n^2/Z (4) Z/n

195. **A hole in a p-type semiconductor is :**

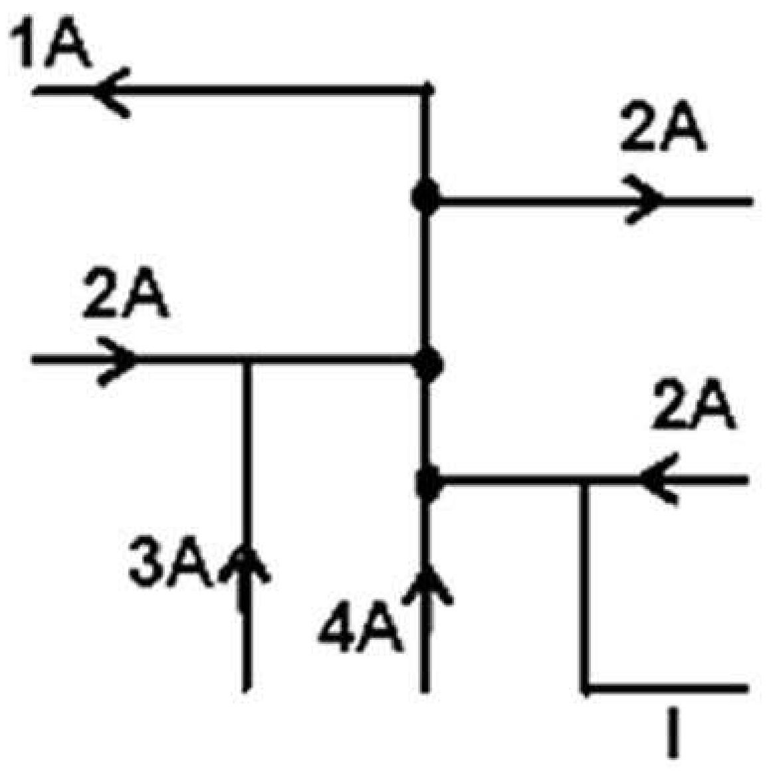
(1) An excess electron

(2) A missing electron

(3) A missing atom

(4) A donor level.

196. **The magnitude and direction of current I (in A) indicated in the following circuit is :**



(1) 14 → (2) 8 →

(3) ← 4 (4) ← 8

197. **Match of the column A and B :**

	A		**B**
i.	**Intensity of Magnetisation**	a.	$\frac{\overline{M}}{\overline{H}}$
ii.	**Magnetic field in material**	b.	$\frac{\text{magnetic moment}}{\text{volume}}$
iii.	**Magnetic susceptibility**	c.	$\frac{B}{\mu_0 H}$
iv.	**Relative magnetic permeability**	d.	$\mu_0(\overline{H}+\overline{M})$

(1) i-b, ii-d, iii-c, iv-a
(2) i-b, ii-d, iii-a, iv-c
(3) i-b, ii-a, iii-d, iv-c
(4) i-a, ii-b, iii-d, iv-c

198. **Which of the following phenomena exhibits particle or quantum nature of light :**

(1) Interference
(2) Diffraction
(3) Polarisation
(4) Photoelectric effect

199. **According to Faraday's law of electromagentic induction.**

(1) The direction of induced current is such that it opposes the cause producing it
(2) The magnitude of induced e.m.f. produced in a coil is directly proportional to the rate of change of magnetic flux
(3) The direction of induced e.m.f. is such that is opposes the cause producing it
(4) None of the above

200. **When green light is incident on the surface of metal, it emits photo-electrons but there is no such emission with yellow colour light. Which one of the colour can produce emission of photo-electrons**

(1) Orange
(2) Red
(3) Indigo
(4) None of these

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

ANSWER KEY (SET - A)

Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.	Q. No.	Ans.
1	D	41	D	81	A	121	A	161	A
2	B	42	D	82	B	122	D	162	B
3	B	43	B	83	C	123	A	163	A
4	A	44	B	84	B	124	C	164	D
5	D	45	B	85	D	125	C	165	A
6	B	46	B	86	C	126	C	166	A
7	C	47	D	87	A	127	D	167	B
8	D	48	B	88	B	128	D	168	B
9	A	49	B	89	D	129	D	169	A
10	A	50	B	90	B	130	C	170	A
11	A	51	B	91	D	131	B	171	C
12	D	52	C	92	A	132	D	172	C
13	C	53	C	93	A	133	B	173	B
14	C	54	C	94	A	134	B	174	D
15	D	55	A	95	D	135	C	175	A
16	D	56	A	96	B	136	C	176	B
17	B	57	C	97	A	137	D	177	B
18	C	58	B	98	C	138	D	178	D
19	A	59	A	99	C	139	D	179	A
20	C	60	C	100	A	140	C	180	A
21	C	61	A	101	D	141	B	181	C
22	A	62	B	102	C	142	A	182	C
23	A	63	C	103	B	143	A	183	C
24	C	64	A	104	B	144	B	184	D
25	D	65	B	105	C	145	C	185	B
26	B	66	C	106	C	146	D	186	C
27	D	67	A	107	B	147	C	187	C
28	B	68	B	108	B	148	A	188	B
29	B	69	A	109	A	149	C	189	C
30	B	70	C	110	D	150	C	190	D
31	C	71	C	111	C	151	C	191	A
32	B	72	D	112	B	152	A	192	B
33	B	73	C	113	C	153	C	193	C
34	B	74	C	114	C	154	D	194	B
35	A	75	B	115	C	155	A	195	B
36	B	76	D	116	D	156	D	196	B
37	B	77	A	117	B	157	C	197	B
38	B	78	B	118	B	158	A	198	D
39	C	79	B	119	B	159	C	199	B
40	B	80	A	120	A	160	B	200	C